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Module: Innovation and Creativity in Computing

Assignment 1: Innovation & Project Management

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Task 1 - Innovation and Creativity

1.1 Introduction to Innovation

Innovation has played a significant role in shaping the world we know today, influencing how society develops, how industries have grown, and, finally, how people interact with technology. Throughout history, new ideas, inventions, and technological breakthroughs have driven economic growth and transformed our everyday lives. By understanding how innovation develops, alongside the contributions of creativity and human cognition. Helps explain how technological advancements continue to influence and inspire society, not to mention shape future developments.

1.2 Technological Innovation Cycles

Often referred to as Kondratieff waves, or the idea of innovation cycles. Describe how significant technology breakthroughs propel long periods of industrial development and economic expansion. Usually, each wave consists of important inventions that revolutionise industries and society. For instance, previous waves were driven by technologies such as the steam engine and railroads, which transformed transportation and manufacturing. Later waves began introducing electricity, then vehicles, and eventually information technology (IT). Each wave, regardless of the scale of its technological advancement, has created new opportunities and industries whilst gradually replacing older technologies, demonstrating how innovation has and will continue to reshape economies and society.

1.3 Creativity and Innovation

One other concept that has greatly impacted innovation is Creativity. Even though creativity is often associated with artistic activities such as painting, sculpting, or music. Creativity is, in fact, essential in certain areas, such as maths, science, and computing. Within these areas mentioned above, Creativity has helped many individuals create and design new systems, solve complex problems, and develop innovative solutions. The learning materials assigned to me to read highlight that creativity is not confined to a small number of people but is a skill that can be developed through practice and experimentation. The IDEO “Creative Confidence” video highlights this concept as well, explaining that people can develop their creativity by “trying new things” and “learning from mistakes” [4]. This video, along with a quote from Sir Ken Robinson, argues that children are not afraid to be wrong, implying that creativity develops when people feel confident to explore new ideas, which is why children are more creative [5].

1.4 Human Thinking and Behaviour

Philosophical concepts regarding human thinking and behaviour are also introduced in the materials, with a focus on René Descartes' work. Descartes proposed that a number of fundamental emotions or “passions”, such as curiosity, desire, love, hatred, joy, and melancholy, have an impact on human behaviour. These emotions depict how people respond to certain situations and make decisions in their everyday lives. For instance, while emotions like fear or uncertainty may deter people from taking risks, sentiments like optimism or excitement may inspire them to seek new opportunities. Understanding these emotional responses can help explain how people respond to new ideas, difficulties, and advancements [7].

1.5 Conclusion

In conclusion, creativity is fuelled by a combination of human behaviour, technological advancement, and creative thinking. New concepts and technologies have revolutionised industries and society throughout history. Understanding these factors makes it easier to see how innovation continues to drive progress and shape the future of the modern world.

1.6 Project Ideas Considered

During early development stages of the project, I explored several possible ideas that could be developed as a mobile application. The first idea involved creating a student productivity app that would help manage assignment deadlines, class schedules and study planning. However after discussing ideas with classmates, I realised that many students already had already chosen similar concepts. Another idea involved developing a fitness tracking application that could monitor exercise activities and personal health goals. After researching this type of application, I discovered common issues such data accuracy, privacy concerns and user retention. As a result, I decided to focus on a gamified mobile application designed to help individuals overcome fears of public speaking and social anxiety. This idea was particularly meaningful to me due to my own experiences with social anxiety, and I wanted to design and application that could helps other gradually build confidence in social environments.

1.7 Learning Resources

To successfully complete this project, I have no prior experience developing a mobile application. I will use a range of online resources to help support both the technical and conceptual aspects of this application. The first resource I found that will benefit me tremendously is a website called “Wedowebapps,” which provides thousands of free mobile app development tutorials and guidance on designing, developing, and testing mobile applications effectively [1]. Another useful resource I have considered using is Class Central. It's a course platform that provides a wide range of learning materials covering mobile development frameworks, including Flutter, React, and Network, which, according to reviews, can help me build the great technical skills required for this application [3]. Furthermore, by researching gamification and mental health technologies in greater depth, I will gain a better understanding of how to implement interactive challenges and reward systems that motivate and encourage individuals to build confidence and reduce social anxiety.

Task 2 - Project Management

2.1 Project Scope

The project I have chosen is a mobile application that helps users overcome fears of public speaking, social anxiety, and unfamiliar social environments through interactive challenges and gamification. The aim of this application is to encourage users to gradually step outside their comfort zone whilst tracking their progress and building confidence over time. In this section, I will provide an explanation of the proposed solution, the technologies required to develop the application, and the planned timeline and stages to successfully complete the project.

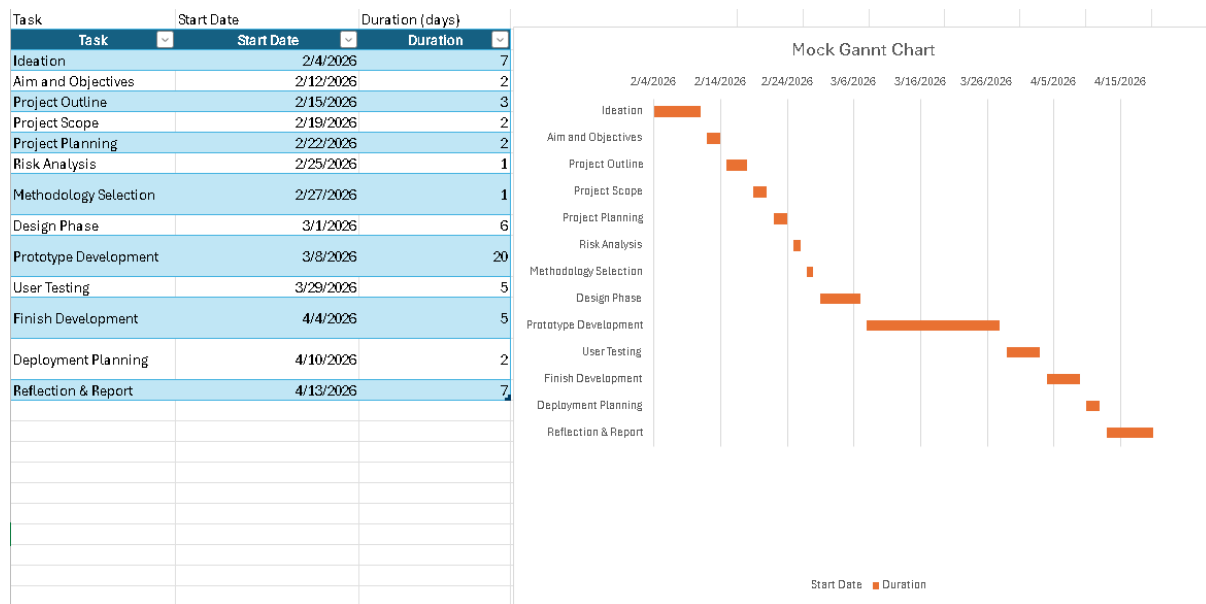
The idea for this project is partly inspired by my own experiences growing up, where I found communicating with new people and adapting to unfamiliar environments challenging. These experiences helped me understand how social anxiety can affect confidence and personal development. As a result, this project aims to explore how mobile technology and gamification can support individuals who experience similar challenges. By designing an interactive mobile application, users can gradually face social situations while tracking their progress and building confidence.

To create this application, several tools and technologies will be used at both the design and implementation stages, such as Miro. I will use this tool to create flowcharts and visually demonstrate how the application will function and how users will navigate through the system's features. The diagrams will help me better understand the overall structure and the application's logic. In addition, Figma will be used to design the user interface and create wireframes that show how the mobile application will look and interact with users. These tools allow me to plan the application's layout and functionality before the development begins [3].

This project began in early February and is expected to be completed by the end of the semester in May. During this time, the project will progress through several stages, including research, design, development, testing, and evaluation. These stages will ensure each phase is completed in a structured, organized manner within the available timeframe.

The project will follow several stages including research, design, development, testing, and evaluation. During the research stage, I will investigate topics such as social anxiety, gamification, and mobile application design. The design stage will involve creating system flowcharts using Miro to illustrate how users interact with the application. During development, I will design a prototype and user interface using Figma. The prototype will then be tested by fellow students and friends to gather feedback before the final evaluation stage.

2.2 Project Gantt Chart



To keep track of my progress throughout this project, I created a Gantt chart in Microsoft Excel to organise and plan the different stages of development. The chart visually shows the tasks required to complete the project, along with their start dates and durations. Within this Gantt Chart, there are several key stages, including ideation, project planning, design, prototype development, user testing, and final evaluation. Using a Gantt Chart, I can easily track progress and ensure each project stage is completed within the set timeframe. Using this approach helps me maintain the organisation and provide a clear overview of the project schedule.

2.3 Risk Analysis

Risk	Impact on Project	Likelihood	Mitigation / Prevention Strategy
Underestimating development time	Could lead to missed deadlines and an incomplete application	Medium	Create a realistic schedule with buffer time and prioritise core features before optional ones.
Technical difficulties (coding errors, unfamiliar tools)	May delay development and reduce application functionality	Medium	Use online documentation, tutorials, and lecturer support. Begin development early to allow time for problem-solving.
Loss of project files or data	Could result in significant loss of progress	Low	Use cloud storage and version control (e.g., GitHub) to regularly back up work.
Scope creep (adding too many features)	Project becomes too large to complete within timeframe	High	Clearly define project requirements early and focus on essential features only.
Lack of motivation or poor time management	Work may be rushed or incomplete	Medium	Follow the Gantt chart, set personal deadlines, and maintain consistent weekly progress.
Software or hardware failure	Could temporarily prevent access to the project	Low	Keep backups and ensure access to alternative university computers if needed.
Insufficient testing	Bugs may remain in the final product	Medium	Allocate dedicated time for testing and gather feedback before final submission.
Limited experience with mobile development	Could slow down implementation	Medium	Choose beginner-friendly frameworks and rely on learning resources when necessary.

To be prepared for potential risks and dangers during this project, I created a Risk analysis that highlights key risks that could affect the project's progress or even its completion. For this project, I identified several possible risks, these being underestimating development time, technical challenges, scope creep, and potential data loss. These risks could delay development, reduce functionality, or cause loss of project progress if not managed properly. To reduce the risk of these issues, I have implemented several mitigation strategies, including creating a realistic schedule, regularly backing up project files, and focusing on essential features first. By identifying these risks and planning preventive measures early on, the project can remain organised and manageable throughout development.

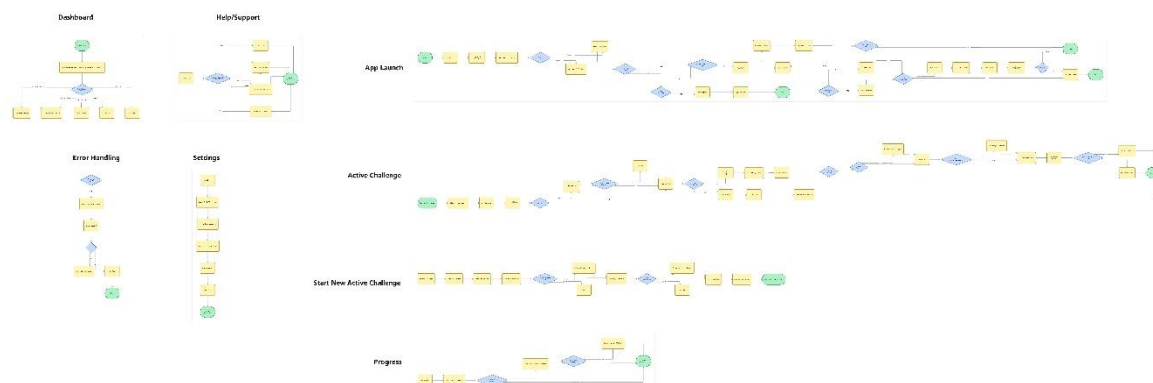
Task 3 - Development Method and Design

3.1 Development Method

For this project, I plan to primarily use a Waterfall development methodology. This is because I have used this methodology in previous projects of my own and achieved great success with it. The Waterfall model is a structured software development approach that allows teams to organise projects into sequential stages, for instance, research, design, development, testing, and evaluation. Each stage must be completed before moving on to the next one, and that's why I prefer to use this, as a team of one, I am able to complete each step to the best of my capability without having to worry about other colleagues moving on to a new section without permission and having to communicate amongst the team to figure what sections have been done. This can waste valuable time needed to implement the application, so by using the Waterfall method as a team of one, I can ensure the project is completed efficiently and that the overall project remains organised [1].

However, after researching the Agile methodology, some elements can be considered during the project's final stages. For instance, Agile emphasizes continuous improvement and adapting designs based on feedback, which is what I plan to pursue. By having fellow students or friends test the prototype application, I can gain vital information to refine its usability and functionality. By combining both Waterfall & Agile methodologies, I'm certain the project will remain organised while still allowing for flexibility in improvements.

3.2 System Design



(Flowcharts aren't visible enough and I couldn't fit them on the pages here is a link for my MIRA board)

https://miro.com/app/board/uXjVG7dsJ3o=?share_link_id=548629080772

During the design phase of this project, I created several system flowcharts using Miro to visualize how the application will function. These diagrams illustrate key processes such as app launch, dashboard navigation, challenge selection, progress tracking, and user settings. The flowcharts also include decision points that show how the system responds to user actions. Creating these diagrams helped me organise the overall structure of the application before developing the user interface.

3.3 User Interface Design

Figure 1 - Dashboard

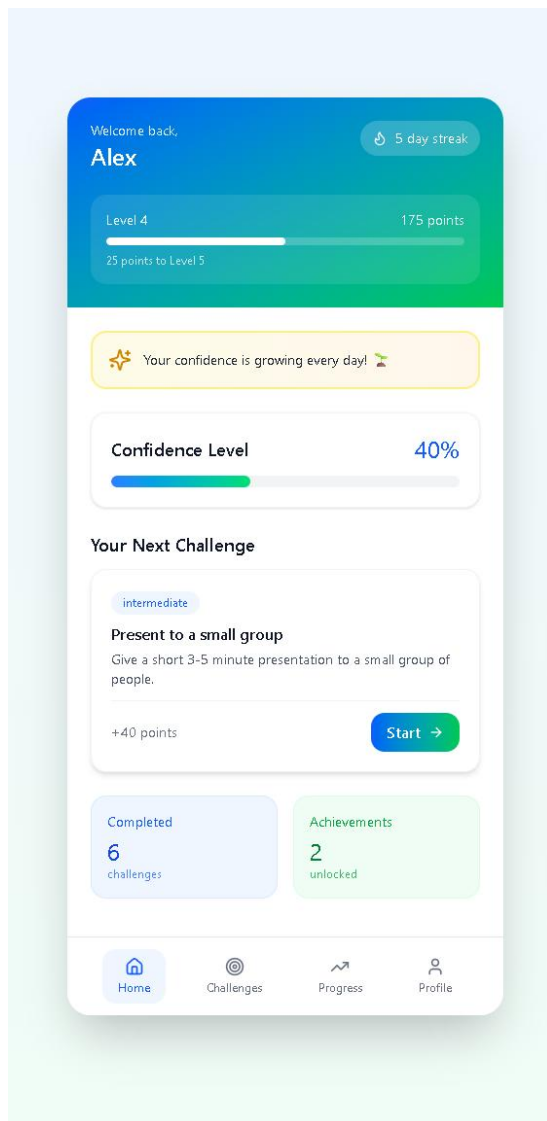


Figure 2 - Challenges

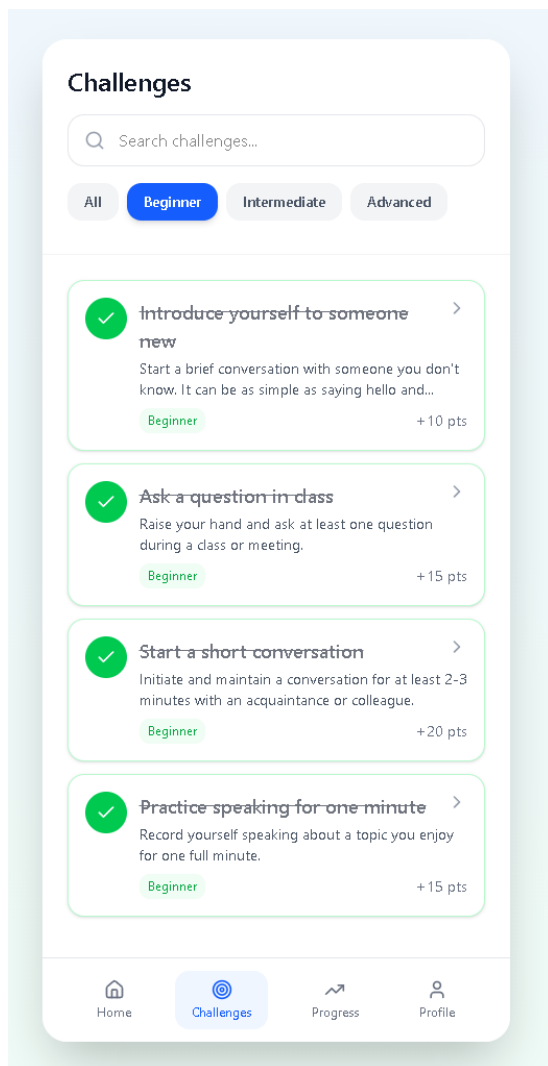


Figure 3 - Progression

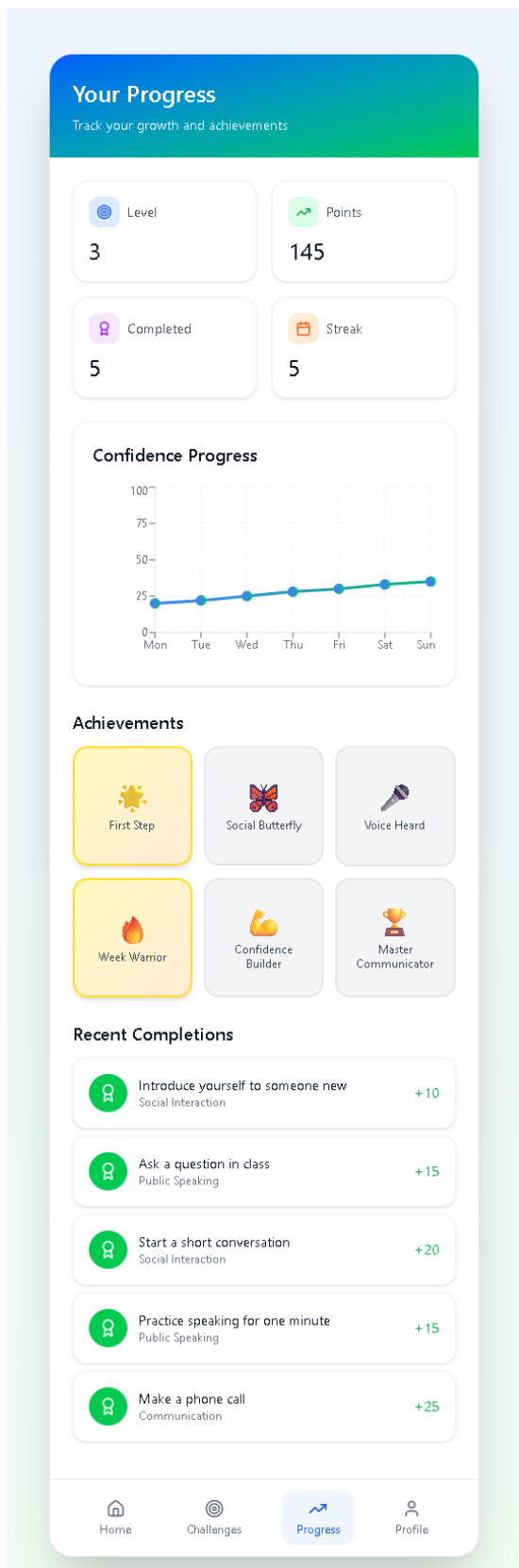


Figure 4 - Profile

Profile

Manage your account and settings



Alex Johnson

Level 3 Confidence Builder

✉ alex.johnson@email.com

📅 Joined March 2026

Your Statistics

3

Level

145

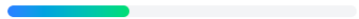
Points

5

Done

Confidence Level

35%



Keep completing challenges to increase your confidence!

Settings



Notifications



Privacy



Help & Support



App Settings



Recent Achievements



First Step

Complete your first challenge



Week Warrior

Maintain a 7-day streak

➔ Log out



Home



Challenges



Progress



Profile

After creating the system flowcharts, I designed a prototype interface using Figma to demonstrate how the mobile application would appear on a mobile device. The prototype includes several key pages such as the dashboard, challenges page, progress tracking screen, and user profile. The dashboard displays confidence levels, streaks, and upcoming challenges. The challenges screen allows users to select tasks based on difficulty levels, while the progress page shows achievements and completed activities. The profile page allows users to manage their account information and view personal statistics. Creating this prototype helped visualise how users would interact with the application and ensured the interface remains clear and easy to navigate [3].

3.4 Initial Practical Work/Prototype

As part of my initial practical development work, I have created a prototype of the “My Voice” application to demonstrate how the system could function in practice. As mentioned previously, I used tools such as Miro and Figma to create and visualize the user interface layout and the internal system structure. The Miro flowcharts I created have helped me define how users will navigate the application's different sections. The Figma mock prototype I created demonstrates how the application would appear on a mobile device and helped me visualize what should appear on each page and what I need to focus on. By researching mobile application layouts, I have created what I believe is a perfect layout. But there is still plenty of time for changes, and once I receive feedback, I can implement new design changes.

4.1 - References

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[3] Nielsen Norman Group, “UX Psychology Study Guide,” Nielsen Norman Group. [Online]. Available: <https://www.nngroup.com/articles/psychology-study-guide/> . [Accessed: 09-Mar-2026].

[4] IDEO, “Creative Confidence,” YouTube. [Online]. Available: <https://www.youtube.com/watch?v=l16TJUp4SVA> . [Accessed: 09-Mar-2026].

[5] Sir Ken Robinson, “Do Schools Kill Creativity?” TED Talks. [Online]. Available: https://www.ted.com/talks/sir_ken_robinson_do_schools_kill_creativity . [Accessed: 09-Mar-2026].

[6] Hans Rosling, “Global Development Trends,” YouTube. [Online]. Available: <https://www.youtube.com/watch?v=jbkSRLYSojo> . [Accessed: 09-Mar-2026].

[7] René Descartes, “The Passions of the Soul,” philosophical work discussing human emotions and behaviour.

