

ATAR AIT UNIT 3-4 MOCK/WACE REVISION

(Wallahi Scaling will murder us)

AIT NOTES

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UNIT 3

Evolving digital technologies

This unit focuses on the use of applications to create, modify, manipulate, use and/or manage technologies. Students consider the nature and impact of technological change and the effect this has when creating products for a particular purpose and audience.

PROJECT MANAGEMENT

PROJECT MANAGEMENT APPROACHES

STRUCTURED/WATERFALL

- Involves a highly organised and ordered procedure in order to generate a product.
- Generally has 5 steps
 - Investigation/conceptualisation
 - planning/design
 - specification
 - construction
 - Evaluate/Review (can involve maintenance)
- The product is evaluated after the design phase and return to investigation or design

PROS

- Less time and energy wasted on making sure requirements and designs are correct as everything is planned in advance
- Emphasis placed on documentation so new team members can familiarise themselves faster and in cases of recovery
- Linear progression = more simple

CONS

- Does not respond well to rapidly changing requirements
- Unawareness of future implementation difficulties
- The plan must be reconstructed if new parameters are to be accounted for

PROTOTYPE

- Involves creating semi-functional samples of the product(prototype and making structured refinements to the prototype.
- Values innovation and Creation over strict timeframes that restrict members

PROS

- Not restricted by issues such as conservative thinking & financial constraints
- Human resources used more efficiently. Workers spend more time in the area they specialise in
- Allows for “out of the box thinking”
- More engagement on the project by the workers

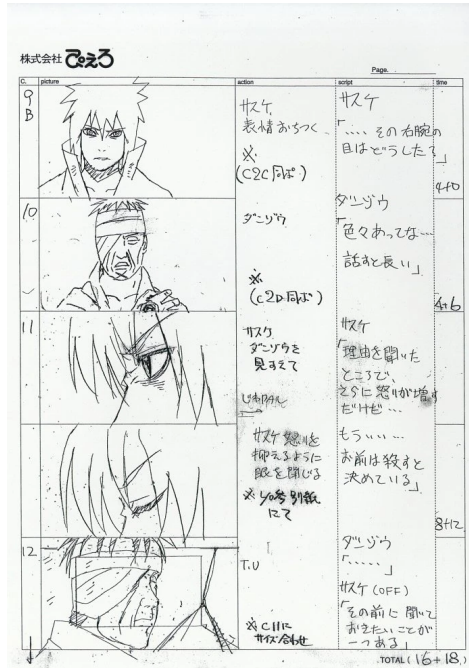
CONS

- Can waste resources & time
- Too much energy can be invested on a component of the product that does not warrant it
- Can morph into a project that is not what was originally intended.

PROJECT PLANNING TOOLS

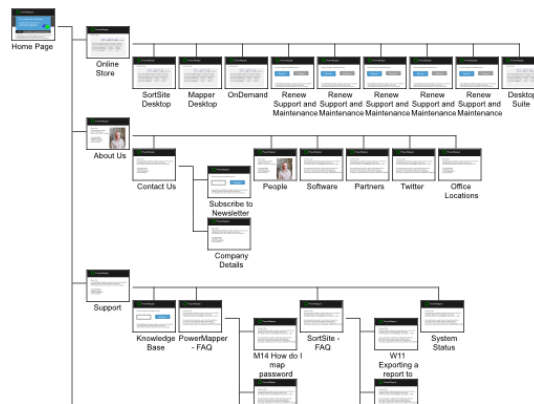
STORYBOARDS

- Ordered panels containing annotated sketches with explanatory notes that describe the structure/storyline of a visualised product
 - More important the storyline/scene, more panels devoted to it
 - Great for explaining the plot for videos (movies, TV Shows, Videos advertisements)



SITE/NAVIGATION MAPS

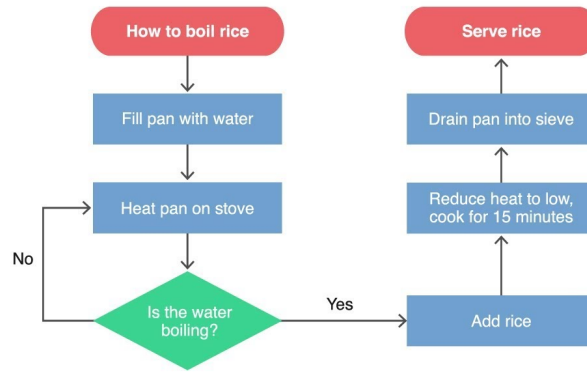
- A list of pages of a website accessible to users
- It can be either a document in any form used as a planning tool for web design, or a web page that lists the pages on a website, typically organised in hierarchical fashion.
- This helps visitors and search engine bots find pages on the site



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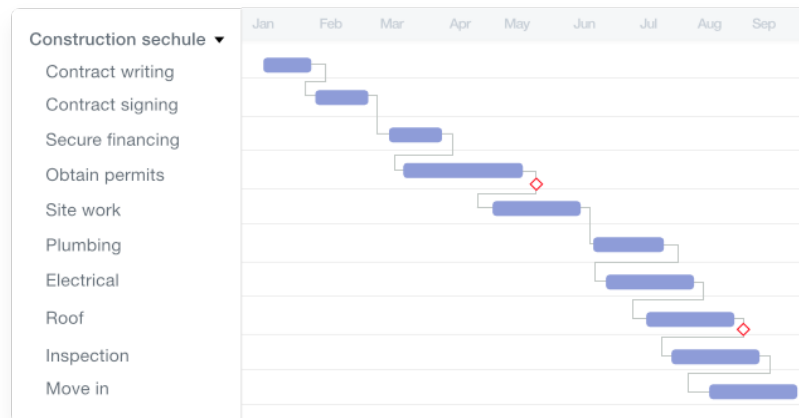
FLOW CHARTS

- Shows the structure and makeup of a planned website
- They are useful for giving a broad overview of a website's content as well as for sketching out how the content may be navigated by user



GANTT CHARTS

- A Gantt Chart is a timeline that is used as a project planning tool to illustrate how the project will run individual tasks, overall timelines and resource allocations can all be viewed in a Gantt Chart



UNIT 3

PROJECT PLANNING SOFTWARE

- Assist project managers and their team manage tasks and track them defining tasks, assigning them, setting deadlines and receive alerts when tasks are overdue or completed
- 2 popular products are Microsoft Project and Smartsheet.com

APPEARANCE/CONSIDERATIONS FOR A DIGITAL PRODUCT/SOLUTION

STRUCTURE

- Defines physical arrangement of various items within a solution.
- Often designed using Sitemap or Network

USABILITY

- Degree of ease that products/applications/solution can be utilised to meet the user goals as efficiently as possible.
- Assesses level of difficulty involved in using a UI

ACCESSIBILITY

- Making a digital product/solution that is able to be utilised by people with disabilities.
 - Requires the addition of features by the _ impaired

USER EXPERIENCE (UX)

- Process of enhancing customer satisfaction and loyalty by improving the usability, ease of use and pleasure provided in the interaction between the customer and product

USER EXPERIENCE (UI)

- The user interface is the way humans interact or engage with a computing device, handheld, laptop or desktop

APPLICATION SKILLS

EDITING APPLICATION FEATURES

MULTILAYER TRACK EDITING

- Edit files using multiple tracks upon which content can be placed, enabling multiple tracks upon which content can be placed enabling multiple videos or sounds to be visible/audible at the same time

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AUDIO/VISUAL EFFECTS

- Effects allow for a mood or tone to be created/set
- Effects manipulate the original content allowing for increased quality of the final product
- Visual effects can include
 - CGI
 - Bullet Time
 - Motion Control
- Audio effects can include
 - Reverbs
 - Delays
 - Distortion

DESIGN CONCEPTS

RELATIONSHIP(S) BETWEEN THE ELEMENTS & PRINCIPLES OF DESIGN

<u>Elements</u>	<u>Principles</u>
Colour	Balance
Shape	Emphasis
Line	Dominance
Texture	Unity
3D form	Pattern
Tone	Movement
Space	Alignment

ELEMENTS

- The fundamental aspects of any visual design
- What is put on the page(physical additions)
- Can alter the message delivered in the design

PRINCIPLES

- The concepts that are constructed from the elements of design
- When put together, the design elements are the building blocks for the design principles
- both provide basic structure for the product

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GRAPHICAL USER INTERFACE (GUI) SUITABLE FOR TARGET AUDIENCE

- The graphical user interface is a form of UI that allows for users to interact with others with electronic devices
- This is done through the use of displayed menus, groups of icons, graphical features and audio indicators
- Must be suitable for the target audience you want your digital product to apply to
- Must have a logical and hierarchical organisation of content
- An example of a graphical user interface is the home screen of Microsoft Windows which gives the users an array of graphical indicators that they can interact with

RELEVANT HELP FEATURES OF A GUI

USABILITY

- The degree to which a digital product allows users to achieve specific goals with effectiveness, efficiency and satisfaction,
- Making the UI simple to use through better design choices
- Clear simple design structure, simple navigation
- consistency

INCLUSIVITY

- The ability for all to access digital technologies regardless of social, economic, medical or geographical circumstance.
- Provide tools for different cultures or languages such as language filters
- Use gender neutral colours
- Avoid using religious symbols or anything people of a certain religion find offensive

ACCESSIBILITY

- Making a digital product/solution that is able to be utilised by people with disabilities.
- Accessibility is a subset of inclusivity. It is specifically assisting those with disabilities to access technology
- Text alternatives for non text content such as ALT text
- Content that can be presented on different devices
- Ways to help navigate and find content
- Text to speech
- Colour blind filters

LOGICAL AND HIERARCHICAL ORGANISATION OF CONTENT

- It is important to arrange content logically when creating a digital product or solution
 - Users expect to have the ability to pick and choose the content they see
 - Frustration and disengagement will arise if the user is presented with content they don't find relevant
- Designers implement a hierarchical organisation method in which content is broken up into progressively more detailed categories
- Network maps commonly used for this process
- One. Define a clear information structure. Use the target audience characteristics to determine what structure appeals to them
- Two: Start with critical content placing the most critical content on the landing page, for example
- Three: Group related content. This allows for users to find content that is grouped in a logical way

UNIT 3

ONLINE SOFTWARE TOOLS

- online software tools = software you can use directly connected to the internet and working from the internet
- Can be seen as “web applications”
- Examples: Google Docs, Zoom, Microsoft teams etc

PROS

- workers can work anywhere a internet connection is available
- Online versions are able to be used anywhere and on a variety of devices
- no need to download and install any software
- no need for maintenance of the software on your local machine, upgrades etc
- The need to pay large upfront costs to use software is no longer an issue
- collaboration with fellow workers, clients, friends, now global, using online communication software is possible

CONS

- poor internet connectivity will stop online work
- some online software doesn't have the same features as the locally installed software
- product quality may be inferior because the online software was developed by a one-man operation
- product may be insecure and lead to privacy issues.

PUBLISHING FEATURES

COLOUR SCHEMES

HUE:

- Another word for colour
- Colour value
 - Term for how light or dark a a colour is (white to black)
- Colour Saturation
 - Saturation is about intensity
 - Highly saturated colours = Bright
 - Desaturated = less pigment
 - Tint: A colour mixed with white
 - Tone: A colour mixed grey
 - Shade: A colour mixed with black

SCHEMES:

- Logical combinations of colours on the colour wheel
- Purpose of a colour scheme is to create aesthetic feel of style + appeal
- Typically, publishing software provides pre-built colour schemes so inexperienced designers can select colour schemes that are attractive based on colour theory.
- It is possible for user to create and save their own colour schemes

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TYPES OF COLOUR SCHEMES

ACHROMATIC SCHEME:

- Black on white colour schemes
 - Default colour for a web page
- White on black achromatic scheme preferred for smaller devices
 - White on black requires less energy



MONOCHROMATIC SCHEME:

- Mono = ONE
- Easy to create as they only use one colour
- Use differing tones from the same angle on colour wheel (same hue)



ANALOGOUS SCHEME:

- Easy to create
- Created by using colours that are next to each other on the colour wheel



COMPLEMENTARY SCHEME:

- Created through combining colours from opposite sides of the colour wheel



TRIADIC SCHEME:

- Made up of 3 hues equally spaced around the colour wheel
- Tri = THREE



LAYERS

- Layers are editable regions placed over (or under) other layers
- This allows editing to be done on individual layers without affecting other layers.
- This is used in video and image editing applications

FRAMES

- Frames are regions within a digital product's interface that are independent to other areas or frames
- content can be added or edited in a part of a page without changing other areas.
- Used in web page design
- A storyboard could be a type of frame (or a template)

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TYPOGRAPHY

TYPEFACE

- The actual shape of letters used to create text
- Many people confuse the term font for typeface
- Font includes typeface, colour, size, bold/italic options etc.

TEXT SIZE

- Text size is measured in points
- When digital products are created, the text size is often related to the resolution of the image, rather than the perceived visual size
- This must be taken into account during construction

ALIGNMENT

- identifies the position of text on a line, good alignment can make a text easier and more pleasant to read

TEXT FORMAT

- refers to the various visual adjustments that may be made to text in a design
- includes typeface, text size, text, colour, text spacing, text alignment, bold, italic, underscore, subscript, superscript – basically any options that is available in the font/character editing menu

TEXT SPACING

- The use of the element space in relation to text elements
- includes space between letters (kerning and tracing) space between lines (leading)

COMPOSITIONAL RULES

READING GRAVITY

- refers to the tendency of Western writing to cause the reader's eye to scan from the top left corner of the page to the bottom right corner.
 - According to this compositional rule, the most important information should be placed upon this diagonal, starting with the most important information at the top left, moving towards the least important on the bottom right.
- The top right and bottom left corners are considered to be "dead areas" and should not be used to hold important content (according to this rule)

RULE OF THIRDS

- The rule of thirds developed from photographic composition.
- According to this rule, the image should be divided into thirds, both horizontally and vertically
- Important information should be placed upon the lines separating these thirds .
- Areas where two third-lines cross are considered to be especially powerful.

FORM OF CONTENT

- In design the two terms form and content relate to the two main aspects of a design

FORM – the form is also known as the style or the appearance, it describes the way a design looks. Assessing form involves consideration of Elements and Principles along with any other design considerations

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CONTENT – is the actual copy that is included in the design. What does the design contain?
Content is the information without consideration of any stylistic elements.

- Form of content is a concept that considers the form in which the content is displayed in a design. Is the form appropriate to the content? Does the form detract from any aspect of the content?
 - Whatever you have, presented appropriately

GRID AND ALIGNMENT

- describes the practice of mapping designs with reference to a strict, invisible grid structure
- This technique is used to generate formal, businesslike designs with a high degree of structure.
- Alignment refers to the practice of lining things up in a design. Obviously gridding a design will involve alignment, but alignment allows for a varying level of structure to be used in a design.
- Grid can be fluid, allowing for easy resizing on devices with different sizes

TEMPLATE

- Templates show us a pre-planned area for us to work with.
- We can make our own templates for future use, or get them from others
- Increases productivity due to time saved by employee/s not having to create another document enables consistency in layout of docs used by employee/s
- Easy and quick way to begin development process
- Limit developers because they are written in complex ways making them difficult to modify
- Facilitates further efficiency as less errors/editing requirements when text not constantly created facilitates savings in terms of time and cost, no repetition

PRINT/DISPLAY OPTION

- To publish, is to make the final product with your work
- What does that final product look like?
 - Is it a Website?
 - Is it a poster for a sports carnival?
 - Is it a brochure?
- Printing to hard copy or displaying on a screen are some of the choices that have to be made when creating a digital product or solution

RGB

- RGB = Red Green Blue,
- refers to a system for representing the colours to be used for screen media
- Commonly used with JPG, PSD, PNG, GIF

CMYK

- CMYK - Cyan Magenta Yellow key
- Refers to a system for representing the colours to be used for image media
- Commonly used with PDF AI EPS

CMYK Model. RGB is an additive colour model, while CMYK is subtractive. RGB uses white as a combination of all primary colours and black as the absence of light. CMYK, on the other hand, uses white as the natural colour of the print background and black as a combination of colored inks

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DIGITAL PUBLICATIONS

- Digital publications are usually branded by a company
- Delivers content
- Styles are unique to a specific brand
- Used by many programs for mobile devices

ePub (.epub)

- ePub (short for electronic publication) is a group of files zipped together into a publication that contains embedded metadata
- It can optimise text for a particular display type
- can be opened by iPhones, android, iPads,
- can have digital rights management inbuilt into the file, good for copyright

pdf (.pdf)

- pdf (short for portable document format)
- much software can save as pdf. For example MS word, Pages, Excel, inDesign,
- Pdf documents are difficult to modify allowing for information to be unchanged
- Most applications can open pdf files

indd

- is an Adobe inDesign document commonly used for digital publications
- commonly used to make brochures, school yearbooks, posters
- brings together images and text to make digital solutions for web or print
- exports easily to normal pdf, interactive pdf, ePub, flash, HTML, shockwave

ADVANTAGES AND DISADVANTAGES

ePub (electronic publication)

PROS

- ePub is delivered as one zipped file
- when opened on small devices are easy to unpack and easy to layout on the screen
- Very user friendly and can be opened easily on many devices.
- Not owned by a large corporation, therefore large market

CONS

- Creating or making an ePub document is not easy to do.
- Creating the zip archive for publishing is also difficult

PDF (portable document format)

PROS

- Can be opened by most computers.
- Gives you control over the layout and fonts.
- They can be made by many different pieces of software. Word, Excel, Powerpoint., Pages and lots more
- It used to be safe as it was difficult to modify. ie your document couldn't be changed.
- Easy to attach to email and upload to websites without trouble.

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CONS

- PDFs can sometimes not display correctly on smaller screens such as smartphones
- It is not free to edit PDFs. You need to buy software to do this.
- Editing PDFs is not easy. It is much easier to edit a word or pages document

INDD (indesign document)

PROS

- Easy to export to a variety of formats, especially PDF for printing
- Very powerful package that can make a single A1 size page to print for a large poster, or can make a 1000 page book
- You can modify image sizes within inDesign.

CONS

- It is expensive.
- Can be a bit difficult to learn at first.

HARDWARE

SPECIFICATIONS OF DIGITAL DEVICES AND THEIR IMPACT UPON USABILITY

SPECIFICATIONS

- Values used to identify a devices capability
- Broad term but can be narrowly grouped
- A devices Specs should be matched to the task the individual requires the device to do
 - Exceeding required specifications = increased cost without realising any value
 - Undervaluing Specifications = device will be less likely to efficiently complete tasks
- Different tasks require different specifications
 - E.g Gaming devices stress all areas of a system so buying high quality specifications will provide better performance while gaming

IMPACT ON USABILITY

- Computer specs will have an impact on the usability of a system for certain tasks
- Stress is placed on software + hardware components
- Some tasks require improved specifications within several areas

CHARACTERISTICS OF DEVELOPMENT TRENDS IN EMERGING MOBILE DEVICES

How Mobile devices are changing right now and in the future.

Traditionally , development trends would be based around the upgrading of specification based areas for example

- Graphics
- Primary and secondary memory
- CPU Power

Now, Trends are deviating from what is considered traditional such as

- The use of biometrics
- Number of cameras on a phone

SUITABILITY OF EMERGING MOBILE DEVICES TO MEET USER NEEDS

- Devices vary based on how suited they are in accordance to what clients need them to do
 - E.g. There is no reason to have a powerful cpu in a devices if the client prioritises Primary memory
- There is an aspect by which the client uses their device depending on how capable that device is at completing certain tasks

USABILITY OF DIGITAL DEVICES FOR SPECIFIED CLIENT REQUIREMENTS

- Usability: degree of ease with which digital products can be used to achieve the client's goals in an effective and efficient manner.

IMPACTS OF TECHNOLOGY

IMPACT OF CONVERGENCE TRENDS IN CONTEMPORARY DIGITAL TECHNOLOGIES

CONVERGENCE

- the process by which existing technology merges into new forms that bring together different types of media and applications
- Convergence trends have significantly impacted how people interact with technology and the world around them

EXAMPLE: The Smart Phone

- Mobile phone with an advanced operating system combining features of a pc operating system with other useful features intended for hand held use
- Typically combine the features of a cell phone with those of other popular mobile devices, such as personal digital assistant (PDA), media player and GPS navigation unit.
- Most smartphones can access the Internet, have a touchscreen user interface, with either an LCD, OLED, AMOLED, LED or similar screen, can run third-party apps, music players and are camera phones.

EXAMPLE: Near Field Communication technology

- The NFC chip uses wireless technology over short distances
- to connect with reader devices to authorise the payment requested by the phone/watch or credit card

IMPACTS OF CONVERGENCE ON SOCIETY

- An increase in the prices price of products
- Increased complexity to use
- The need for an internet connection
- Etc.

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THE CONCEPT OF INTELLECTUAL PROPERTY (IP)

- Intellectual property or IP is property of your mind and or proprietary knowledge
- It is an original idea of any form.
- It can be
- Invention, Trademark, design, brand
- A new idea
- A secret recipe

PURPOSE OF IP IN AUSTRALIA IN RELATION TO COPYRIGHT AND/OR DESIGN OF DIGITAL PRODUCTS

- IP legislation intends to protect the originator of an idea from exploitation

LEGAL PROTECTIONS IN PLACE FOR IP

- PATENTS

- Protects inventions and new processes

- TRADEMARKS

- Protects Logos, words, letters, numbers, colours, phrases, sounds, scents, shapes, pictures, aspects of packaging or branding - or any combination of these.
- Trademarks identify the particular goods or services of a trader as distinct from those of other traders.

- COPYRIGHT

- Copyright protects drawings, art, literature, music, film, broadcasts, computer programs.
- The owner's original expression of ideas is protected, but not the ideas themselves.

- REGISTERED DESIGNS

- Protects the visual appearance of a product is protected, but not the way it works

- OTHER

- (Trade Secrets)
- Protects any confidential information, including secret formulas, processes, and methods used in production
- Circuit Layouts
- Protects layout designs or plans of integrated circuits used in computer-generated designs
-

THE CONCEPT OF ONLINE DEFAMATION IN AUSTRALIA

- Defamation is when words have been spoken or written which harm your reputation.
- It is difficult to define and increasingly difficult to police defamation in an online context.

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- Traditional defamation cases can be problematic due to the fact that they're based in the understanding that the originator of the false information is easily identifiable, however with the ease of being anonymous, this is difficult in the online world

LEGAL ACTION AVAILABLE IN AUSTRALIA TO COUNTERACT ONLINE DEFAMATION

- In Australian law, there is no specific legislation for online defamation
- Traditional legal constructs such as General defamation, libel and slander must be used
- Online defamation cases can be taken to the Civil Court for Defamation

DEFENCES FOR DEFAMATION

- if the comments are shown to be substantially true.
- if the comments were made or published under some form of **legal privilege**.
- if the publication involves fair reporting about proceedings of public concern or from documents that are already publicly available.
- if the publication is partly protected by privilege, such as making reasonable comments about work performance to a potential employer as a referee.

WHAT TO DO IF BEING HARASSED OR DEFAMED ONLINE

- ask the person to remove the comments or information you do not like. If they refuse, contact the site administrator and ask them to remove the information, or
- tell a teacher, the principal or your school counsellor if you are a school student and the person who made the comments is also at your school. They may be able to help have the information removed.

THE CONCEPT OF FREEDOM OF INFORMATION IN AUSTRALIA

- The Freedom of Information Act 1982 gives you the right to request access to government-held information. This includes information they hold about you or about government policies and decisions.
- The FOI Act recognises that the information government holds is a national resource and is managed for public purposes, and that public access to it should be prompt and at the lowest reasonable cost.

KEY PROVISIONS OF FOI IN RELATION TO DIGITAL PRODUCTS

- The FOI act of 1982 gives the individual the right to request access to government documents
- Most of the time, access is requested as some government documents contain information about the person requesting access
- Access can also be requested on the basis that the document contains information on
 - a policy-making document
 - an administrative decision-making document
 - A government program

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WHAT YOU CAN'T ACCESS UNDER FOI

- You can't access a document an Australian Government agency or minister holds that is:
 - Exempt under the FOI Act
 - Conditionally exempt under the FOI Act
 - Accessible to the public under other arrangements for a fee

ADVANTAGES, DISADVANTAGES & IMPLICATIONS OF VIRTUAL AND PHYSICAL COLLABORATION

- Collaboration : The action of working with someone or a group to accomplish something.
- Collaboration can happen physically (face to face collaboration) or virtually (collaboration through the use of digital resources)

PHYSICAL COLLABORATION

PROS

- Reliable
- Unlikely to cause misunderstanding

CONS

- Costly (fuel prices, public transport, airfares, travel time)
- Impacts aspects of the collaborators' work

VIRTUAL COLLABORATION

PROS

- Cheap
- Travel is not required.
- Workflow is not disrupted

CONS

- Significant ICT infrastructure required
- Insufficient information can cause misunderstanding
- Affected by network connection

UNIT 4

Digital technologies within a global society

This unit focuses on the production of a digital solution for a particular client. Students undertake the management of data and develop an appreciation of the social, ethical and legal impacts of digital technologies within a global community.

UNIT 4

IMPACTS OF TECHNOLOGY **PURPOSE OF A CODE OF CONDUCT**

- A code of conduct is a written document that is used to define acceptable standards and behaviours for employees

ELEMENTS OF A CODE OF CONDUCT

WORK HOURS

- Codes of conduct will add further details about employee hour flexibility especially when the employee has control over the hour they work

EMPLOYEE PRIVACY

- Codes of conduct will be used to define or modify an employee's right to certain kinds of privacy for example, using a code of conduct an employer can mandate the right to publish the employee's name on the company website
- There are certain grey areas with this concept though, for example, an employer is not permitted to require you to divulge certain information in the conduct of your job
 - The Equal Opportunities act protects your right to keep race, religion, marital status, sexual orientation and a whole bunch of other stuff private , so there is an argument that a code of conduct cannot modify these rights to privacy.
- A code of conduct might also define an employee's responsibility to protect the privacy of their fellow employees

WORK EMAILS

- Reasonable limits on how many non-work emails are sent each day
- There are restrictions on the use of company emails for
 - Personal use
 - Non- business related purposes
 - Offensive content

EMPLOYEE INTERNET ACCESS AND COMPUTER USE

- Employers are interested in ensuring that the money they spend on providing Internet access to their employees is not wasted
- Codes of Conduct will restrict such activities as:
 - Online Shopping
 - Social Media
 - Offensive Actions
 - Accessing objectionable content
 - Taking actions that might bring the company into disrepute
- Employees can be sanctioned for using the Internet wrongly

UNIT 4

EMPLOYER MONITORING OF WORK EMAILS, INTERNET ACCESS AND COMPUTER USE

- Codes of Conduct often clarify an employee's right to monitor Internet and email usage.
- Since the employer "owns" the bandwidth that is being used, they have the right to ensure that the employee is using it appropriately
- Employers usually log access and track the use employees make of these services.

ONLINE CENSORSHIP IN A GLOBAL CONTEXT

- When we consider a global network such as the Internet, access to offensive content can become a real problem
 - It is possible for offensive or illegal content to be stored on servers anywhere in the World, the purveyors of such content simply need to find a jurisdiction where the content they are providing isn't illegal and they can keep their sites running for years
- Take the example of pirated software, although this practice is illegal in many jurisdictions, sites exist because they have been able to distribute their servers on a global scale, making use of countries who have more relaxed content protection laws to host the sites
- ISPs are the only ones able to effectively limit user access to certain sites

VPN's

- Users set up a private encrypted connection between their location and a third-party internet provider
- the connection hides your identity from others and you can then access sites that may have been prohibited.
- When you connect to a VPN, you are trusting the third-party provider to secure your personal information unscrupulous VPN providers may on-sell your data without your permission

CLOUD COMPUTING

- Refers to using online resources to complete tasks completed by a standalone computer
- storing data in the cloud requires 3 things.
 - an internet connection
 - a username and password
 - accepting a user agreement
- Cloud computing outsources the provision of hardware + software often enabling users to undertake tasks that would be too expensive or complex

advantages

- no need to buy the software
- can be used from any device with an internet connection
- compatible with most devices and operating systems
- updates transfer automatically across devices eg calendar, email, notes, messages

disadvantages

- security problems
- privacy issues
- ownership of your data
- Cloud computing works by a company setting up a website, people registering and logging in to that website and then people saving data into or out of that website.

UNIT 4

Types of Cloud computing

SaaS (software -as-a-service)

- Delivers applications and end user tools

PaaS (Platform-as-a-Service)

- Provides pre built tech frameworks including operating

IaaS (Infrastructure-as-a-Service)

- Provides remote storage and network resources

Advantages for Business

- Anywhere, anytime access
- Reduced hardware & software costs
- Reduced Costs for technical support
- Less physical space required to store software
- Easy to expand/scale resources

Disadvantages for Business

- Data security
- Data Privacy
- Data Ownership
- Downtime/outages reduce productivity
- Lack of Control/ Flexibility

ISSUES WITH THE USE OF CLOUD COMPUTING

CONFIDENTIALITY OF DATA

- Cloud services store your data on hardware that is not yours
- The service provider could have access to your data without you knowing
- Users will avoid putting highly sensitive data into cloud services for this reason\

SENSITIVITY OF DOCUMENTS

- Data stored in the cloud is important.
- Some are more important than others.
- The more sensitive the document, the more care needs to be taken to keep it safe.
- If sensitive data is not kept safe it can be stolen and used by malicious people
- The data is stored in an offsite location that is managed by third parties and therefore, some of the control of the data is passed from the individual/ business to the third party and the data can be accessed via the internet, which is open to any other third parties.

LEVEL OF ACCESSIBILITY

- Cloud computing migrates your usage of ICT resources to the internet
- A reliable and fast internet connection is required
 - Losing connection to the internet will mean you don't have access to the data that you have stored on the cloud

UNIT 4

AVAILABILITY OF ONLINE APPLICATIONS

- Cloud computing is highly available
- Your data is available on the cloud 24 hours a day, 7 days a week, 365 days a year in the world from any any device
- Most cloud services are accessible from an internet browser. No proprietary app is needed to access data

IMPACT OF TECHNOLOGIES OF DIGITAL TECH AND GLOBAL MARKETS ON...

PRODUCTIVITY

- Most employees are now capable of producing many times the amount of work than they could using traditional methods

ACCESS TO KNOWLEDGE OR RESOURCES

- Easy and cheap access to knowledge, skills and resources can now be possible through networks provided by online services, cloud resourcing and outsourcing

OUTSOURCING

- Outsourcing: the practice of using employees from outside your company to complete a task that you can't do or are not effective at completing
 - Outsourcing is used to access experience that isn't present in the current workforce or to gain access to labour at much cheaper price

IMPACT OF WEB 2.0/3.0 ON THE USE OF DIGITAL TECHNOLOGIES

- The World Wide Web was a network that allowed specialised Web Developers to create media rich pages by writing HTML
 - the luxury of publishing content on the Web was reserved to those who had the skill to create web pages
 - The Web was static and contained little user generated content (content that wasn't produced by the developer of the website)

WEB 2.0

- The general public (who are the creators of User Generated Content) have become far more responsible for the actual content we see on the Web and Developers have become the curators and publishers of that content
- Created an advanced communication platform that can be used publicly and privately
- Allows for people to get better access to information than what they can get physically

WEB 3.0

- Better personalisation in regards to how an individual uses the internet
- Allows for people with similar interests to connect and work together much easier than they could with web 2.0

UNIT 4

EXAMPLE:GOOGLE MAPS NAVIGATION SYSTEM

- Any user who uses Google Maps to navigate, provides data back to Google about their journey without even knowing it.
- Google processes this data in real time to improve efficiency of navigation data for all users. for example. if 25% of vehicles are navigating with Google Maps, Google will identify the reduction in speed that occurs when traffic congestion occurs. This information will be correlated with information Google has gained from open web apps such as Main Roads, WAPOL and any car manufacturers to re plan a user's journey in real time and recommend an alternate route. The system is also capable of displaying an estimate of how long the delay will be and your expected arrival time all through the processing of masses of data coming from a multitude of sources.

MANAGING DATA

CONCEPT OF USER GENERATED CONTENT

- Any form of content and media that was created by users of an online system or service, The users who provide the content populate web pages
- UGC is often made available via social media websites.

- It is used for a wide range of applications, including problem processing, news, gossip and research and reflects the expansion of media Production through new technologies that are accessible and affordable To the general public.

ADVANTAGES

- Voice
- Displays upcoming trends
- Simple
- Can be used as a marketing strategy
- Easily accessible

DISADVANTAGES

- Bias
- Lack of moderation
- Ownership
- Credibility

CONCEPT OF HYPERTEXT MARKUP LANGUAGE (.htm/html)

- Hypertext Mark-up Language (HTML) is the coded language that is used to author websites
- HTML consists of tags Tags are surrounded by brackets that consist of greater than and less than signs (<>)
 - these tags are used to describe the layout of a website and the arrangement of the various elements within the website
- HTML files are text files consisting of the various tags, arranged in a strict pattern The browser can interpret the codes within the HTML file and use the information gained to gather the resources required and construct a copy of the webpage on your screen in real time

UNIT 4

CONCEPT OF WEB 2.0 AND WEB 3.0

WEB 2.0

- User generated content that makes up most of the World Wide Web
- Describes changes to the internet that affect us the most today

EXAMPLE YOUTUBE

- website, created by developers who have written all the code that is used for YouTube to be viewed by its audience.
- Most of the content comes from the users, who upload their videos to the site.

WEB 3.0

- Content on the web that utilises fuzzy logic and A
- Web 3.0 refers to the use of massively connected data on the Internet to solve bigger, more complex and more abstract problems
 - Web 3.0 is rooted in the search for Artificial Intelligence and Fuzzy Logic
 - Web 3.0 technologies typically draw information from disparate sources to undertake complex, abstract tasks in real time

SECURITY TECHNIQUES FOR THE MANAGEMENT OF DATA

DISASTER RECOVERY PLAN

- having a plan that details how the company will recover from losing all data they are in possession of within a system
- Disaster recovery plans involve a set of policies and procedures to enable the recovery or continuation of vital technology infrastructure and systems following a natural or human-induced disaster
- Includes plans for coping with loss of key members of staff, hardware and data
- Disasters can include fires, flood, terrorist attacks etc.
 - Common strategies for DRP's
 - Backups made and sent off site at regular intervals
 - On site backups copied to an offsite disk
 - Replication of data to off site location therefore overcoming the need to restore data. Known as storage area network (SAN) tech. High availability systems which keep both systems replicated off site enabling continuous access to systems

DRP's MUST HAVE

- Name of author
- Creation date
- Details of affected infrastructure, equipment and assets
- List of possible disasters
- Measurement of identified disasters

UNIT 4

- Possible impact on business if disaster takes place
- Recovery procedures including personnel responsible for carrying them out
- Testing of drp details
- Maintenance details
- Appendices (maps, photos)

AUDIT TRAILS

- Used to automatically track every action undertaken by users on a network
- Records what time user logged on, files a user opened, changes a user made and key strokes a user used
- Used as proof an employee is not using the system as they are supposed to
- Very handy for a team to understand how a problem occurred accidentally

TYPES OF BACKUPS AND ARCHIVING DATA

FULL

- backs up everything that is stored in selected directories at one time
- A full backup is usually used the first time a system is backed up to ensure that everything is secured.
- Underlies any archive and forms the base for incremental backups
- An archive can contain multiple full backups or consist of only full backups
- self-sufficient backup. You don't need access to any other backup to recover data from full backup
- Useful for
 - Rolling back the system to its original state. The Initial state does not change often, regular backup not needed
 - E.g Internet cafes, schools or university labs where an administrator undoes changes made by the students or guests but rarely updates the reference backup (in fact, after installing software updates only). The backup time is not crucial in this case and the recovery time will be minimal when recovering the systems from the full backup. The administrator can have several copies of the full backup for additional reliability.

DIFFERENTIAL

- Contains all files that have changed since the last full backup. This backup shortens restore time compared to a full backup or incremental backup.

ADVANTAGES

- much quicker than full backup since only takes a copy of what's changed
- takes less storage space than when a full copy is created each day

DISADVANTAGES

- The size of the data differences part grows with each cycle. If the cycle is long, at the end of it the size of the archive might be quite big and the process itself pretty lengthy.

Useful for

- Saving only the most recent data state
 - Data changes tend to be small as compared to the total data size

INCREMENTAL

- backs up all files modified since the last full, differential or incremental backup. Takes the least time to complete.

ADVANTAGES

- The backup process is even faster than the differential job, not to mention the full backup. It is, in fact, so fast that it can be performed every hour or even minute.
- Each iteration of the backup job copies just the data that was changed. Therefore, only a small amount of storage is required each time.

DISADVANTAGES

- In some cases, the backup software requires all iterations of the incremental backup for data restoration. If one of the pieces is missing the restore is impossible.
- The restore process might take some time as the software needs to rebuild data from separate incremental pieces and also the last full backup piece too.

ARCHIVE

- Stores data outside of the backup cycle for a long period of time. Does not get overwritten.
Storage of data

ONLINE DATA STORAGE METHODS

DATA MARTS

- Analysis Step of "knowledge Discovery in Databases (KDD)
- Process to discover patterns in large data sets
- Goal is to extract and transform information into an understandable structure for later and further use
- Automatic task or semi-automatic analysis of larger quantities of data to extract unknown patterns e.g. Data records (cluster analysis), unusual records (anomaly detection) + dependencies (association rule mining)

DATA WAREHOUSES

- A database used for reporting and analysis
- Data stored in warehouse are uploaded from the operational systems
- Data may pass through an operational data store for additional operations before they are used in the Data warehouse for reporting
- Can be subdivided into data marts
 - Datamarts store subsets of data from Datawarehouses

DATA IN THE CLOUD

- Cloud services can host databases in the cloud.
- These services have the same advantages and disadvantages as other cloud services (refer to cloud computing section)

PURPOSE OF DATA MINING

- Data mining: The process of finding select data from large multivariate data sets
- Its purpose is to determine patterns within a set of data to learn new things about the subjects of the data

COMMON USES OF DATA MINING

- Can be used in matters of homeland security and crime :analysed data from the internet, emails, text messaging to
- Used by businesses for who to send investment returns. It does this by using data to predict which regions are more likely to participate in the investment. For example; a property magazine may send investment news to people in the rich part of town, rather than the poor part of town because data mining showed there is a greater chance of sales in the rich part of town

PURPOSE AND FEATURES OF COMPUTER MANAGEMENT SYSTEMS (CMS)

- A Content Management System (CMS) is web-based software (or website) that allows users to interact with a website for a specific purpose.
- CMS's are a product of web 2.0 tech. They are typically used to create websites that are used as blogs, bulletin boards, media display/sharing etc.

CONTENT MANAGEMENT SYSTEMS IN EDUCATION

- CMS's provide course based/course related websites
 - Stores all content in 1 place
 - Are a place for educator to provide course/assessment outlines
 - Provides users a place to participate in web 2.0 type discussion such as forums
 - Allows users to post assignments
- Used in education, much like we use SEQTA. Similar to Learning Management Systems.

PROCESSING OF DATA CONSIDERING THE SECURITY OF DATA THROUGH THE UTILISATION OF...

PASSWORDS

- User must provide a username and password provide the most common form of authentication
 - FOR DEVICE ACCESS
- You enter name and password when prompted by the device
- The device then checks the pair against secure file to confirm that it matches
- If the don't match then the user is not allowed further access

- FOR ACCESS TO SPECIFIC PARTS OF INFORMATION OR CERTAIN LOCATIONS OF DATA
- Provide a means of locking out certain users from parts of info system that have no relevance to them or even certain locations of data

FIREWALLS

- Either software or hardware
- Filter traffic between two or more networks by blocking ports or by packet inspection
- Limits access from the outside network to a network to a computer or subnetwork
- Protects data on network from being sabotaged or corrupted by unauthorised elements
- Can administer authentication for a network as data can only pass through if it meets a specified rule set made by the system administrators

BIOMETRICS

- Relies on the unique biological characteristics of individuals to verify identity for secure access to electronic systems and reduce the ability to share use of the system
- Methods ensure are who they say they are when accessing the device to manipulate data within the device

ANTI-VIRUS SOFTWARE

- a class of program designed to process all files on a system and compare them to a known database “virus signatures” which can be detected in infected files
- Byte patterns are identified by the anti-virus software developer and delivered to individuals through update packages that systems download on a regular basis

DIGITAL SIGNATURES

- A mathematical scheme that demonstrates the authenticity of a digital message or documents (a segment of code inserted into the file).
-
- Digital signatures are a form of encryption as they contain an encoded data string that is verified by a certifying agency
- Designed with the intention to only be generated by the certificate owner and can prove incorrect identity
- A valid digital signature gives the recipient reason to believe that the message was created by a known sender, that the sender cannot deny having sent the message (authentication and non-repudiation), and that the message was not altered in transit (integrity).
- used for
 - software distribution
 - financial transactions
 - contract management software
 - other cases where it is important to detect forgery or tampering.

DIGITAL CERTIFICATES

- A digital certificate is a private key logged on a computer and require certification and acceptance before it is allowed access, this way certified confirms that both networks/computers are who they say they are
- To implement public key encryption on a large scale, such as a secure Web server might need, requires a different approach. This is where digital certificates come in.
- essentially a bit of information that says the Web server is trusted by an independent source known as a Certificate Authority.
- The Certificate Authority acts as the middleman that both computers trust. It confirms that each device is in fact who they say they are and then provides the public keys of each computer to the other.
- Commonly used
 - Mobile app development
 - Used to prove mobile apps have been verified for delivery using the app store.

ENCRYPTION

- The process of encoding messages or information in a way that only authorised parties can read it.
- The intended communication info or message (plaintext) Is encrypted using an encryption algorithm, generating ciphertext that can only be read once decrypted
- Does not prevent interception however denies the message content to the interceptor
- It is in principle possible to decrypt the message without possessing the key, but, for a well-designed encryption scheme, large computational resources and skill are required.
- An authorised user can easily decrypt the message with the key provided by the originator to recipients, but not to unauthorised users.

PRIVATE KEY ENCRYPTION

- Private key means that each device has a secret key (code) that it can use to encrypt a packet of information before it is sent over the network to the other computer.
 - Private key requires that you know which devices will talk to each other and install the key on each one. Private key encryption is essentially the same as a secret code that the two computers must each know in order to decode the information. Anyone else who sees the message will only see nonsense.

PRIVATE KEY ENCRYPTION

- Public key encryption uses a combination of a private key and a public key.
 - The private key is known only to your computer while the public key is given by your computer to any computer that wants to communicate securely with it. To decode an encrypted message, a computer must use the public key provided by the originating computer and its own private key.

PURPOSE OF THE WORLD WIDE WEB CONSORTIUM (W3C)

- The W3C is an International community where that consists of multiple member organisations

- W3c conventions enforce compatibility and agreement among industry members in the adoption of new standards defined by the W3C. Incompatible versions of HTML are offered by different vendors to implement a set of core principles and components which are chosen by the consortium.

PURPOSE OF THE WEB DESIGN AND APPLICATION STANDARDS FROM THE W3C

HTML AND CSS

- Language= describing structure of Web pages
- HTML gives authors the means to:
 - Publish online documents with headings, text, tables, lists, photos, etc...
 - Retrieve online information via hypertext links, at the click of a button
 - Design forms for conducting transactions with remote services, for use in searching for information, making reservations, ordering products, etc...
 - Include spreadsheets, video clips, sound clips, and other applications directly in their documents

. CSS

- Language= describing presentation of Web pages, including colours, layout & fonts
- Allows one to adapt the presentation to different types of devices, such as large screens, small screens, or printers
 - Separation of HTML from CSS makes it easier to maintain sites, share style sheets across pages, and tailor pages to different environments. This is referred to as the separation of structure (or: content) from presentation.

GRAPHICS

- Visual representations used on a Web site to enhance or enable representation of an idea or feeling, in order to reach the Web site user
- May entertain, educate, or emotionally impact users, & crucial to strength of branding, clarity of illustration, and ease of use for interfaces.
 - Examples
 - graphics include maps, photographs, designs & patterns, family trees, diagrams,
 - architectural or engineering blueprints, bar charts and pie charts,
 - typography, schematics, line art, flowcharts, and many other image forms

AUDIO AND VIDEO

- Enhancing experience w/ Web pages (e.g. audio background) to serving music, family videos, presentations, etc...
- Web content accessibility guidelines recommend to always provide alternatives for time-based media, such as captions, descriptions, or sign language.
- The Web is about more than text and information, it is also a medium for expressing artistic creativity, data visualisation, and optimising the presentation of information for different audiences with different needs and expectations.

ACCESSIBILITY

- Accessibility supports social inclusion for people with disabilities as well as others, such as older people, people in rural areas, and people in developing countries.
- The Web must be accessible to provide equal access and equal opportunity to people with diverse abilities. Indeed, the UN Convention on the Rights of Persons with Disabilities recognizes access to information and communications technologies, including the Web, as a basic human right.
 - Accessibility also benefits people without disabilities. The Web Accessibility Perspectives video shows examples of how accessibility is essential for people with disabilities and useful for everyone in a variety of situations
 - Example
 - Captions: LOUD or quiet environment. Hearing impediment
 - Colour contrast: colourblind,
 - Text to speech: blind people, text alternatives for images (ALT text on twitter)
 - Operable: using voice to operate computer

INTERNATIONALISATION

- Design or develop your content, application, specification, and so on, in a way that ensures it will work well for, or can be easily adapted for, users from any culture, region, or language
- One fundamental aspect of internationalisation is to ensure that the technology supports text in any writing system of the world.
- This is why W3C technologies are built on the universal character set, Unicode. It may be necessary to also support other legacy character sets and encodings.
- There are other factors to consider, however, when using characters.
- For example, Unicode based encodings allow the exact same text to be stored using slightly different combinations of characters. For efficiency and accuracy in comparing, sorting and parsing text, the different sequences need to be recognised as 'canonically equivalent'. You need to consider how to manage this when developing applications or specifications that perform or rely on such tasks.
- Sometimes different writing systems require special support. For example, Japanese, Chinese, Korean and Mongolian can be written vertically, so the W3C is ensuring CSS, SVG and XSL-FO will allow for vertical text support. These typographic approaches need to be supported in style sheets.
- Cultural problems also need to be considered. Symbolism can be culture-specific. The check mark means correct or OK in many countries.

MOBILE WEB

- A site designed specifically with mobility in mind will always provide a much better user experience to mobile users
- Mobile users operate in a very different usage context than PC users, and provide them with an experience specific to mobile users, even when they are equipped with the device, reasons for that include the challenges posed by network costs and delays, memory and CPU limitations, keyboard and pointing devices differences.

VALIDATION TECHNIQUES FOR ONLINE FORMS

SERVER SIDE VALIDATION

- Information is sent to the server and validated using server side language.
- If failed: response is sent back to client. A page that contains web form is refreshed and feedback is shown
- Servers side validation is a secure method as it works even if java script is turned off in browser
- Server side validation Can't be bypassed by malicious users without getting response until they submit form resulting in slow response from the server

CLIENT SIDE VALIDATION

- Done on the client using script language
- By doing this users input can be validated as they type meaning more responsive rich validation
- If form does not get submitted, validation fails
- Can be modified
- Relies on javascript to fun

- Server side = way more secure than client side as it comes when data is submitted on the client is processed

- Client side = code run on the clients device in order to an extremely fast check to see If data is formatted correctly. Code that checks format is downloaded on device when app is installed or website is loaded but prone to modification on the client

VALIDATION UPON SUBMIT

- User submits data via a "submit" button
- Validation is executed and if any and if errors are found feedback is returned and displayed to the user
- Users will be able to fill form without interruptions but can only fix errors after submission and the server response
- Typical for server-side validation but can be client side

REAL TIME VALIDATION

- Alerts users as they fill form in
 - Does not mean validation is performed on every key press, but when a field loses focus.
- Gives users immediate feedback about input
- Has the possibility of being over or misused

HELP HINTS

- Help users in process of filling the correct information

- Usually shown as simple text to or above text field
- Shown in smaller, greyed text
- Always visible to user even if javascript is off

TOOL TIPS (HELP INDICATORS)

- Initially hide information from user and make it visible "on demand"
- Triggered by icon with help icon
- Shown by hovering over or clicking help icon
- Once mouse is moved away tooltip is gone
- Reduces clutter

DYNAMIC TIPS

- Initially not visible to user
- Once user enters a particular input field the related tip is shown
- Makes tips emphasised and clutter reduced
- Shown in a way that they don't cover other information on the form
- Shown in input field, but should be on right side of the fields as they are less distracting

MASKING/REFORMATTING USER INPUT

- Web apps can take part in providing correct data by formatting users input
- Masking and filtering input fields in order to force the user to enter information in an appropriate format.
- Mask = expression that control

CAPTCHA

Ask user image based prompt questions in order to determine whether they are human or not

NETWORKS

TYPES AND CHARACTERISTICS OF COMMUNICATION PROTOCOLS

- Communication protocol: network protocol is an established set of rules that determine how data is transmitted between different devices in the same network.
 - It allows connected devices to communicate with each other regardless of any differences in their internal processes, structure or design.

TRANSMISSION/CONTROL PROTOCOL (TCP/IP)

- Combines multiple protocols making them work together. Large data is disassembled and transmitted in small packets which are then reassembled
- TCP/IP is a standard that consists of many protocols including protocols for websites (HTTP and HTTPS) Internet Addressing (IP) email (SMTP, POP and IMAP) amongst many others.

HYPERTEXT TRANSFER PROTOCOL (HTTP)

- HyperText Transfer Protocol is the protocol used to transmit website data across the Internet
- Secures website traffic.connection is encrypted to prevent people monitoring the connection

- HTML is the programming language which is used to describe the layout of a website, HTTP is the TRANSPORT protocol used to shift the data from a server to a client.

HYPertext TRANSFER PROTOCOL OVER SECURE SOCKET LAYER (HTTPS)

- HTTPS is an extension of the HTTP protocol which adds a layer of encryption to ensure that data is not recoverable if intercepted in transit.

WIRELESS APPLICATION PROTOCOL (WAP)

- Wireless Application Protocol (WAP) is a technical standard for accessing information over a mobile wireless network. A WAP browser is a web browser for mobile devices such as mobile phones that use the protocol. Introduced in 1999,[1] WAP achieved some popularity in the early 2000s, but by the 2010s it had been largely superseded by more modern standards. Pretty much all modern smartphone handsets can interact directly with TCP/IP and 3G/4G/5G connections are capable of handling TCP/IP natively now. WAP is outdated.

TYPES AND CHARACTERISTICS OF COMMUNICATION STANDARDS

*Both developed by working group of the Institute of Electrical and Electronics Engineers (IEEE) (the IEEE standards)

802.11x WIRELESS

- 802.11 is the standard used to describe Wireless networked communication. Often called Wi-Fi, the 802.11 standard has seen many updates,
- the X is a generic term used to discuss the protocol in all of its various versions, however more detail can be found on the individual updates
- Each version has different features and limitations with the general rule of thumb being; the higher the bandwidth, the lower the reliability or range.

802.3 ETHERNET

- 802.3 is the standard used to describe Ethernet.
- Although many people consider 802.3 to be a standard relating to copper cable used as transmission media, 802.3 contains specifications for Optic Fibre, Coaxial Cable and many other physical media.
- 802.3 relates to the PHYSICAL MEDIA used to transmit messages in a wired computer network.

TYPES OF NETWORK SECURITY MEASURES

FIREWALLS

- A firewall is a system (usually software) that limits access from the outside network to a computer or a subnetwork.
- usually work either by blocking ports (see networking/TCP/IP) or packet inspection.
- In either method, the firewall will only pass data through if it meets specified rules set up by system administrators.

- Admins can refuse entry to data coming from specific locations, containing specific information types, checking time of day or looking for malformed data sets, which often indicate malicious access.

PASSWORDS

- Passwords are an important aspect of computer security.
- Without strong passwords, it is easy for unauthorised users to gain access to data and systems that they are not permitted to use.
- Most organisations enforce a password policy which requires that passwords are not short, they contain special characters such as capital letters, numbers or symbols, they are not repeated etc. All of these habits make good password security

PHYSICAL SECURITY

- Physical security refers to restricting access to the actual hardware systems used in a computer network.
- This means locking resources up so that malicious users cannot directly access them.
- Techniques about enabling malicious users to access systems if they have physical access to the hardware.
- It isn't difficult to find a system that uses a lightweight operating system stored on a USB that enables a user to gain access to the hardware of the system simply by rebooting the device.
- Once hardware access is gained, the malicious user can search file locations to gather valuable information on the system or create a false login which can allow superuser access once the system is rebooted into its native OS

APPLICATION SKILLS

HOW DIGITAL COMMUNICATION IS USED FOR EDUCATIONAL PURPOSES

The exchange of information via electronic devices = digital communications

VIRTUAL LEARNING ENVIRONMENT

- Physical learning space = to be 4 walls , door, windows, board projector etc...
- Virtual learning environment = computer, mobile device
 - PORTAL = A password protected learning environment

HOW TEACHERS USE DIGITAL TECHNOLOGY

- Provide students learning 24/7 via portal. Anywhere, anytime access
 - This learning can be a list of knowledge to be learnt, games or activities, discussion, forums, quiz
- Provide learning pathways to web resources (e.g. Code academy)
- Provide location for students to upload assignments
- Provide students with online assessments
- Allow for communication between parents and teacher via email or messaging
- Do reporting and assessments online

HOW STUDENTS USE DIGITAL TECHNOLOGY

- To socialise (e.g. I messages discord)
- To access virtual learning environments
- Collect learning concepts from teachers
- Collaborate using online forums
- Submit classwork/ assignments

HOW PARENTS USE DIGITAL TECHNOLOGY

- Communicate with teachers via email or messaging
- Observe their child's progress via portals
- To be notified if their child is absent
- Booking Parent/Teacher interviews online

PROJECT MANAGEMENT

CONCEPT OF SERVICE LEVEL AGREEMENT

- A service level agreement (SLA) is an agreement in writing between 2 organisations for one to provide the other with a quality service
- Commonly between ICT Maintenance/support companies or ISP's

FEATURES OF A SERVICE LEVEL AGREEMENT

AVAILABILITY OF A SERVICE

- Refers to the amount of time (uptime) a service is available and can be accessed.
- Example IINET offer a 99.9% uptime guarantee for their internet service

A 99.9% uptime service level agreement for peace of mind

It's not only the fastest connection we offer, but also the most stable. We're happy to stand by this claim and sign an SLA which provides businesses with "peace of mind". When internet is critical to your business a service level agreement is essential to ensure that in the rare event something does happen there are defined times and penalties for not having it restored. This way you can relax and be assured your business is in safe hands.

<http://www.iinet.net.au/business/medium/internet/fibre/> accessed 19 August 2015

TYPE OF SERVICE

- SLA's refer to the types of service that will be provided
- Service is a varied field, clients can often pay for things they don't need if they take a generic contract
- SLA's can identify various bits and pieces of the support package that are required by the client, thus saving money for the client and ensuring that the provider doesn't prepare to support in ways that aren't needed.
- EXAMPLES OF TYPES OF SERVICE
 - Direct telephone support
 - Online helpdesk
 - Physical maintenance of devices

ADVANTAGES OF LOCAL AND GLOBAL OUTSOURCING COMPARED WITH IN-HOUSE PRODUCTION

IN HOUSE PRODUCTION

- If a company is to make a product (or service) it will need employees to do it.
- Employees need to be paid a minimum wage.
- Employees need holiday pay.
- Employees need long service leave (in Australia)
- Employees need sick leave.
- All of these costs add up, so some companies don't produce things in-house anymore. They outsource.

LOCAL OUTSOURCING

- Outsourcing jobs within your own country
- Provides Jobs to people within your country

OUTSOURCING

- Outsourcing is better than in house production as it saves costs for the company.

PURPOSE OF OUTSOURCING DATA MANAGEMENT

- The main purpose of outsourcing data management is to cut labour costs, including salaries for their personnel, overhead, equipment, and technology.
- Outsourcing data management can also allow businesses to tap into a huge talent pool of experienced professionals with the specialist skills needed for this type of work.
- Businesses are then able to focus on the strategies that utilise data in order to grow their business

EVALUATION OF SOFTWARE, INCLUDING USABILITY

USABILITY TESTING

- This is done by a large software company to check if the software works.
- test individuals work through set tasks in testing the software
- large companies would record them as they test the software to gain useful data
- this data is analysed to identify problems with the software

BETA TESTING

- A company will sometimes release a 'first' version of the software, usually free
- users will use the software and provide feedback to the company
- the company will then release a 'final' version of the software

PROBLEMS WITH SOFTWARE

- after testing, problems are identified
- they are fixed
- In this process and due to mistakes, it is very rare that software always does everything as designed.

SOFTWARE UPDATES

- Companies send out updates to their software which is a 'fix-it' system for errors or improvements in the software.



FIN.

