

CM3203
Large One Term Individual Project
40 Credits

Initial Plan

Project 181:

Real-time Television Companion
Application

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Project Description

With over two thirds of people in the UK owning a smartphone, we spend more time accessing the internet than we ever have (Media.ofcom.org.uk, 2015). A wealth of knowledge can be accessed on the internet, traditionally the user would make use of a desktop computer or a laptop, requiring the user to switch it on, load the OS and then use a web browser to access the information they require.

However, smartphones and tablets are a convenient method for accessing the same information. With most users having their smartphone or tablet switched on at all times and on their person, users are more likely to use these highly portable and user-friendly devices when wanting to access information quickly and effectively. Situations where the user may not wish to stop their current task to access the internet, such as when watching television, can be best achieved by using these devices.

The use of smartphones and/or tablets while watching television is an increasing trend. Just under a third of smartphone users in the UK use a smartphone while watching TV (Laura Zain, 2015). With 22.1% conducting activities directly related to the program, it is apparent that people use their smartphones to enhance their television experience. This may be achieved by using the internet to find out information about the program such as the cast, network, and synopsis or even when the next episode will be aired. Although this information is on the internet, it may not be readily available for the user to access, i.e. the user may have to visit multiple websites (which may not be mobile-friendly) to access the information they require. Users may be put off by the effort required to find this information as it may distract them from the television itself.

My project aims to improve the usability of smartphones while watching television by creating a companion application that enables the user to access aggregated information about the television program they are watching from multiple sources on the internet. The application will scrape data that is publicly available on the internet to provide the user with relevant information that extends on what is available using a television's Electronic Program Guide (EPG).

Project Aims

During the course of this project I aim to gain an insight into what it is required to develop a piece of software from start to finish by myself. I aim to further develop my professional skills in order to produce a high quality solution to a given problem complete with a comprehensive report to explain the steps taken to achieve the solution.

I aim to learn more about web scraping and how it can be used to combine information from multiple sources. I also aim to explore the challenges faced in following Human Computer Interaction principles and how best to achieve them.

I aim for the solution to be extremely user-friendly with minimal learning required and a sense of familiarity when compared to using a television's electronic program guide.

I aim to develop new skills in Android software development as I believe this will help me in pursuit of my ideal career in mobile software development.

I also aim to further develop my time management skills as this is the first academic individual project I have done. I feel I will learn how best to motivate myself to achieve the best possible solution I can.

Project Objectives

In order to develop a solution, I must consider the objectives that build up to allow my solution to be considered successful. In order to enhance the user experience of smartphone use while watching television, I have devised the following basic objectives that my solution must achieve. These objectives are subject to change and will be finalised during the research stage of the project.

- A method to scrape information of television programs from various sources
 - This may be achieved with the use of appropriate APIs
- A method to process this information into a human-readable form
- A GUI (Graphical User Interface) that follows basic Human Computer Interaction goals
 - A way for users to *select* a television program
 - A method to display information of selected program
 - A way for users to *search* for a television program:
 - The user should be able to type in a program and select from a list of results
 - The user should be able to type in an actor/actress to find programs they appear in
 - A way for users to *browse* television programs:
 - This should mimic a traditional EPG
- A way for users to select which sources to fetch the information from
- A built-in user guide to enhance usability
- A way for users to bookmark favourite programs
- A way for users to set reminders for when a favourite program is airing
- The system must be deployed on Android for smartphones

Work Plan

Week 1 – Starting 25th January: Initial Report

1. Create draft for initial plan
2. Create work plan and Gantt chart
3. Discuss draft and ethical issues with supervisor
4. Finalise and submit initial plan

Deliverables: Initial Plan

Week 2 – Starting 1st February: Research

1. Begin research into:
 - a. existing solutions
 - b. the data available online
 - c. APIs that allow data to be collected
 - d. the tools to aid software development
2. Decide which software development model to follow
3. Explore available IDEs that can aid in Android development
 - a. Decide on which IDE to use
 - b. Decide how data will be accessed (APIs)
4. Outline which version of Android to support
5. Discover final aims and objectives
6. Discuss findings with supervisor
7. Create draft introduction and background section of final report

Deliverables: Research report and draft introduction and background sections and report on justifying selected IDE

Week 3 – Starting 8th February: Design

1. Create risk assessment
2. Create test cases
3. Create use cases
4. Create hand-drawn design of system that:
 - a. Illustrates all objectives of the project
 - b. Gives a loose idea of how the system may look
5. Create Wireframe design based on hand-drawn design
 - c. Consider creating multiple designs
6. Consider system branding:
 - d. Design a logo
 - e. Define name for the system
7. Discuss design with supervisor

Deliverables: Wireframe design complete with name, logo and colour scheme, risk assessment and test cases

Week 4 – Starting 15th February: Prototyping

1. Design structure of the system
 - a. Combine wireframe and Android Material Design
2. Use IDE to create layout of system
 - a. This is how the system will look but without the functionality
3. Discuss final system design with supervisor

Deliverables: An .apk that runs on Android to demonstrate user-interface

Milestone: Review with supervisor the completed application to demonstrate exactly how the application will look, feel and operate. I aim to use this review to decide whether any final design tweaks are needed.

Week 5 – Starting 22nd February: Implementation

1. Use IDE to begin implementing 'Must Have' features
2. Discuss progress with supervisor

Week 6 – Starting 29th February: Implementation

1. Continue to implement 'Must Have' features
2. Discuss progress with supervisor

Deliverables: An .apk that runs on Android to demonstrate user-interface and 'Must Have' features

Week 7 – Starting 7th March: Implementation

1. Continue implementing features, including 'Should Have' features in order of importance
2. Discuss progress with supervisor

Deliverables: New version of .apk that demonstrates more functionality

Week 8 – Starting 14th March: Implementation

1. Continue implementing features, including 'Could Have' features in order of importance
2. Discuss progress with supervisor

Deliverables: New version of .apk that demonstrates even more functionality

Note: There is a three week recess for Easter. This time can be used as a buffer should there be any delays in previous weeks. I plan to use this time to finalise the implementation stage and begin testing the system. The following tasks are planned for this period:

1. Use test cases outlined in Week 3:
 - a. To decide whether system passes objectives to be considered a success
2. Use test results to create test report
3. Outline any failures in the system

Deliverables: Test report and list of errors found

Week 9 – Starting 11th April: Testing

1. Use this week to debug the entire system:
 - a. Ensure no interface errors exist
 - b. Ensure all functionality works as it should
2. Ensure all errors found in previous week have been fixed
3. Discuss with supervisor the final system

Deliverables: An error-free version of the .apk that satisfies all objectives

Milestone: Review with supervisor the completed application to demonstrate all objectives have been completed. I aim to use this review to confirm with my supervisor whether the application needs anything changed in order to deem it a success and that is completely error-free.

Week 10 – Starting 18th April: Evaluation

1. Create report on the finished solution:
 - a. Outlining successes
 - b. Outlining areas for development
 - c. Outlining learning outcomes
2. Discuss outcomes with supervisor

Deliverables: Evaluation of project

Week 11 – Starting 25th April: Compile Report

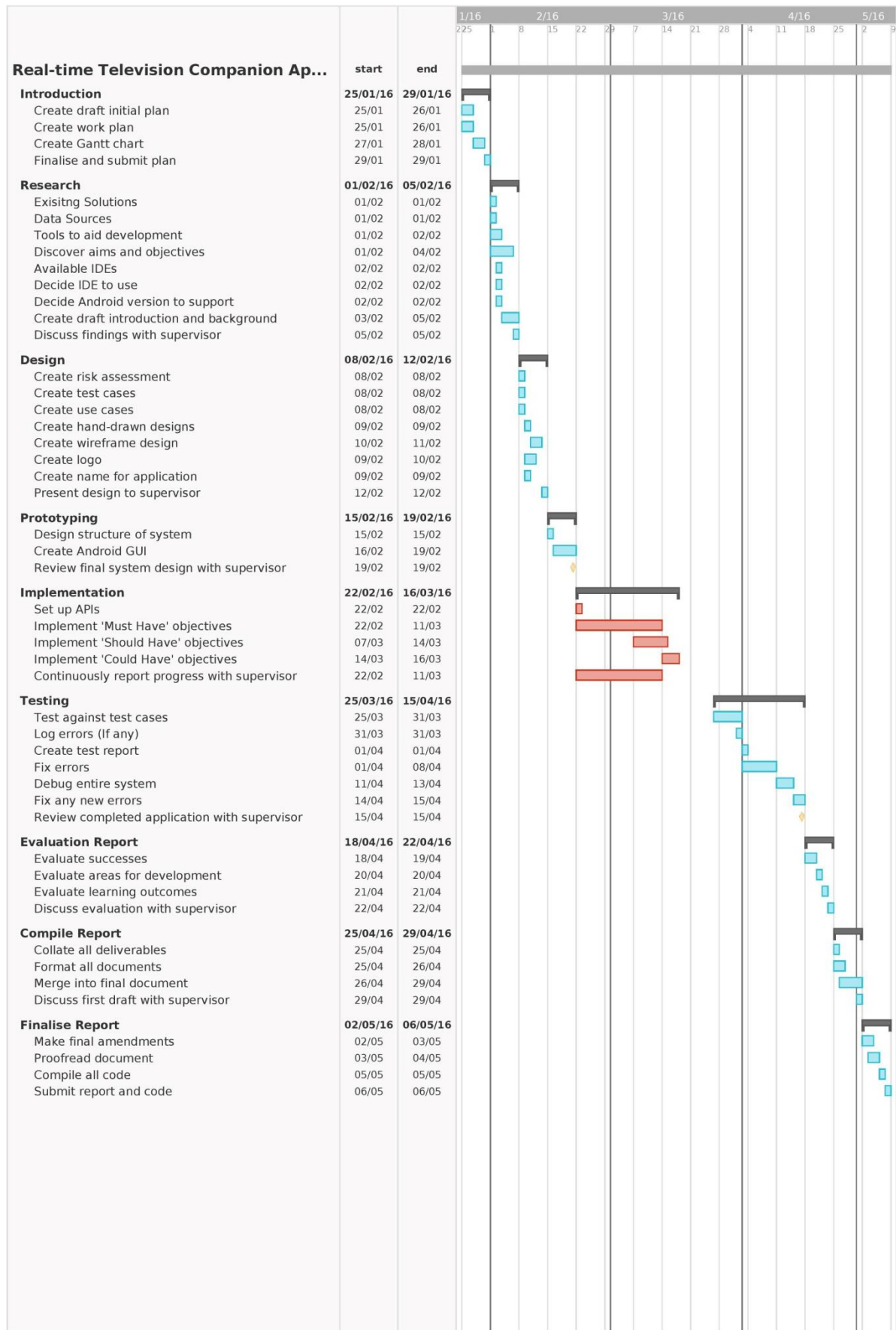
1. Compile all deliverables throughout the project into one document:
 - a. Ensure consistent format
 - b. Follow final report structure to ensure clarity
2. Discuss draft report with supervisor
 - a. Document any amendments needed

Deliverables: First draft of final report

Week 12 – Starting 2nd May: Finalise Report

1. Make amendments where necessary
2. Proofread document
3. Compress Android application ready to be submitted
4. Submit report and any other files needed

Gantt Chart



References

Laura Zain, A. 2015. Over a quarter of UK smartphone users use their phones while watching TV [Online]. Available at: <https://www.comscore.com/Insights/Data-Mine/Over-a-quarter-of-UK-smartphone-users-use-their-phones-while-watching-TV> [Accessed: 29 January 2016].

Media.ofcom.org.uk, 2015. The UK is now a smartphone society [Online]. Available at: <http://media.ofcom.org.uk/news/2015/cmr-uk-2015/> [Accessed: 29 January 2016].