Web site development - Code Nation - Instructor: Liam Cookson, Student/attendee: Colin Coyne

The aim of this project is to create a successful, working website, to learn about the processes involved, the techniques used, the research and design elements involved, the management of creating the website and best practices to be used along the way.

During the creation of this website, we will document the research made, and the process involved in creating it, developing it, testing it, finalising it, and finally publishing it.

The minimum requirement will be ...

- A completed website (theme of your choice)
- Documentation on how this was achieved
- A word / pdf document of the steps taken to achieve this
 - Original idea / concept
 - o Research
 - Trello board (KANBAN style)
 - Content
 - o Procedures and processes used to achieve outcome
- Outcome expected / What we will submit:
 - A TRELLO board in the Kanban format for the project
 - A word / pdf document for the Q & A answers to Unit 1 Improving Productivity with IT
 - A flowchart / wireframe diagram of the flowchart (OPTIONAL)

ULTIMATELY – WHAT IS REQUIRED:

- A word / pdf document for the Q & A answers to Unit 1 Improving Productivity with IT
- A website that runs without errors or bugs
- A public Trello board using the KANBAN method explaining your project
- A draw.io flowchart representing your website construction / navigation
- A "how you approached" the project / completed the project documentation

A retrospective presentation (what worked / what could be better next time) (OPTIONAL)

Initial questions and tasks included researching existing websites and planning yours, and what would be the theme of your website.

The project brief was read and I then preceded to:

- Create/maintain a Trello site [1] to manage the Website project, utilising the KANBAN methodology.
- Create/maintain a Flowchart [2] to give a sitemap overview of the website.
- Utilised a SLACK channel [3] to enable communication with the other pupils and instructor.

We then read though some slides, and were given questions that we were asked to answer:

Unit 1, Outcome 1

1.1 Describing the purpose of IT in modern business

In our modern world, Information Technology has revolutionised the way in which we live and work. There is hardly any aspect of our lives that hasn't been affected (in a good and bad way) by IT.

Automation, stream-lining working practices, data manipulation, management processes have all had a huge impact on us all and our environment.

IT has become so innovative that it promotes and drives change (mostly for good) as such a fast rate that efficiencies in all walks of life (education, commerce, farming, health, communications, and many, many more) are clearly there for all to enjoy.

The rapid rise of technology is a gift to us all, and it is hard to imagine a world now without the benefits that technology has brought us.

1.2 Describing methods, skills and resources needed to complete digital projects successfully – what do you need to make projects successful? What tools? What skills?

There are many skills and resources required for running successful projects, obviously the team leadership and man management issues are fundamental for any successful venture ... with good communication and management skills, a strong competent project manager or team leader, should oversee the objective / goal of the project, he/she will be responsible for maintaining the overall plan of action and ensuring that it is carried out efficiently. This will include breaking complex tasks into clear and well-defined tasks that can then be allocated to team members. There are of course many other project management tasks, such as: Maintaining technical and human resources, meetings, assigning and scheduling project tasks, manage project scope, QA all project deliverables, assess and evaluate project success, ensure everything is on track, and have a POSITIVE, CAN-DO attitude.

In addition, with specific regards to **Digital projects**, further team technical skills will be required,, such as experience in coding/development/testing tools (HTML / CSS / VS Code / JAVA / JavaScript / etc); Use of a project planning tool (MS Project, Trello or equivalent); Use of a communication methodology so that the team can interact (SLACK, ZOOM, etc), and a reliable service provider/platform. Ideally, a test or development environment would also be available so that code and systems can be thoroughly tested, and quality assured before going onto a live system environment.

1.3 Plan and carry out tasks using IT – e.g. making website. How you plan it? Include link to your Trello board.

As with any project it is important to READ, UNDERSTAND, and AGREE the requirement specification / scope of the project before starting work. Research any unknown requirements / content required, then develop / acquire the environment / tools / personal / skillsets required for the task. Create/develop a strategic plan to achieve the given goals within the given timescales and costs. Allocate roles/tasks as appropriate; have good communication throughout; Maintain the plan / communication throughout. Stick to the plan!!!!

With my website project, I was asked to come up with a concept for a website for something that I was interested in. I opted for a Film Reviews type website. I then researched some of the functionality and content that would be required to achieve this, by using search engines (such as google) to see the type and scope of the task at hand. After much searching and investigation, I then decided on how the website would be designed and represented this on a flowchart / site diagram using the draw.io package. I then decided to break down the sequence of events and tasks that had to happen and in which order to control and maintain the project. I then created a project overview plan using the Trello.com package.

- [1] Trello for Website: https://trello.com/b/Dc58FLum/coyne-operation-website-project
- [2] Flowchart for Website: https://app.diagrams.net/#Wcf8eb24f62b1d1f3%2FCF8EB24F62B1D1F3!95301

1.4 Describe the risks that might impact digital projects – what causes digital projects to fail? Why?

The reason why a digital (or other type of) project may fail is fundamentally by NOT adhering to the good working or "best practices", allowing "scope-creep" or deviance from the project scope / goals, perhaps not fully understanding the requirement specification / scope of the project, poor research / poor content, lack of required resources (tools / personal / skillsets / environment), poor strategy / plan, overrun of given timescales and costs, incorrect allocation of roles / responsibilities (some may not have required skillsets, tools, etc), bad communication, unmaintained plan.

1.5 Describe how to go about selecting/using IT systems and software – how to select the right technology

To decide which particular IT Systems and Software you must firstly ...

Determine the TYPE of product (Database, Website, Mobile app, etc,) required Determine what will be the target environment / platform for the project

Determine what will be the development environment / platform for the project Evaluate your current environment / personnel / skillsets / toolsets

Do you have enough sufficient resources to achieve the project requirements / scope?

Research other "similar" projects developments – were any additional resources required?

Address any shortfalls in requirements against existing resources

Once you have the above sorted ... it will be easier to research and decide upon a "best-fit" match of technologies to complete the project requirements

For example: If a Website was the target requirement, then development in HTML / CSS / JavaScript may be the development software, using Trello or MS Project for the Project plan and Slack as a communication tool.

1.6 Describe and provide analysis on how your chosen technologies have helped you achieve your outcomes. – How has Trello helped you plan and how can git and GitHub help with your code's version control

We've utilised Trello to help plan the overview of the project, divide it into manageable tasks and stages, and then used the KANBAN methodology to schedule and oversee the task processes through their life cycle.

1.7 Describe legal guidelines and constraints that impact digital projects – How does GDPR impact digital projects?

The General Data Protection Regulation (GDPR) was set up in May 2018 and is a regulation in EU law on data protection and privacy in the European Union and the European Economic Area. It also addresses the transfer of personal data outside the EU and EEA areas.

According to the Information Commissioner's Office (ICO) website [4], the GDPR sets out 7 key principles:

- Lawfulness, fairness and transparency.
- Purpose limitation.
- Data minimisation.
- Accuracy.
- Storage limitation.
- Integrity and confidentiality (security)
- Accountability.

Basically, it's guidelines / rulings in how to protect data from misuse and inaccuracies, and it replaces the old Data Protection Act.

Because something like a webpage is able to be viewed globally by the world wide web over the internet, then any content published by, or collected by that website **MUST** comply with the legal restraints and rules of GDPR.

Unit 2, Outcome 1

1.5 Describing copyright and other constraints affecting websites

As previously mentioned, ALL websites are constrained by the 7 key principles / guidelines set out in the General Data Protection Regulation (**GDPR**) regulations (described in the Information Commissioner's Office (**ICO**) website [4]), there is also the issue of copyright law to be observed.

The UK Copywrite Service [5] website, lists the rules and regulations regarding UK copywrite law.

Although copywrite notices are not a requirement under the Berne Convention, (which states that copyright is automatic, whether you mark your work or not), it was a requirement of some countries covered under the Universal Copyright Convention (UCC). It is **strongly recommended** that you properly mark your work as the use of notices will make it clear that copyright exists and help to deter infringement.

Websites are particularly open to abuse, especially theft of content and images. You should assume that files will be accessed randomly, downloaded as individual chunks, and distributed out of context. It is therefore important to include a copyright notice on as many individually deliverable items as possible, in particular:

Image file properties should include a notice.

Under Windows for example, right clicking on an image will allow you to bring up the properties dialogue where you may enter details about the file, (though this will only work with certain file types). More typically, your image software will provide a way to insert comments into the file.

Watermark valuable images.

If you publish your own images (e.g. photos you have taken or digital artwork that you created), then adding a visible watermark that states your ownership will deter unauthorised re-use.

Every page should contain a notice in the visible text (text shown on screen), or at least link to your notice in the body of the page.

Every delivered file should include a notice in non-visible text. For example, in HTML files, JavaScript files, and CSS stylesheets a copyright notice can be included as a comment.

Creating websites for third parties - it is important for all parties to understand ownership.

Ensure that rights are transferred, or licences granted as appropriate.

Web design Copyright registration is important

There are many more scenarios, examples and factsheets available from the UK Copywrite Service [5] website.

1.6 Describing access issues that need taking into account - describe issues that people with disabilities may face when using webpages and how we can overcome them

There are many challenges and issues when designing websites that need to be addressed with regards to access for disabled users. The UK Accessibility Services site [6] is a good resource with regards to advice of these issues. Another useful resource is the Web Content Accessibility Guidelines (WCAG) overview [7].

Accessibility simply means that everyone, regardless of their disability or impairment, can access services, products and from their devices - without limitation

The World Wide Web Consortium's (W3C) Web Content Accessibility Guidelines (WCAG) [7] highlight that we have a duty of care to provide people with disabilities an online environment that is perceivable, operable, robust and understandable, making it easy to navigate and interact with the World Wide Web.

Web Accessibility standards are in place for anyone who has a disability, regardless of the type of disability. It is important to keep in mind that there are **FOUR** categories of disability that are directly addressed and form the foundation for Web Accessibility Standards. Those disability types are:

- Hearing Disabilities
- Learning/Cognitive Disabilities
- Motor Disabilities
- Visual Disabilities

In a survey by Business Disability International, Click-Away found, it was revealed that more than 71% of disabled people will exit a website if they find it difficult to use ... something to consider ...

From a moral standpoint, it is your responsibility to be able to offer your digital information and services to everyone. Accessibility is not 'special treatment' it's EQUAL treatment.

With an estimated one in five people having a disability, you're ignoring a whole lot of potential visitors / customers to your site if you don't address accessibility issues.

1.7 Describe which are the appropriate filetypes for websites

Some file formats work better than others in differing environments, the choice of format to use in each case can sometimes be the difference between your website running really quickly, slowly or perhaps failing to load at all on all platforms.

For websites the best formats for images would be: JPEG/JPG, PNG and GIF, which ones will be best to use in which scenarios will depend on the type of image to be displayed:

GIF (Graphic Interchange Format)

GOOD FOR:

Animations / moving graphics

Images with text (e.g. annotated diagrams, buttons)

Images with blocks of solid colour (e.g. cartoon strips)

Images with simple shapes and crisp edges (e.g. line diagrams, flow charts)

Images with transparency (e.g. icons with transparent backgrounds)

The GIF image format can reproduce text, blocks of solid colour and crisp edges without blurring. The GIF file format supports transparency which is useful for icons that require transparent backgrounds.

BAD FOR:

Photorealistic imagery (e.g. photographs) Images with colour gradients* (e.g. photographs, buttons)

GIF images can only produce a maximum of 256 unique colours. The colour palette is far too limited to reproduce photorealistic imagery or smooth colour gradients.

JPEG (Joint Picture Experts Group)

GOOD FOR: Photorealistic imagery (e.g. photographs), Images with colour gradients* (e.g. photographs, buttons)

JPEGs can provide millions of colours and very high levels of detail to produce photorealistic images with relatively low file sizes. The large number of available colours means that JPEGs can reproduce smooth colour gradients effectively.

BAD FOR: Images with text (e.g. annotated diagrams, buttons), Images with blocks of solid colour (e.g. cartoon strips), Images with simple shapes and crisp edges (e.g. line diagrams, flow charts), Images with transparency (e.g. icons with transparent backgrounds)

JPEGs can cause blurring on text, crisp edges and blocks of solid colour. JPEG also does not support transparency.

PNG (Portable Networks Graphic) is another image file type that is becoming increasingly popular on the web. It was invented to be a replacement for the GIF format when it appeared that GIF images would be subject to a royalty fee. It has many of the same features as the GIF format (see the table above) but it lacks full support in some older versions of commonly used web browser. For this reason, JPEG and GIF are still considered the most reliable formats to be used on the web.

If you choose the wrong file type for your image, for example saving a photograph in GIF format as opposed to JPEG, you can expect two things to happen:

- o a loss in image quality (e.g. blurring and/or pixilation)
- o an unnecessarily large file size

There are many other file types available (e.g. Bitmap, TIFF, TARGA etc), however, it is best not to use these in your webpages as they are not supported in all browsers.

We then read though some slides, and were given questions that we were asked to answer: **Unit 2, Outcome 2**

2.1 Review the ongoing use of IT tools and change approach as needed – in making your own website, are you happy with the tools you used? E.g. Visual Studio Code, Trello

The tools we used during the course project (VS Code, Trello, Slack, Draw.IO, Zoom) seemed a good choice in producing our website project. I elaborate further on the tools used, their functions, features and usage in the next answer.

2.2 Describe whether the IT tools selected were appropriate E.g. Visual Studio Code, Trello

The tools we used during the course project (VS Code, Trello, Slack, Draw.IO, Zoom) seemed sufficient to produce our website.

The Visual Studio code was a good environment to code with an easy to use interface, the colourisation of the code (for key words used, etc.) was really helpful and the way you could split windows came in really useful especially when you were working on two related code files in tandem (i.e. working directly with an HTML file and its associated CSS file at the same time).

Trello I suppose was good at the INITIAL project plan stage to aid in breaking down the tasks into discrete chunks and units of work, sequencing them and for giving an overview of status, but, I thought it was MORE useful in a TEAM environment to manage the project overall and for communication between team members, whereas, in a single developer environment – after the initial set-up and project start up investigations it became little more than a to-do list – although it was still a useful exercise!

I found the SLACK channel really, really useful, and very easy to use. It was MOST useful in a TEAM environment leading to better communication all round. It was less useful, obviously, in a single developer scenario. SLACK enabled text-based chat room and allows the sharing of code / ideas throughout team's members.

The draw.io flowcharter package was also easy to use and was used to construct an overview / sitemap of the website structure, especially useful in the initial stages of project development.

The Zoom channel was obviously was also a very useful tool in a team environment leading to better communication all round and was used both to educate and debate issues throughout the development of the website.

2.3 Assess the strengths and weaknesses of your final project – are you happy with your website? Why? Why not? You should review it on the website itself in the interests of openness. What would you change?

I felt that the website project was a good introduction into learning how to create and develop websites, the toolset used and the overall process. For my website, I was fairly happy with the overall concept, approach taken and look and feel of the final result.

As for everything, and with what I've learnt through hindsight and with a bit more experience, I would tackle some parts of the development more effectively... I would have spent more time on the original research and

design before starting coding, I would have scoped the project more effectively – with regards to what is achievable within the given time constraints and to the limits of my current abilities and experience, and I would have researched for more active working coding examples of what I was trying to achieve.

I would like to have developed the website on a server with access to email and database facilities to enable the collection of user input data and the sending of emails ... something which is currently only simulated in our current environment.

2.4 Describe further improvements you can make to your project

If the website was residing on a server with email facilities then I would have liked to action the user data input and email elements of the website, and also the data input gathering facilities on both the Contact and Feedback forms of my website, as at the moment they are there for aesthetics and are not fully functional.

Further experience and techniques could have enabled me to introduce better interactions between the website and the user / visitor ... and also the introduction of behind the scenes processing – perhaps with Java / JavaScript / PHP functionality, or perhaps the use of some "widgets" to handle specific things such as data validation, calendar interaction, and user interactions.

2.5 Review outcomes to make sure they match requirements and are fit for purpose

The final website project will be compared to the original design laid out in the flowchart and Trello systems, it will be functionally tested for robustness and completeness. I will then go through the website with the instructor and try to determine with him what things worked, and what could be done better, in an effort to develop "best practices" going forwards in future developments.

We then read though some slides, and were given questions that we were asked to answer: **Unit 1, Outcome 3 (Review)**

3.1 Review the benefits and drawbacks of IT tools and systems used in terms of productivity and efficiency – could you have been more efficient when making your website? How? Could you have done it in teams?

The benefits of the IT Tools and systems certainly helped in the management and construction of the website project. The project goals and tasks were researched and evaluated, then broken down into itemised tasks that were then scheduled / sequenced into a required order (on Trello) that enabled a website flowchart overview (draw.io) showing that the target goal was that had to be achieved .. and HOW we were going to approach it.

It was then the development stage that utilised the Visual Studio Code environment to create / develop / test the actual website pages using Hypertext Mark-up Language (HTML) and Cascading Style Sheets (CSS), all the time using Trello and the Website sitemap for reference.

3.2 Describe ways to improve productivity and efficiency

With regards to more efficiencies and better productivity during the process, of course working in teams would have helped and skillsets, abilities and experiences pooled, with ideas debated and problems, then solutions, achievements, and experiences could be shared. A project manager / team leader keeping a close eye on the overall project would also have aided communication all around and made sure that tasks were on schedule and to a good enough standard – always steering towards the goal of a successful project outcome.

3.3 Develop solutions to improve own productivity using IT in digital projects – what would you do differently next time? Teamwork? Use of Slack?

After project completion, there should always be a "wash-up" type review to determine the successes, failures and what was learnt from working on the project, with the goal being to develop a set of "best-practices" for use in any subsequent projects. During this "autopsy", the final website project should be compared to the original design to debate and accurately measure success and did it achieve all its agreed goals, and the lessons

learnt will be used to developing more reliable, robust, and effective projects going forwards in any future developments.

3.4 Describe how you would go about testing digital solutions

The initial testing phase should occur "off-line" and should be performed by the developers themselves. Testing the digital solution to specifications as laid out in the project description of requirements, matching the project against requirements to check for bugs, errors, robustness and reliability before going on a QA platform.

In the second phase, and ONLY when the website has been deemed to be robust, reliable and functionally sound should it then have a user QA to determine that it performs as it should and does exactly as requested by the project brief/description.

If the first two phases are complete and have satisfactory results should the users "sign-off" the project and it is then released to the live environment.

There should still be a third / final "sanity-check" to determine that moving to a new environment hasn't introduce any unforeseen platform issues. If all ok, then you should be good to go.

Unit 2, Outcome 1

1.1 Describing the content and layout for each page

There are SIX main screen pages in Colin's Film Reviews website, along with a further NINE other pages that display the details of particular film reviews. These individual film review pages are activated when the user presses / selects a Film Poster from the Film Reviews page.

The SIX main pages are:-

index.html – Main home / landing page for Colins Film Reviews

Intro / welcome screen, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages. There is an optional sound / media player to enable the "Film Night" theme tune to be played. Copywrite info is at very bottom of screen.

about.html - About me screen saying why I've created this website and what it's meant to achieve A text about me screen, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages. Copywrite info is at very bottom of screen.

contact.html - details of how to get in contact with me and how you can leave your contact details with me A contact information screen, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages. The user may opt to input their contact details, along with any comments / subject heading The user may then choose to **Send** the details to the website owner (this functionality is currently disabled as there is no attached email or database server), or to Reset (clear) the data entry fields. There are four media link icons that when pressed will open up a new tab in your browser and take you to the relevant chosen website.

Copywrite info is at very bottom of screen.

feedback.html - allows the user to respond with some feedback of what they thought of the website A user feedback information screen, with a site navigation banner across top and very bottom of screen.

Images relate to other pages on the website that by pressing the users can navigate to those pages. The user may opt to input any feedback comments they may have, along with their contact details, along with any comments / subject heading.

The user may also key in a date in the format dd/mm/yyyy or user the calendar widget to access a popup calendar/date entry helper.

The user can also elect to select the relevant radio button to join a mailing list (Yes or No) The user may then choose to **Send** the details to the website owner (this functionality is currently disabled as there is no attached email or database server), or to Reset (clear) the data entry fields. Copywrite info is at very bottom of screen.

events.html – announcements of upcoming film themed events that the user may wish to take part in A text events notification screen, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages. Copywrite info is at very bottom of screen.

film_reviews.html – here's where the user may select which film reviews to view, clicking on the relevant film poster, which will bring up the associated film review page

A Film Review selection screen, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages. When the user selects a film review (by pressing / selecting one of the nine film posters) then that particular Film Reviews web page is displayed.

Copywrite info is at very bottom of screen.

review_colombiana.html - A review about this film

A review about the selected film, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages. Copywrite info is at very bottom of screen.

review_joker.html - A review about this film

A review about the selected film, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages. Copywrite info is at very bottom of screen.

review_limitless.html - A review about this film

A review about the selected film, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages. Copywrite info is at very bottom of screen.

review_monsters.html - A review about this film

A review about the selected film, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages. Copywrite info is at very bottom of screen.

review_risen.html - A review about this film

A review about the selected film, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages. Copywrite info is at very bottom of screen.

review_RiseOfPlanetOfTheApes.html - A review about this film

A review about the selected film, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages.

Copywrite info is at very bottom of screen.

review StakeLand.html - A review about this film

A review about the selected film, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages. Copywrite info is at very bottom of screen.

review_TrueGrit.html - A review about this film

A review about the selected film, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages. Copywrite info is at very bottom of screen.

review_WestIsWest.html - A review about this film

A review about the selected film, with a site navigation banner across top and very bottom of screen. Images relate to other pages on the website that by pressing the users can navigate to those pages. Copywrite info is at very bottom of screen.

main.css – here is where all the Cascading Style Sheets (CSS) definitions where created to allow a standard look and feel across all pages on the website

Resources and References:

Website Name: Colin's Film Reviews

- [1] Trello for Website: https://trello.com/b/Dc58FLum/coyne-operation-website-project
- [2] Flowchart for MyFilmReviews: https://app.diagrams.net/#Wcf8eb24f62b1d1f3%2FCF8EB24F62B1D1F3!95301
- [3] Slack workspace: https://app.slack.com/client/T01AZKJNFED/C01BARUQVEC
- [4] Information Commissioner's Office (ICO) website: https://ico.org.uk/for-organisations/guide-to-data-protection-regulation-gdpr/principles/
- [5] UK Copywrite Service: https://copyrightservice.co.uk/protect/p11_web_design_copyright
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- [7] Web Content Accessibility Guidelines (WCAG) Overview: https://www.w3.org/WAI/standards-guidelines/wcag/
- [8] GitHub Website Address for Colins Film Reviews: https://gith2018.github.io/ColinsFilmReviews/.
- [9] GitHub main repository for Colins Film Reviews: https://github.com/GitH2018/ColinsFilmReviews.git

Colins Film Reviews Flowchart https://app.diagrams.net/#Wcf8eb24f62b1d1f3%2FCF8EB24F62B1D1F3!95301





