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Final Delivery Documentation

GradNav

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1. Organisation / Motivation / Executive Summary

1.1 Executive Summary

Our project is a web application that provides career pathways and course recommendations for students in Ireland. As students ourselves, we lacked direction in choosing career pathways and courses. It was a last-minute decision for us to choose the courses we did during the CAO process. If we had had an application that could help direct us to career pathways and provide specific course recommendations in Ireland based on our subjects, skills, character traits, hobbies, wants, needs, and background, it would have helped us immensely. So, we thought, why not make it ourselves? Thus, we created GradNav. GradNav focuses on personality rather than knowledge. It believes that there is a suitable course for every student in further education and aims to help the government maintain an educated workforce. Our website will ask users to select subjects, skills, character traits, hobbies, wants, needs, and background information. Through extensive research into educational sites such as CareersPortal, CAO, blogs, and articles, we gathered significant data. We ensured that the different lists of inputs cover the majority of career pathways, allowing for variations in recommendations. The inputs selected by our users are then rendered to an API of a large language model such as GPT-3.5-turbo, which then provides specific course recommendations in Ireland. These are displayed as five suitable career options and five related Bachelor's degree programmes available in Ireland.

Each programme includes detailed information about which universities offer them, the required CAO points, potential salaries, nearby accommodation options, and other relevant details. Through research, we found that many similar aptitude testing platforms would provide results such as "You are recommended for computer science," rather than our application's approach: "You are

recommended for computer science at DCU. It requires 499 CAO points to enter the course. You are suited to this course because of your career ambitions. Knowing your background, it could help boost your career, etc." This specificity reduces anxiety for the user by providing a more focused recommendation than most aptitude testing platforms and offers guidance. Like most aptitude testing platforms, users will receive a recommendation, but they may have questions about it. Therefore, we thought to simplify that process for the user by implementing an in-app chatbot powered by the GPT-3.5-turbo large language model. This chatbot can provide answers to any queries a user may have, such as "Can I take an MSc after the computer science degree?" and can give a detailed response to the questions. We used an LLM because we believed that training the bot ourselves would not cover all potential user questions, so why not use an LLM that can answer the majority of them?

We also have 55 career-specific quizzes. If the user scores high enough, they will have access to details about related Bachelor's degree courses available in Ireland, including which colleges offer these courses, the CAO points needed, salary expectations for the career, nearby housing options, and other useful information related to the career. These quizzes are based on extensive research into multiple educational resources. Our app also features a popular careers section that lists the top 6 careers chosen by users, which is updated regularly based on the count of the most quizzes taken.

We believe that GradNav is the ultimate all-in-one educational application for students, providing everything related to pursuing a career, such as specific courses available in Ireland, information on how many points the courses require, accommodations available at the universities, course duration, potential earnings in the career, career details, and how each course leads to a career. We made sure it was a full guide for the user, simplifying the process.

1.2 Motivation

The transition from secondary school to higher education and careers can be daunting, and students often face a lack of clarity. We are both passionate about education and technology and believe in the transformative power of personalised guidance. By developing GradNav, we aim to empower students by providing them with the tools and insights they need to shape their future with confidence and clarity. Our motivation behind this project stems from personal experiences where we have seen individuals with significant potential in certain career paths pursue the wrong careers. Unfortunately, many ended up having to re-enter third-level education to follow the career that was actually suited for them. This situation, which happens to many, results in wasted money on a career path they will not pursue anymore and a significant loss of time. We want to reduce the likelihood of such situations occurring. With proper guidance beforehand, these predicaments could have been avoided. Therefore, we aim to make our app easy to use, provide specific course and career recommendations, and give detailed reasoning as to why the user is suited to a particular career or course. We also believe there is a suitable course for everyone in third-level education. While some individuals may consider themselves more practical and might not pursue further education, we want to show them that there are practical courses available for example, mechanical engineering, to maintain an educated workforce.

1.3 Organisation

Proposed Organisational Structure for GradNav Development

(REFERENCE A.8 IN APPENDIX FOR ADDITIONAL INFORMATION)

Executive Leadership:
Project Lead (Silvana): Serves as the main point of contact for the project at the executive level. Responsible for overall project delivery, securing resources, and representing the project before the board.

Advisory Team:
Project Advisor (Jennifer Foster): Provides expert guidance, supports project planning, offers strategic advice, and helps navigate challenges throughout the development process.

Development Team:
Co-Developers (Chukwuemeka Martins Ejike and Stephanie Ulogwara):
Jointly responsible for the development of the GradNav application, covering both front-end and back-end development tasks.
Engage in collaborative problem-solving and feature development, maintaining an agile approach to manage iterative updates to the application.
Conduct testing and quality assurance to ensure the application meets design and functionality standards.

Communication and Reporting:

Martins and Stephanie:
Regularly report progress and consult with the Project Advisor (Jennifer) to discuss development updates, receive feedback, and determine the next steps.
Present completed work to the Project Lead (Silvana) and the board for final review and submission.

Team CV's
(REFERENCE A.7 IN APPENDIX FOR ADDITIONAL INFORMATION)

Project Log
Project Log: Gradnav

2. Business Case

2.1 Description of Gradnav

GradNav is an easy-to-use website that helps Irish students find their way around the complicated world of school and work in Ireland, encouraging students and eventual graduates to not migrate elsewhere. GradNav wants to give users the tools they need to make smart choices about their futures by giving them a simple design and powerful features.

At its core, GradNav is a set of tools and materials that can help students at all points in their journey. GradNav is a one-stop shop for everything you need to plan for college and a future, from looking at possible classes to finding job openings.

The personalised recommendation method is one of the best things about GradNav. GradNav makes course and job suggestions that are unique to each user by collecting data on their interests, skills, and academic achievements. This helps people find routes that match their interests and strengths, which makes it easier and faster to make choices.

GradeNav gives you access to a lot of different quizzes and tests, as well as personalised suggestions. The quizzes cover a wide range of topics, such as personality traits, interests, and skills. They help people learn more about themselves and their job goals. By taking these quizzes, users can learn more about their skills and areas where they need to improve. This helps them make better decisions about their futures.

GradNav also has a lot of information about a lot of different classes and career paths. Users can look at detailed profiles of different courses that include details about how to get in, how the course is structured, and possible job paths. This gives users the information they need to choose the courses that are best for their job and interest.

Another great thing about GradNav is that it is easy to use. The app is made to be simple and straightforward, so users can quickly and easily find the information they need. GradNav makes it easy for users to do things like look at course choices, take quizzes, and change their profiles.

GradNav is also dedicated to helping and supporting users all the way through their trip. Users can get help and resources from experts on the platform, which makes sure they have everything they need to do well in school and work. GradNav is there to help them every step of the way, whether they need help picking a course, getting ready for interviews, or looking into job possibilities.

In conclusion, GradNav is a complete and easy-to-use tool that gives students more control over their choices about school and careers. GradNav is a great tool for students who want to get help and advice on their way to success. It has personalised suggestions, quizzes that teach you things, full course profiles, and an easy-to-use interface.

2.2 Value analysis of GradNav

An all-in-one educational tool is very important for helping students and parents make decisions about their education and careers. GradNav gives users the tools they need to confidently and clearly navigate the complicated world of education by focusing on personalised advice, complete information, and a helpful community.

GradNav has many services for students that are made to meet their different wants and problems. The personalised job assessment tool is one of its main features. It helps students figure out what careers would be best for them based on their interests, skills, and personality. This gives students the knowledge to make smart choices about their futures, making sure they choose paths that are in line with their goals and dreams. GradNav also gives you a lot of information about related courses and universities, such as how much money you might make and how the work environment is. Students can find a lot of useful information here that helps them pick the best school path for their future!

One of the main problems that GradNav helps students with is that they don't have enough information about education and job paths. A lot of college students aren't sure what they want to do

with their lives or what classes they should take. Students can feel anxious and stressed as they try to figure out what to do without clear instructions. GradNav wants to solve this problem by giving students all the information they need and making suggestions based on their individual profiles. GradNav helps students make better choices about their education and career paths by addressing these concerns. This gives them more confidence and clarity about their future.

GradNav not only gives students personalised help and a lot of information, but it also creates a community where students can meet with each other, experts, and mentors. This sense of community is very helpful for students who are stressed out or don't know what they want to do with their lives. Students can gain valuable insights, advice, and support from connecting with others who have had similar experiences and goals. This can help them confidently and resolutely manage their educational and job paths.

Many parents find GradNav to be very helpful as they help their kids with their schoolwork. GradNav helps parents guide and support their kids by giving them information about job paths, college applications, and scholarships. It is especially important during the time when students are moving from secondary school to college, when they will be making big decisions and changes that will affect their future. GradNav knows how important it is for parents to be involved in this process, so it has features that can be changed to fit different needs. This way, parents can be involved in their children's journey and help them.

GradNav serves more than just students and parents. It also serves schools, job counsellors, and employers. GradNav's platform helps schools by giving them access to a group of well-informed potential students. This increases the number of students who join and makes students happier. Career counsellors use GradNav's tools and resources to improve their services, giving students more personalised help and keeping up with new job market trends. Employers can find well-qualified job candidates on GradNav's platform, and they can also connect directly with students and grads through networking events.

GradNav's customer-centred design puts the wants and needs of students and parents first, which is one of its main benefits. The platform is always changing to meet the needs of its users. It does this by using comments and new ideas to make the experience better for users and give them more value. GradNav has become a trusted partner in the educational journey because of its dedication to excellence. This gives both students and parents the power to make smart choices about their future.

When schools work with GradNav, they can reach a large group of well-informed potential students. This can increase the number of students who enrol and make them happier. Educational institutions can get more students who are actively looking for educational chances by listing their courses and programmes on GradNav's platform. This publicity not only expands the school's reach, but it also improves its image as a great place to get an education. GradNav's website also makes it easy for students and educational institutions to share information and work together, which helps institutions better understand and meet the needs of potential students. It will also lower the number of students who drop out due to confusion or uncertainty when they first fill out their CAO’s. As a result of this partnership, both educational schools and GradNav work together to give students more information and power.

The GradNav app is also very helpful for career counsellors because it has many tools and resources that can help them do their jobs better. Counsellors can give better advice to their clients by using

GradNav's personalised job tests and detailed information on career paths. This gives counsellors the power to make suggestions that are specific to each client's interests, skills, and goals. This makes counselling meetings more meaningful and effective. Additionally, GradNav's platform is an excellent way for career counsellors to keep up with new job market trends and opportunities, which lets them give their clients current and up-to-date advice. GradNav's partnership with job counsellors makes the support network for students stronger, making sure they get the advice and help they need to make smart choices about their future careers.

To sum up, GradNav is a platform that can be used in many ways and is useful for many people and groups, such as students, parents, educational institutions, job counsellors, and employers. GradNav gives users the tools they need to confidently and clearly manage the complicated worlds of education and work by giving them personalised advice, complete information, and a helpful community. GradNav is very helpful for both students and parents because it helps them make smart choices about school and careers, which will eventually help them succeed in the future. GradNav also works with schools and guidance counsellors. These partnerships allow people to work together and help each other, which results in better outcomes for everyone. As GradNav grows and changes, it stays true to its purpose of giving people the tools they need to confidently and clearly reach their academic and career goals.

2.3 Market analysis of the target market

2.3.1 What is the proposed market?

GradNav shows how important its services are to the Irish educational market. The Central Statistics Office (CSO) runs the Quarterly National Household Survey in which the 2020 study showed a harsh truth: Ireland's unemployment rate for 15–24-year-olds rose to a scary 17.9% in Q4 2020 (CSO, 2020). This scary number shows how hard it is for young people to find good jobs. It also shows how important it is for them to have strong career guidance services that give them the tools they need to easily navigate the job market.

The Department of Education and Skills also looks at job advice policies and practices in post-primary schools on a regular basis. According to the 2018 review, 38% of post-primary schools got their job advice from outside sources, while 62% had their own career guidance teacher (Department of Education and Skills, 2018). According to these numbers, there may be gaps in the job guidance offered by some schools, which highlights the need for extra help and resources. GradNav's all-in-one platform is ready to fill in these gaps by giving students personalised help and resources, no matter what their school's specific skills or resources are.

Not only does Ireland need more schooling and job counselling services, but more and more places around the world do too. Innovius Research says that the world market for college courses and career counselling was worth $2.12 billion in 2020 and will be worth $4.65 billion by 2030, which means that it will grow at a rate of 8.17 percent per year from 2021 to 2030. This growth is caused by many things, including more people needing help picking the right career path, more competition in the job market, and more pressure from peers. A big chunk of this market is in the Asia-Pacific region,

followed by North America and Europe. This shows how popular these kinds of services are (Innovius Research).

Artificial intelligence, virtual reality, and flexible learning tools are just a few of the technologies that have changed the education technology market in recent years. These tools are making learning more flexible and open to everyone, which is completely changing how people learn new things. Due to the influx of cash from different sources, there have also been a lot of mergers and acquisitions among the big players in the market. These new investments are helping current EdTech companies grow and are encouraging new ideas in the field (Grand View Research).

In a focus group that we conducted with parents of Senior Cycle students we found that parents encountered challenges during the Senior Cycle, particularly in guiding their children through college applications and career decisions. Primary concerns surfaced around limited information on future pathways and uncertainties regarding career choices. Their expressed need for more comprehensive information on career pathways, college applications, and scholarships underscored the desire for easily accessible resources to aid informed decisions in academics and careers.

Diverse preferences in parental involvement emerged, ranging from those seeking collaborative decision-making tools to others preferring a supportive role. This emphasised the necessity for GradNav to offer flexible features accommodating varied preferences. Parental feedback on existing career guidance resources was mixed, with strengths and areas for improvement noted. GradNav was acknowledged for its potential to address identified shortcomings, presenting a more comprehensive solution.

Financial concerns related to educational expenses and scholarships prompted a desire for GradNav to provide insights into associated financial considerations. This research provides a valuable snapshot of parental perspectives, highlighting crucial areas for improvement. Addressing these findings positions GradNav as an even more indispensable tool in guiding Irish Senior Cycle students through their educational and career journeys.

We conducted a focus group with 52 Irish secondary school students through the use of a Google Form survey sent out to their guidance counsellor. The results gave us useful information about the needs and worries of students as they think about their future educational and job paths. There are some common themes in the answers that show that the students aren't sure what they want to do with their education after secondary school.

According to them, they want to know more about different aspects of post-secondary education. For example, they want to know which courses will best fit their interests and skills, how much money they could make in different careers, how ranked and reputable universities are, and how employment trends affect graduates from different courses. A lot of people are also interested in tools that explain the different types of scholarships, grants, and financial aid that are available for college. Students said that online tools like CareersPortal.ie and the Central Applications Office (CAO) were useful, but they wished for more in-depth and personalised help.

These problems can be solved by GradNav's solution, which gives students a complete and personalised platform with information and advice that helps them plan their future with confidence and clarity. GradNav is a key solution that has the potential to completely change the educational and career paths of students and graduates across Ireland. It does this by addressing the problems young

people face when trying to find work, by helping graduates make decisions about their career and further education, and by filling in any gaps in career guidance that may exist in schools.

2.3.2 What are the key value propositions?

A big part of GradNav's value proposition are the key services it provides that make it stand out in the market and meet the unique needs of its users.

The main thing that makes GradNav valuable is that it promises to give each student personalised job advice. GradNav gives users personalised job assessments and suggestions based on their interests, skills, and personality traits using complex algorithms and data analytics. This personalised method gives users the freedom to look into career paths that match their unique strengths and goals, which boosts their confidence and ability to make decisions.

GradNav gives you personalised job advice and real-time information on when to apply to colleges and universities. This feature keeps users updated and organised throughout the application process. This lowers the chance of missing deadlines and makes the application process go more smoothly. GradNav helps users handle their applications well by sending them timely reminders and notifications. This lowers stress and uncertainty during this important time.

GradNav focuses on helping people find financial aid choices. GradNav knows how important financial aid is for making college more accessible, so it provides tools and support to help users find scholarships, loans, and other types of financial aid. GradNav wants to remove financial barriers to education and encourage everyone to go to school by giving people information on who is eligible.

GradNav is also proud of its easy-to-use design, which makes the whole experience better for users. GradNav's platform has an intuitive design that makes it easy to move around and connect with, whether you're using a web browser or a mobile app. This focus on the user makes sure that they can easily find the data, tools, and resources they need to look into their educational and career choices, keep track of application due dates, and get personalised help.

GradNav is dedicated to always getting better and coming up with new ideas. GradNav stays in touch with its users' changing needs by regularly improving its features and resources based on feedback from users, changes in the industry, and new technologies. GradNav will continue to be useful, useful, and important for users as they go through their educational and job paths because of this dedication to ongoing improvement.

Finally, some of GradNav's best features are personalised job advice, real-time application updates, help with financial aid, an easy-to-use interface, and constant improvement. These features show that GradNav is serious about giving users more power and making their school and work lives better.

2.3.3 Who are the proposed user segments and why?

GradNav's suggested user segments include a wide range of people who can benefit from what the platform has to offer.

Secondary School Students: GradNav's main users are secondary school students who are thinking about what they want to do for college and their future careers. GradNav gives them personalised job tests, educational materials, and help with applications to help them make smart choices about their future plans.

Parents and Guardians: Parents and guardians are very important for helping their kids reach their educational and job goals. They look for information and tools to help their kids make smart choices about their future. GradNav gives parents and guardians access to information about career trends, educational paths, and financial aid choices. This gives them the tools they need to help their kids on their journey.

Educational Institutions: Secondary schools, colleges, and universities are all important parts of the GradNav environment. These schools can use GradNav's platform to improve their job guidance services, help students with their career goals, and encourage people to make smart decisions. GradNav gives Universities an ease when extending course offerings to users of GradNav as they can be assured that the students are more clear about their course wants and needs and will have a better understanding of careers they want to pursue in the future.

Career counsellors and advisors. Career counsellors and advisors help students and recent grads figure out how to get ahead in school and in their careers. The GradNav app is useful for these professionals because it gives them access to personalised career tests, information about the job market, and tools to help their clients. Professional job counsellors can make their services better and more useful by using GradNav during their meetings.

2.3.4 What are the key resources, costs, revenue streams and activities

A number of important resources, costs, income streams, and activities are needed to make the GradNav idea work and be able to be sold.

For starters, a lot of money is needed to set up the machinery that the platform needs to work. This includes things like office space, computers, and servers, as well as software platforms, databases, and development tools that make up the technology infrastructure. To make GradNav's products stand out in the market, they also need intellectual property like personalised assessment methods, and educational material.

Human resources are also very important. They include trained workers in many areas, such as developers, data analysts, teachers, and customer service reps. Lastly, money is needed for the initial investment in cash, to pay for research and development, and to cover the costs of running the business.

However, these tools come with costs that need to be carefully managed to make sure the business can stay open. Development costs, which include things like programme development, platform design, and testing, make up a big part of the budget. Costs of getting data are also important because GradNav needs to access external databases, educational resources, and job market information to give users complete advice.

Another big cost area is marketing costs, which include things like ads, promotions, and efforts to get new customers in order to get and keep users. The total amount spent is also made up of operational costs like office rent, utilities, repairs, and administrative fees, as well as personnel costs like salaries, wages, perks, and training.

It is possible for GradNav to make money in a number of different ways. A main source of income comes from subscription fees for premium plans that offer extra benefits and personalised services. There will also be a freemium model but it will have limited features that would encourage users to upgrade. Partnership revenue can be made by working together with schools, job counselling services, and other interested parties, giving us more ways to make money. Advertising fees from targeted ads shown on the GradNav platform and transaction fees from in-app purchases like access to more educational resources or career tests help the platform stay financially stable by adding to its variety of income streams.

In order for GradNav to stay in business and grow, certain actions are necessary. Platform development includes planning, building, and upkeep for the GradNav platform, which includes its website and mobile apps, to make sure users have a smooth experience. Data analysis is a key part of looking at user data to make personalised suggestions, figure out what users want, and keep making the platform work better.

Lastly, customer support services are necessary to quickly answer questions, fix technology problems, and hear what customers have to say.

Overall, if GradNav manages these key resources, costs, revenue streams, and activities well, it can become a viable and long-lasting solution for students, parents, schools, and career counsellors who want personalised job guidance and educational support.

2.3.5 Supporting industry trends

GradNav stays on top of the latest trends in job guidance and education technology by strategically matching its products to the changing needs of users and the needs of the market. Personalisation is a big trend that GradNav takes into account, giving each person a personalised job assessment and educational suggestion based on their strengths, interests, and preferences. This method follows the trend in the industry towards personalised learning, making sure that users get help and advice that fits their specific needs.

Accessibility is another important trend that GradNav supports. GradNav meets the growing need for easy-to-use training materials by offering an online platform that can be accessed from both computers and mobile phones. GradNav meets the needs of modern students who value flexibility and ease of use in their education by giving them access to job guidance tools and resources 24 hours a day, seven days a week.

GradNav's method is also characterised by insights that come from data. GradNav gives users useful information about job trends, career paths, and educational possibilities. GradNav looks at user data to find new trends and makes sure that its suggestions are in line with what the market wants right now. This gives users the information they need to make smart choices about their education and job paths.

GradNav also sees partnerships and collaborations as important trends in the business. GradNav improves its services and reaches more people by working with business partners, job counselling services, and educational institutions. This way of working together lets GradNav use current resources and knowledge to give users complete solutions and build a community that supports each other.

GradNav stays ahead of industry trends and new technologies by committing to innovation. This helps the company keep its place as a leader in education technology and career guidance.

2.3.6 Chosen pricing model.

The chosen pricing model for GradNav is a freemium model with tiered subscription plans offering additional features and benefits. This model allows users to access basic features of the platform for free, while offering premium subscription options with enhanced functionality for those seeking a more comprehensive experience.

Under the freemium model, users can sign up for a free account and gain access to the essential career assessment that is taken upon registering, educational resources, and the CAO Calculator. This allows users to familiarise themselves with the platform and explore its offerings at no cost.

For users who require additional features and personalised support, GradNav offers premium subscription plans. These plans provide access to advanced tools and services, including personalised career recommendations, multiple “mini-quizzes” and a chatbot. By offering two user account options, GradNav caters to the diverse needs and preferences of its user base, allowing individuals to choose the plan that best suits their requirements and budget.

We also intend on generating revenue through featured educational ads and sponsorships between colleges, business and possibly even government bodies like the Department of Education.

Overall, the freemium pricing model positions GradNav for sustainable growth and success in the education technology market, allowing the platform to monetise its offerings effectively while delivering value to its users.

2.3.7 Selected competitor profiles & competitor benchmarking. Our Advantage.

In the field of educational guidance, Qualifax, CareersPortal.ie, and the Central Applications Office (CAO) are all major rivals. They each provide different services and benefits.

The Central Applications Office (CAO) makes it easier for people to apply to Irish colleges and universities for first-year classes. It gives students a central place to use a single registration form to apply to many colleges and universities. Prospective students can easily get into college through the CAO's streamlined application process and large network of participating schools.

There is a lot of information on Qualifax about classes, colleges, and job openings in Ireland. It's a central database that students and parents can use to get information about job paths and educational paths.

This being said, neither of them have any personalised advice that is made to fit the needs of each student. GradNav makes up for this by using AI-powered algorithms and user profiling to give each person personalised suggestions and information based on their hobbies, skills, and goals. This personalised method makes the experience better for users and gives students the power to make smart choices about their future.

CareersPortal.ie has many useful tools, such as career tests, course search engines, and information about the job market. Like us, its goal is to help students and people looking for work make smart choices about their schooling and careers. However it doesn't have enough detailed information about money matters (like scholarship possibilities) and skill building. GradNav shows how different skills can affect your job path. It also takes your background, beliefs, and experiences into account and how they might affect the road you choose to take when it comes to education and career. This all-around support ecosystem makes the experience better for users and helps them to get all the help they may need to do well.

Finally, while Qualifax, CareersPortal.ie, and the CAO are all good options, GradNav is better because it offers a more personalised service, a chatbot, has a bigger support network, and focuses on getting involved in your personality more holistically. Because of these things, GradNav is the best choice for Irish students and parents who want to know more about education and job paths.

2.3.8 Three Year Financial Plan

Primary and Secondary Research

Research summary

Today’s students face a complex and crucial choice when deciding their future courses and careers due to the fast-changing job market. This business case looks at the creation and market testing of a new career exploration app made for students in Ireland. The app helps secondary school students by giving them detailed, personalised advice and resources to help them understand their career and educational choices better. We have done thorough research, including both primary and secondary studies, and found strong evidence that there is a demand for such a tool among students. This research shows that the market is ready for and excited about a new way to tackle career exploration challenges. It also suggests that our app could greatly improve how students make decisions about their futures. The next sections will explain our research methods, what we found, and why our app is a good fit for the Irish market right now.

Primary research
(REFERENCE A.1 IN APPENDIX FOR ADDITIONAL INFORMATION)

Insights from Parental Consultations
We considered parents important in their children's education and career choices, so we talked deeply with them to understand what they think and expect from our career exploration app. These discussions gave us valuable information that helped shape the app to meet user needs better.

Support for the Concept

Parents really liked the app and saw its importance in providing detailed career guidance for their children. They appreciated that the app helps students make smart decisions about their futures by giving them knowledge about different careers and educational opportunities in Ireland.

Perceived Benefits

Parents pointed out several key benefits of the app:

- Enhanced Decision-Making: They believe the app will make it easier for students to explore careers by helping them understand their interests, strengths, and various career options.
- Personalised Guidance: Parents liked that the app offers personalised advice, tailoring information to meet each student's individual needs and preferences.
- Confidence in Choices: The app's comprehensive information is expected to boost students' confidence in their career and education decisions, reducing stress and uncertainty.

Willingness to Purchase

Parents were willing to pay for the app, seeing it as a worthwhile investment in their children's futures. They preferred a one-time payment, finding it simple and more cost-effective than a subscription model. This preference has shaped our pricing strategy to ensure the app is affordable and attractive to our market.

User Experience Expectations

Parents emphasised the need for the app to be easy to use. They want a user-friendly interface that allows both parents and students to use the app smoothly. Fast access to information, intuitive design, and reliability are crucial for a good user experience. Parents also want features like interactive tools, personalised recommendations, and progress tracking.

Implications for Development and Marketing

The feedback from parents is guiding our app development to make sure it meets the expectations of students and their parents. We are focused on creating an app that is easy to use, effective, and informative. Our marketing will highlight these features and the app's ability to help with decision-making, stressing its value and cost-effective pricing to attract our target customers.

Insights from Student Consultations

Understanding the students' perspective is essential when developing a career exploration app that truly meets their needs. We spoke directly with students through one-on-one consultations to learn about their interests, preferences, and expectations for the app. These discussions gave us important insights that we are using to customise the app's design and functionality.

Key Findings

- Varied Interests and Aspirations: Students have different interests and career goals, which shows the need for our app to include a broad range of career paths and academic options. This requires a comprehensive database that covers everything from common careers to more specialised ones.
- Apprehension Towards Long Quizzes: Many students don't like long quizzes. They suggested that shorter quizzes would be more appealing and less overwhelming, making their first experience with the app more positive and encouraging them to keep using it.

- Demand for Clarity and Direction: A lot of students are unsure about their future career and academic paths. They need an app that makes the process of exploring careers clearer and provides guidance during this important time in their lives.
- User Experience Preferences: The feedback highlighted the importance of having an easy-to-use app. Students want an app where they can easily find information and that is engaging, which is crucial for the app's success.

Development Implications
Based on what we learned, we have identified several important areas to focus on during development:

- Broad Content Spectrum: The app will include a wide variety of careers and academic courses, with detailed information about each option, including the skills needed, educational requirements, and potential career paths.
- Quiz Optimisation: We will make the quizzes short but meaningful to keep users interested and to give them valuable personalised recommendations without making them feel overwhelmed.
- Guidance and Exploration Tools: The app will feature tools that help students explore different careers and educational paths. These might include interactive career pathfinders and scenario simulations to provide a deeper understanding of various options.
- User-Friendly Design: The app will be easy to navigate with a design that appeals to students, making sure that the information is not only easy to access but also interesting to explore.

Marketing to the Student Segment
Our marketing strategies will focus on the app's ability to simplify the process of exploring careers, the wide range of options available, and its user-friendly design. We plan to reach students where they are most active, like on social media and educational platforms, to increase awareness and encourage them to use the app.

Secondary Research
(REFERENCE A.2 IN APPENDIX FOR ADDITIONAL INFORMATION)

Market Size:
We have identified a large market for our educational services, including 405,003 secondary school students in Ireland, half of whom are in the senior cycle as of 2021 [5.2]. We also consider over 400,000 parents and guardians since each student typically has at least one. Additionally, there are 730 secondary schools with guidance counsellors [5.3]. These numbers together show a big and diverse group of potential users for our services in the Irish secondary school system.

Serviceable Addressable Market (SAM):
Our research shows that more than 300,000 students and 300,000+ parents/guardians can afford our service, which costs €8.99 per membership. Also, among the 654 government-funded non-private schools, a membership fee of €8.99 is unlikely to significantly impact their budgets [5.5]. This suggests that our services are affordable and accessible to a large part of the market without putting financial pressure on them.

Target Market (TM):

Based on a survey of 6th-year students and their parents, where we received 52 responses, 60% showed interest in paying for a career guidance application [5.4]. If we apply this percentage more broadly, it suggests that around 240,000 of the 400,000 students we targeted might use our app. This interest also extends to over 200,000 parents/guardians who are important in making educational decisions. Given the 730 schools with guidance counsellors, our target market includes a wide and varied audience, fitting our aim to provide valuable career guidance to many different stakeholders.

Market Viability and Strategy
The analysis of our Total Addressable Market (TAM), Serviceable Available Market (SAM), and Target Market (TM) aligns well with insights from our primary research, confirming a strong market demand and viability for our educational services web application. Our strategy is to engage directly with our target audience through schools. We plan to use digital marketing to connect with parents and students and will continuously improve our services based on user feedback. Our pricing strategy is set to be affordable while still providing high-quality service.

Conclusion
The findings from our primary and secondary research highlight the significant potential and market demand for our educational services web application. By focusing on the specific needs of secondary school students and their parents in career guidance, our application is strategically positioned to make a substantial impact on the educational scene in Ireland.

3 Year Financial Plan Requirements
(REFERENCE A.3 IN APPENDIX FOR ADDITIONAL INFORMATION)

Development Costs:
Quality software is crucial for the success of GradNav. Development costs cover quarterly testing [1.1], paid bi-annual legal advice [1.2] and then free legal advice from FLAC [1.3] in between the year, annual consultancy [1.4], iteration and paying us a working wage. Ensuring the app is free of bugs and glitches is crucial for user satisfaction. Quality assurance costs [1.5] (for a week) cover testing and the identification of any issues that need fixing. Legal and consultancy will help ensure lawful and beneficial services providing specialised expertise, such as user experience (UX) and user interface (UI) design and ensuring the app is user friendly and visually appealing. We will do the coding and manage customer service ourselves and will fully design and deploy the web app ourselves.

We've allocated €1000 for data acquisition [1.6] as we believe that having access to accurate and uptodate educational and career data is essential. Licensing such data and using data collection tools (included in our software tools budget) ensures the app provides valuable insights to users. Our €10,000 budget for equipment and technology [1.4] is a reflection on our need for proper, temporary and efficient hardware and software, ensuring our services are as reliable as possible.

Marketing Costs:

Marketing is a critical component of GradNav's success, involving various activities and associated costs. To ensure a broad reach and the acquisition of users, we've decided to invest around €14,500 into marketing, advertising and promotion [2,1]. GradNav invests €4.95 a month [2, 2] in website

hosting to ensure a strong online presence and seamless user experience. This includes costs for hosting services, domain registration, SSL certificates [2, 3], and cloud deployment [2, 4].
User acquisition is also a big area of our marketing strategy which we have chosen to allocate €2360 [2, 5] into. We believe that it's crucial for the growth and sustainability of GradNav. Influencer promotions and marketing events are additional components of GradNav's marketing strategy. As Gen Z entrepreneurs ourselves, appealing to a Gen Z audience, we understand the power and impact of social media and influencers. By collaborating with influencers and participating in events like secondary school and college marketing events, such as Higher Options, we know that GradNav can engage directly with its target audience. While these activities come with associated costs, they are valuable for creating brand awareness and building trust within the education community.

Marketing tools play a vital role in what we're doing at GradNav. It's for this reason I've allocated a 5000 euro budget towards this [2, 6]. They provide valuable insights into user behaviour and campaign effectiveness, enabling GradNav to finetune its marketing strategies for better results. The associated costs ensure that the team has access to the necessary tools and technologies to execute marketing activities efficiently.

Operational Costs:
We've decided to have a QA tester in for one week every quarter to test our software and help to fix any stubborn bugs [1.1]. We know that this will help ensure data accuracy and provide users with the most up-to-date information. He will be paid €875 for the week's work [1, 5]. Protecting user data is a top priority for GradNav. Operational costs are allocated to maintaining robust data security measures and ensuring compliance with data privacy regulations. We have budgeted €4560 [3, 1] towards ensuring we have optimal and safe data storage. We plan to use Salesforce and AWS to do this. These costs cover server maintenance, cloud infrastructure, and associated data hosting fees. Ensuring scalability and reliability of the platform is essential to handle increasing data loads and provide uninterrupted service [3, 2].

Our biannual legal and annual financial services are crucial for compliance, data protection, and managing finances. They help avoid potential legal issues and financial mismanagement.

We have put aside a bi-annual budget to go towards taking educational training classes on how to better our company's organisation, grow our profits, complete financial records, tax filings, financial reporting and increase business sales. This in the long run will save us thousands in labour costs And have allocated a monthly travel budget of €121.59 per person per month for travelling (via public transport) [3, 3] to various schools to promote and advertise the business in the first business year. Each of these costs is justified by the value it brings to GradNav. Development costs ensure a high quality app, while marketing expenses drive user acquisition. Operational costs maintain the app's performance and support users. Legal and financial fees ensure legal compliance and financial security. Ultimately, these expenses are necessary investments in the app's success and its ability to provide valuable guidance to secondary school students.

Revenue Streams:
Our spreadsheet above showcases the income and outcome of our first financial year. With the investments gained from, Ireland Investment Network, Enterprise Ireland as well as from our friends and family we were able to raise an incredible €35,000 which would mostly go into equipment [4.1], technology [4.2] and paying every outsourced worker.

We intend to sell a premium membership for the first month of deployment (January) at a discounted rate of €8.99 [4.3] to draw in new customers before February sees a price increase to €14.99 [4.3] as Senior Cycles prepare for their Mocks and are thinking towards their academic futures. These memberships provide enhanced features and personalised insights. Users pay an annual subscription fee to access these premium features. The revenue generated from premium memberships is a significant source of income.

However we plan in the summer months to offer a promotional discount to encourage students to continue considering their academic futures by reducing the cost to €12.99 [4.4] during the summer months. We will also sell products such as ReviseWise [4.5] and other material to help Senior Cycle students and have a freemium option available to buy such as to remove the ads on the website. These addons provide extra value to users who choose the free version of the app[4.6]. We hope to get a bank loan of €25,000 paid in instalments over the 12 months and support and government grants such as the Enterprise Support Grant [4.7]. The bank loan is a source of capital to support the initial development and operational costs. While it's not a direct revenue stream, it's essential for financing the startup's activities.

The combination of these revenue streams ensures GradNav has a diversified income model. Premium memberships and product sales are the primary direct sources of revenue, while loans, grants, and investments provide the necessary capital for initial development and growth. Freemium add-ons also contribute to revenue while enhancing the user experience. This multipronged approach helps GradNav secure financial stability and sustainability while offering valuable services to its users.

Year 2 Financial Plan Changes
(REFERENCE A.4 IN APPENDIX FOR ADDITIONAL INFORMATION)

Income:
For the second year, we expect to see an increase in income, mainly from two new sources. We plan to introduce advertising within our app, allowing educational businesses and organisations to place their ads. This will open a new revenue stream for us. Additionally, we anticipate more revenue from freemium add-ons because as our user base grows, more users are likely to upgrade to premium features.

Expenditure:
We aim to reduce our spending in several areas this year. Firstly, we'll cut back on user acquisition costs. After a strong marketing push in the first year, we expect to have a stable number of users and will therefore spend less on attracting new users.

Costs for patents and incorporation were one-time expenses in the first year and won't recur this year, which will lower our expenses.

We also plan to spend less on marketing and advertising than in the first year because we now have more users. With a larger user base, we rely more on word-of-mouth and less on paid advertising. Spending on marketing events will also decrease as our focus shifts from attracting new users to engaging current ones.

These changes to our financial plan are designed to boost profitability and ensure steady growth in our second year. By tapping into new revenue sources and reducing unnecessary expenditures, we aim to improve our financial health and continue enhancing our app.

Year 3 Financial Plan Changes
(REFERENCE A.5 IN APPENDIX FOR ADDITIONAL INFORMATION)

Income:

For our third year, we expect to see a noticeable increase in our income across several areas, based on evidence from recent studies on startup growth. Research by Laitinen (2017) suggests that startups typically start turning a profit by their third year as they stabilise and expand their operations. This study, which analysed Finnish startups, highlights a common trend of revenue growth as companies mature.

Based on these findings, we predict a boost in investments since our app has shown steady growth and promise, enhancing investor confidence. As we improve the app's features, we also expect more users to opt for premium memberships, recognizing the added value. Our advertising revenue is set to rise too, as a larger, more active user base makes our app a more appealing space for advertisers. Additionally, our commitment to educational objectives and the positive impact we've demonstrated should attract more support and grants. Finally, by introducing new and appealing freemium add-ons, we anticipate an increase in purchases, improving the overall user experience and boosting our revenue.

Expenditure:

On the expenditure side, we plan to increase working wages to reflect the company's growing profitability and to ensure we retain our talented team by aligning salaries with industry standards. However, we intend to reduce spending in other areas to enhance financial efficiency. We will decrease our investment in broad advertising and marketing, shifting focus towards more targeted, cost-effective strategies that leverage our existing user data. Similarly, we'll reduce reliance on influencer promotions, opting instead to foster direct engagement with our user community. Additionally, we plan to scale back on large marketing events, favouring smaller, more impactful events that resonate more with our core users.

3. Technical Delivery

3.1 Introduction

3.1 Overview

GradNav is an all-in-one platform for educational and job guidance that helps students, parents, teachers, and career counsellors make sense of the complicated worlds of education and work.

GradNav is based on cutting edge technology that gives users personalised suggestions, deep data analysis, and easy-to-use platforms. This gives users the power to make smart choices about their future plans.

Technically, GradNav uses a strong architecture based on current technologies to make sure that it can grow, be reliable, and work well. The platform has a lot of different features, such as authenticating and authorising users, managing quizzes and profiles, handling messages, and showing interactive content. These features are seamlessly combined to give users a consistent experience on both online and mobile devices.

GradNav is built in a methodical way, starting with analysing user needs and designing the architecture. Setting up servers, configuring the infrastructure, and deploying the application code using continuous development and deployment (CI/CD) methods are all parts of deploying GradNav. After it is set up, the platform is constantly checked to make sure it is working well and staying stable.

Overall, GradNav wants to give users the tools they need to confidently and clearly navigate their educational and job paths through its many features, easy-to-use interface, and personalised suggestions.

3.2 Business Context

GradNav’s aim is to solve the problems and make things easier for people who are trying to find their way through school and work. The platform wants to give users more power by giving them personalised suggestions, useful data analysis, and easy-to-use interfaces. This will help them make smart choices about their future schooling and careers.

In terms of business, GradNav's success depends on its ability to give its target audience a smooth, easy-to-use experience that meets all of their needs. To do this, a strong technical system that can handle a lot of different functions, like authenticating users, managing quizzes and profiles, handling messages, and showing dynamic content is required.

In addition, the business context stresses how important scalability, reliability, and speed are for making sure that GradNav can meet the needs of its growing user base. Since the platform is growing and changing, it needs to be able to change to new needs and meet more demand without lowering quality or user experience.

GradNav's technical output specification is also in line with the company's larger business goals, such as growing the market, keeping users interested, and making money. GradNav wants to stand out in the market, get and keep users, and eventually grow and succeed as a business by using cutting edge technologies and best practices in software development.

Overall, the platform is dedicated to providing value to its users and reaching its strategic goals in the areas of career and educational advice.

3.3 Glossary

(REFERENCE A.13 IN APPENDIX FOR ADDITIONAL INFORMATION)

4. General Description

4.1 Product/System Function

Below is a preliminary list of the product/system functions. The functional requirements of the system are concerned with the core functionality of the system. Only the major points have been listed here. Each system function has its own parameters which we will be discussing in more detail in part 5.

Our User Functionality

Registering
Users need to fill out a detailed form with their password, username, and email to set up their accounts. This step makes sure each user has a secure and personalised experience on our platform.

Login
Users can log into their own dashboards to see or change their details, or even delete their accounts if they wish. We have strong checks in place to make sure only the right users can access their accounts.

View Recommendations
After signing up, users can see recommendations for courses and careers that might be right for them based on the information they provided.

Update Profile
Users can update their skills,interests, wants and needs, background, character traits and subjects to receive a new recommendation if their preferences changed.

Take Career-Specific Quizzes
Users can take quizzes focused on different careers. How they score determines the kind of career information they get, helping them explore options that fit their interests and skills.

Update Quiz
Users can retake quizzes to change their answers and get new recommendations. This is helpful if their interests or goals change.

View Quiz Results
Users can look at detailed scores and feedback from their quizzes. This helps them understand more about their potential career paths.

View Popular Careers
This feature shows the top six careers that other users are interested in. It helps users learn about these popular options and get useful career information.

CAO Calculator

This tool helps users calculate their grades and see what they need to aim for to match their career recommendations. It’s a practical help for planning their education.

Chat with Chatbot
Our chatbot uses advanced technology to answer users' questions. It can give advice and information about careers and education.

Access Career Resources
Users can find articles, videos, and webinars that help them understand different career options and educational paths. We also include guides for important processes like SUSI and CAO applications.

Our System Functionality

Website Design
We focus on making our website easy to use and nice to look at, which makes it easier for users to find what they need.

Career and Course Recommendation Engine
Our system looks at how users interact with our app and what’s in their profiles to recommend courses and careers that fit them well.

Personalised User Dashboard
Users can add personal details like their interests and background to their profiles. This makes the recommendations and information they receive more relevant.

Dynamic Database Integration
We use advanced technology to keep our database of careers, courses, and user information accurate and up-to-date.

Message Handling
Our app lets users send, receive, and manage messages easily within their dashboards, which helps them communicate securely.

External API Integration
We connect with other systems to bring in features like chatting with a virtual assistant and getting images related to quizzes.

Exception Handling
We take care to manage security and handle any errors that happen, ensuring users have a smooth experience even when things go wrong.

4.2 User Characteristics and Objectives

Our app, GradNav, is specifically designed for Leaving Certificate students in Ireland who are thinking about their next steps in education and careers. It also helps parents who want to support their children’s choices and guidance counsellors looking for additional resources to advise their students.

Who Uses GradNav?

Leaving Certificate Students: These are students preparing to complete their secondary education and considering their future in higher education or various career paths. They need a reliable tool to explore and understand different options.

Parents: Parents use GradNav to stay informed about the educational and career opportunities available for their children, helping them to provide better support and advice.

Guidance Counsellors: Guidance counsellors use the app to find extra resources that can help them guide students more effectively.

User-Friendly Design:
GradNav is built for users at all levels of internet skills. Whether someone is very comfortable using online tools or not, they will find the app straightforward to use. The interface is clean and simple, making it easy for everyone to navigate.

Objectives of GradNav:

Explore Options: The app lets users explore a wide range of educational and career possibilities through interactive quizzes and searches.

Track Progress: Students can track their quiz results and see how their interests align with different career paths over time.

Update Preferences: As users grow and their interests change, they can update their preferences and get new recommendations.

Simplify Decisions: GradNav aims to make it easier for students to decide on their future education and careers by providing all the necessary tools and information in one place.

Overall Goal:
The main goal of GradNav is to simplify the decision-making process for students, offering them a comprehensive platform to plan their educational and career futures effectively. We provide a range of interactive features like personalised quizzes and recommendations that make learning about different paths engaging and informative.

4.3 Operational Scenarios

Alex - 6th Year Secondary school student

When Alex, a secondary school student, first visits the GradNav website, he chooses to register. He goes through a detailed registration process where he first enters a username, email, and password. He then selects his Senior Cycle subjects, picks skills, hobbies, character traits, and selects his wants and needs. He finishes by detailing his educational and social background. After completing his registration, Alex immediately receives five tailored career opportunities along with information on

five related Bachelor's degree courses available in Ireland. This includes details like required CAO points, salary insights, accommodation options nearby, and other relevant course information. If Alex has questions, he can chat with an in-app chatbot for more information. If he's unsure about the recommendations, he can try out 55 career-specific quizzes, like the "Software Engineer Quiz," which have nine questions each. Depending on his quiz scores—below 5 suggests a career might not suit him, while 5 or above shows additional information on related degree courses and careers. Alex also uses the CAO Calculator to see how his grades align with the recommended courses. He explores popular careers through the most taken quizzes on the app. Additionally, Alex accesses a resources page filled with articles, videos, and webinars that help him understand different career options and educational paths, including guides for SUSI and CAO applications. By the end of his session, Alex has a complete profile, personalised recommendations, and access to various tools and resources to help him make informed decisions about his education and career. If there are any problems, like entering an invalid grade or if the AI services are temporarily unavailable, the app advises him to correct the input or try later, providing links to FAQs and other resources to help him feel supported and informed, enhancing his confidence in planning his future.

4.4 Constraints

Below is a list of constraints that we may take into consideration to successfully complete our project.

Time
Balancing the development timeline of GradNav with academic commitments and other projects is a primary constraint. The goal is to meet the launch deadline of 22/04/2024 while ensuring quality.

Accuracy
Ensuring the app provides up-to-date, comprehensive, and accurate information on courses and careers is a significant challenge.

Technical Expertise
The team lacks experience in advanced AI development, which could limit the sophistication of personalised recommendation algorithms

Regulatory Compliance
Keeping to data protection regulations, especially for teenagers, is crucial and may require additional resources for compliance.

Budgetary Constraints
Limited financial resources may restrict the scope of app features, marketing strategies, and ongoing maintenance.

API Limitations
Our app uses external APIs like ChatGPT for real-time chat and custom search APIs for finding quiz-related images. We might encounter some restrictions with these APIs, such as limits on the number of requests we can make, how quickly the APIs can respond, and the availability of data.

Database Performance

The app depends on a powerful database to store and access large amounts of user data and other system information. If the database is not fast or big enough to handle the growing data needs as more users join, it could slow down the app or prevent it from scaling up effectively.

5. Functional Requirements

5.1 Register

Description:
The registration process is a detailed, step-by-step procedure that gathers important information from users to create personalised educational and career recommendations.

This process is divided into several steps:

First Page: Users start by setting up an account with a username, email, and password.
Second Page: Users pick their Senior Cycle subjects.
Third Page: Users select their skills from a provided list.
Fourth Page: Users choose their hobbies.
Fifth Page: Users identify their character traits.
Sixth Page: Users specify their wants and needs.
Seventh Page: Users provide their educational and social background.

Criticality:
This process is crucial because it directly affects how accurate and relevant the recommendations from GradNav are. The detailed profiles help ensure that the advice users receive is specifically suited to their individual needs and goals.

Technical Issues:
Developing this involves creating a secure, easy-to-use form that spans multiple pages. This form must efficiently collect, validate, and securely store a large amount of user data. It is essential to protect user data privacy, especially during the data collection and storage phases.

Dependencies:
The registration process relies on a database to securely store user information and backend logic to process this data and create personalised recommendations. It also requires smooth navigation between the registration pages to ensure that no user data is lost.

5.2 Log In / User Authentication

Description:
This feature ensures that only registered users can access the app. Users go to a login page via a specific link where they need to enter their username and password to access their accounts.

Criticality:

The login process is essential for the app's security. It ensures that users can only access their own personal information. Without this step, the app would be less secure and less private, which would negatively affect the user experience.

Technical Issues:
The login page is designed using HTML, CSS, and JavaScript to ensure it is visually appealing and consistent with the rest of the app. PHP is used to verify usernames and passwords against those stored in the MYSQL database, ensuring that only authorised users can log in.

Dependencies:
Users must have completed the registration process before they can use this login feature.

5.3 Recommended Course/Career for Users

Description:

This function provides users with personalised advice on education and career options immediately after they register. Users complete a detailed multi-page form that gathers information about their school subjects, skills, hobbies, personality traits, and background. Once registration is complete, the app promptly displays five suitable career options and five related Bachelor's degree programmes available in Ireland. It also provides detailed information for each programme, including which universities offer them, the required CAO points, potential salaries, nearby accommodation options, and other relevant details. The app utilises the ChatGPT API to analyse users' information and identify the best matches for their profiles.

Criticality:
This feature is vital as it delivers customised guidance based on the user's specific information, significantly enhancing their interaction with the app and assisting them in making informed decisions about their future educational and career paths.

Technical Issues:
Creating this feature requires developing a comprehensive, multi-page form that collects a variety of user data. This data must be precisely stored and then utilised by the ChatGPT API to generate accurate recommendations. Challenges include ensuring data accuracy, securing API interactions, and presenting complex information in an easily understandable manner.

Dependencies:
The effectiveness of this feature strongly relies on a robust integration with the ChatGPT API, which processes user profiles to generate personalised recommendations. It also depends on a well-organised database for storing user profiles and preferences accurately. The quality of the recommendations is contingent on the completeness and accuracy of the user data and the efficiency of the algorithms that analyse and match this data with suitable opportunities.

5.4. Update Profile

Description:
This feature lets users change details in their profile, such as skills, interests, wants and needs, background, character traits, and subjects. This update is essential for users whose preferences have

changed. By updating their profiles, users receive new recommendations that match their current goals and needs, ensuring the app's advice stays relevant and personalised.

Criticality:
This feature is crucial because it allows users to keep their profiles current, which is key for getting accurate and suitable recommendations. It helps keep users engaged by adapting to their evolving needs.

Technical Issues:
Creating this feature involves making sure that user data remains correct and secure as users update their information. The system needs to efficiently process these updates and immediately reflect changes in the app. It also must integrate these changes with the recommendation engine to generate updated recommendations based on the new profile data.

Dependencies:
This function heavily relies on a flexible and secure user profile management system that supports updating user information. It also depends on the recommendation system being able to dynamically process and apply updates to user profiles. Proper database integration is essential to ensure that updates are accurately stored and retrieved.

5.5 Take Career-Specific Quizzes

Description:
This feature lets users take one of 55 different career-specific quizzes, such as the "Software Engineer Quiz." Each quiz has 9 questions based on thorough research into career aptitude tests. How users score on these quizzes determines the kind of career advice they receive, helping them find careers that match their interests and skills. If a user scores below 5 out of 9, they get a message suggesting that the career might not be a good fit for them. If they score 5 or higher, they can click on an "additional information" button. This button provides details about related Bachelor's degree courses available in Ireland, including which colleges offer these courses, the CAO points needed, salary expectations for the career, nearby housing options, and other useful information related to the career.

Criticality:
This quiz feature is very important because it helps guide users toward careers and educational paths that suit them based on their quiz results. By giving immediate feedback and detailed additional information, it keeps users engaged and helps them make better decisions about their future education and career.

Technical Issues:
Creating this feature involves building an interactive quiz interface that can administer quizzes, score them correctly, and show different information based on the scores. Challenges include making sure the scoring system works properly, the quiz displays correctly, and follow-up information is shown right after the quiz. The system also needs to manage storing quiz questions, user answers, and the related career and course information effectively.

Dependencies:

This feature heavily relies on the app's database to keep the quiz questions, user answers, and related educational and career information. It also needs to work with the Career and Course Recommendation Engine to bring up accurate course and career data based on quiz results. Moreover, it must integrate well with APIs to update and fetch the latest educational data like CAO points and salary information, ensuring that users get the most current data.

5.6 Update Quiz

Description:
This feature allows users to retake quizzes they've previously completed to revise their answers. This is particularly useful for users whose interests, skills, or career goals have evolved. After updating their answers, users receive new recommendations that better match their current preferences and goals, ensuring the advice provided by GradNav stays relevant and tailored to each user's changing needs.

Criticality:
This feature is essential as it accommodates the changing nature of career planning, allowing users to refresh their inputs as their aspirations develop. It keeps users engaged by ensuring the guidance they receive adapts with their growth, promoting ongoing interaction with the app.

Technical Issues:
Developing the Update Quiz feature requires ensuring that quiz data can be efficiently re-processed and that new recommendations are accurate. The system must manage the storage and retrieval of updated quiz results effectively and integrate these results with the recommendation engine to provide updated advice based on the latest user data.

Dependencies:
This functionality relies on a robust quiz management system that supports repeated attempts and data updates. It also depends on the backend recommendation system's ability to dynamically adjust recommendations based on updated user data. Integration with the user profile management system is crucial to ensure all changes accurately reflect in the user's profile and recommendations.

5.7 View Popular Careers

Description:
The View Popular Careers feature shows the top six careers that are most popular among users, based on the quizzes they take on the app. For each career, the app provides detailed information including related Bachelor's degree courses available in Ireland, the universities where these courses can be studied, the required CAO points, salary expectations for each career, nearby accommodation options, and other useful details. This helps users understand more about these popular career options and the educational paths linked to them.

Criticality:
This feature is important because it directs users towards the careers that many others are considering, helping them understand current trends and options. It offers vital information that helps users make well-informed decisions about their education and career planning.

Technical Issues:
Developing this feature requires accurately gathering and analysing data about which quizzes and careers are most popular. The system must also regularly update and display this information clearly. Challenges include ensuring data is current and displayed in an easy-to-use format that users can easily navigate.

Dependencies:
This feature relies on the app's database to store and show data about which quizzes and careers are popular. It also needs to work with external sources for the most recent information on courses, CAO points, and accommodation. There needs to be a good link between the quiz data and this feature to ensure the career popularity information is accurate.

5.8 CAO Calculator

Description:
The CAO Calculator is designed to help users calculate their current grades and determine what grades they need to achieve to align with their recommended career and education paths. Users can enter their current grades into the calculator to see how these match up with the CAO point requirements for the courses they are interested in.

Criticality:
This feature is essential for users who are planning their education, especially those aiming to apply to universities in Ireland. It helps users set realistic educational goals by showing them whether their current grades meet the requirements for their desired courses, aiding in effective study planning.

Technical Issues:
The development of the CAO Calculator requires ensuring its accuracy and reliability. The calculator needs to be regularly updated with the latest CAO point requirements and must be capable of handling various grading systems, converting them into the CAO points format. A key challenge is maintaining a user-friendly interface that guides users smoothly through the process of entering grades and understanding the results.

Dependencies:
The calculator's functionality heavily depends on up-to-date information about CAO point requirements from educational institutions. It also needs to integrate well with the user profiles and the app's recommendation system to provide relevant educational pathways based on the user's calculated points.

5.9 Chat with Chatbot

Description:
The Chat with Chatbot feature lets users interact with an intelligent chatbot to ask questions and receive advice about their educational and career options. Powered by the ChatGPT API, this chatbot provides high-quality, accurate responses to users' queries.

Criticality:

This chatbot is vital for the app as it significantly enhances user interaction by providing instant, customised responses. It is essential for assisting users in understanding complex educational and career information and guiding them through their decision-making processes.

Technical Issues:
Implementing this feature requires a seamless integration of the ChatGPT API to ensure the chatbot responds accurately and quickly to user inquiries. Challenges include ensuring the chatbot maintains context awareness, manages the frequency of API requests effectively, and maintains smooth communication with the app's systems.

Dependencies:
The chatbot's performance is highly dependent on the ChatGPT API for generating responses. Additionally, it requires access to the app's database for relevant user information and previous interactions to offer personalised advice, enhancing the user's experience by making interactions more relevant to their specific situation.

5.10 Access Career Resources

Description:
The Access Career Resources feature provides users with a dedicated resources page filled with a variety of educational materials. Users can browse articles, videos, and webinars that offer insights into various career options and educational paths. Additionally, the page includes detailed guides for important processes such as SUSI and CAO applications, as well as information on scholarships.

Criticality:
This feature is crucial because it provides users with essential information and guidance needed to navigate their career and educational planning effectively. It helps users explore different options and understand the requirements and opportunities associated with various educational paths.

Technical Issues:
Developing this feature involves curating and organising a wide range of content in a user-friendly manner. Challenges include ensuring the content is up-to-date, relevant, and easily accessible. Additionally, maintaining a high-quality user experience while managing a large volume of multimedia content such as videos and webinars is essential.

Dependencies:
This functionality depends on the app's content management system to store, manage, and display educational content effectively. It also relies on regular updates from reliable educational and career planning sources to keep the guides and information current and accurate.

6. System Architecture

System Architecture Overview:
Our system architecture follows a typical three-tier architecture, which consists of a client-side (front-end), a server-side (middle-tier), and a database (back-end).

1. Client-Side (Front-End):

Website: The website serves as the front end, providing the user interface for our application. Users interact with the website to input data and retrieve information. It will be designed using HTML, CSS, and JavaScript for a user-friendly and responsive experience.
User Interaction: Users use the website to take quizzes, input information, and receive personalised career and course guidance, chat with our chatbot.

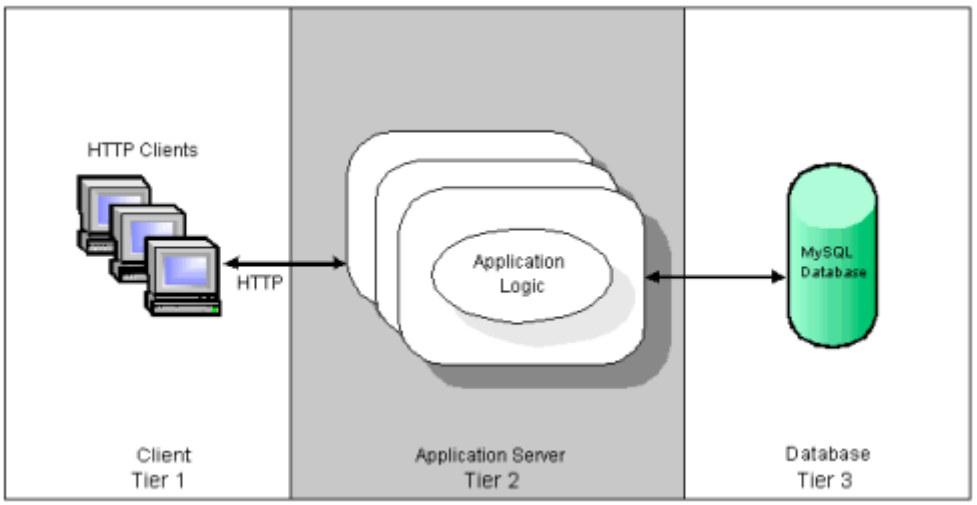
2. Server-Side (Middle-Tier):

Server: This is the middle-tier that handles the processing and business logic of our application. It is accessed by PHP scripts.
PHP Scripts: PHP scripts are responsible for processing data received from the front-end. They interact with the database to query and retrieve information based on user inputs and actions.
API Integration: We have integrated external APIs, such as the ChatGPT API for real-time chat, recommendations and custom search APIs for quiz-related images. These APIs enhance the functionality by providing additional data and interactive capabilities directly to the user interface without additional processing on our server.

3. Database (Back-End):

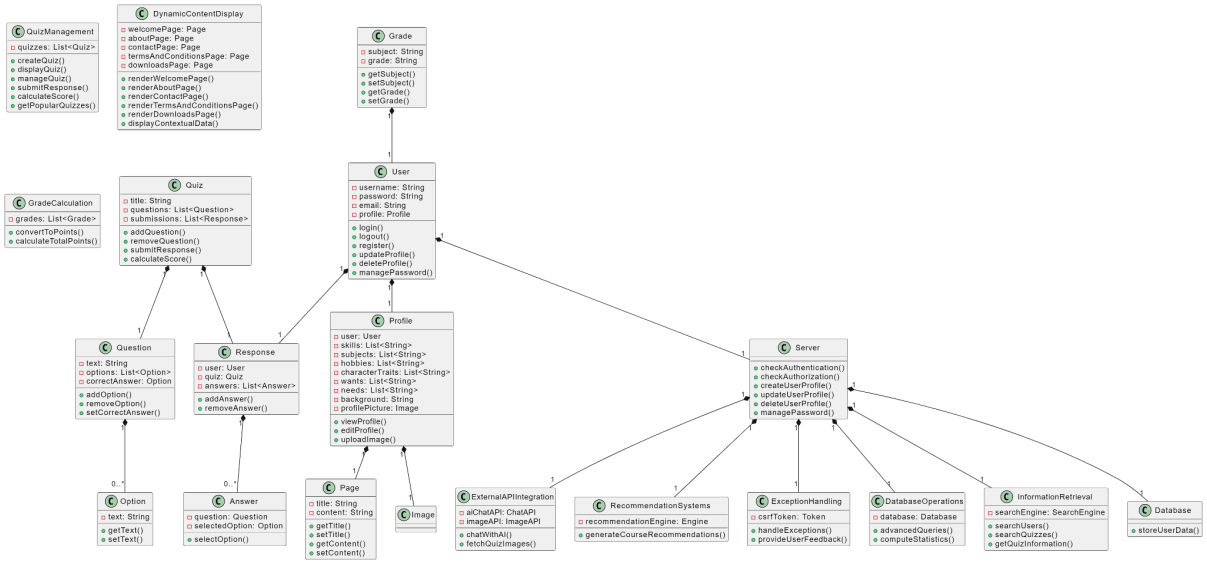
Database: The database stores all the information about each user and the application's data. This includes user profiles, quiz results, personalised recommendations, and more.
User Data: When users log in, their individual information is fetched from the database to provide them with a personalised user dashboard. The database serves as the central repository for user data and application content.
API Data Handling: With the integration of APIs, the server-side scripts also handle caching of certain API data when appropriate to reduce API calls and improve response times. This data is temporarily stored and managed within our database system to ensure efficient data retrieval and minimise dependencies on external services.

A6 - Architectural Diagram for the System

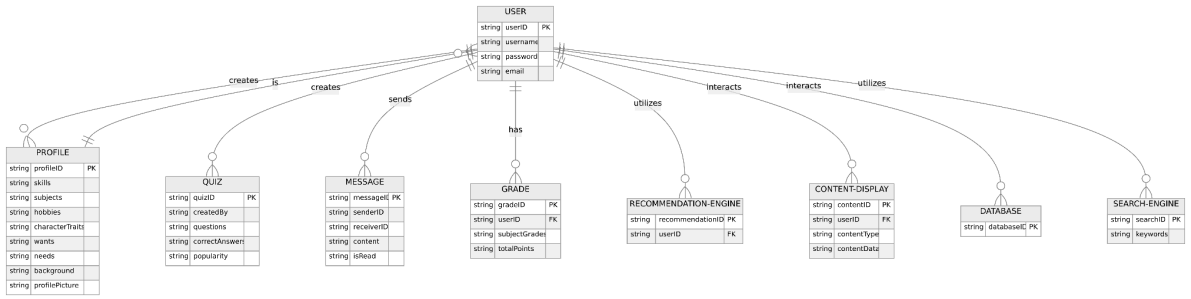


7. High-Level Design

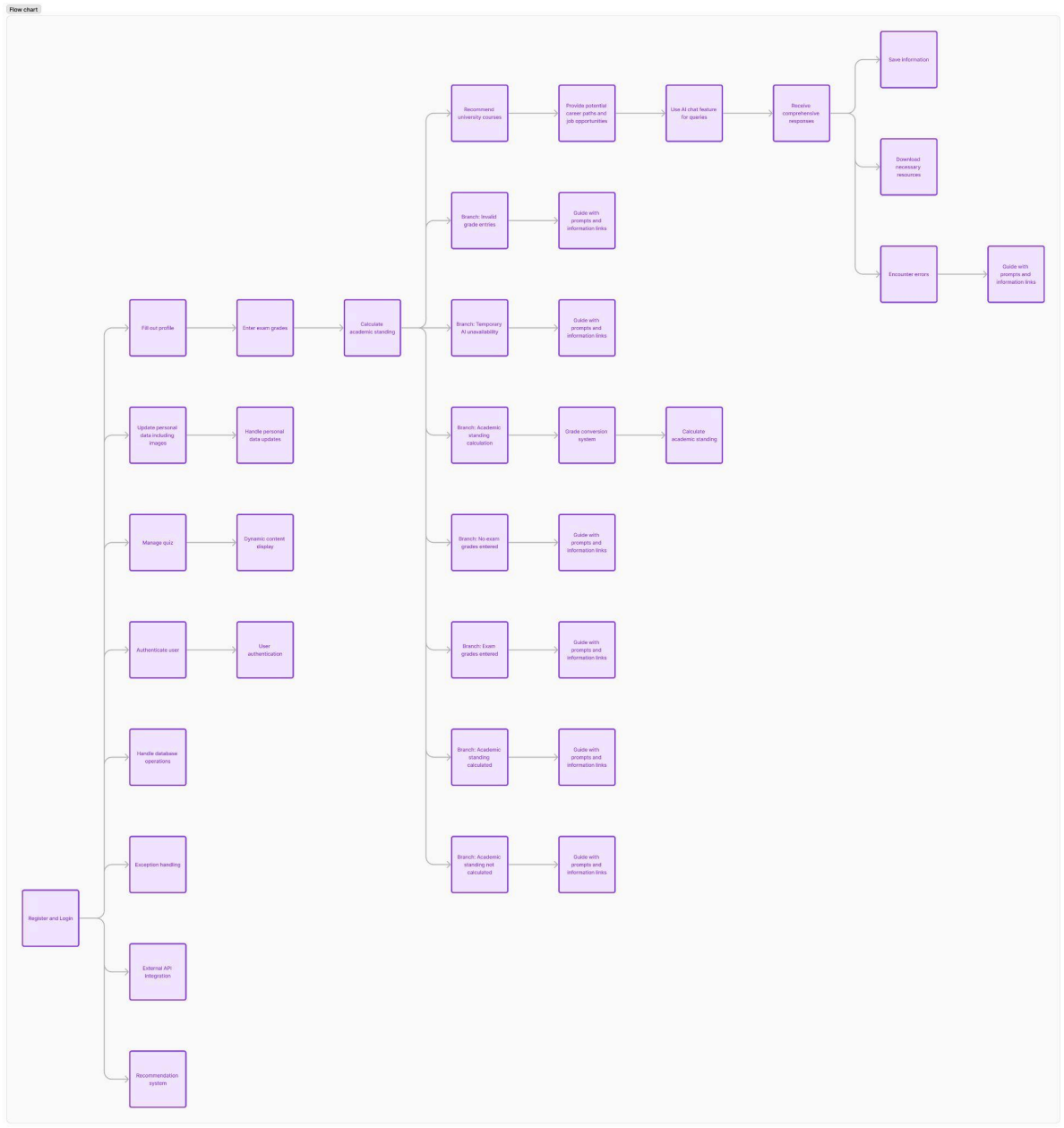
7.1 High Level Design Diagram



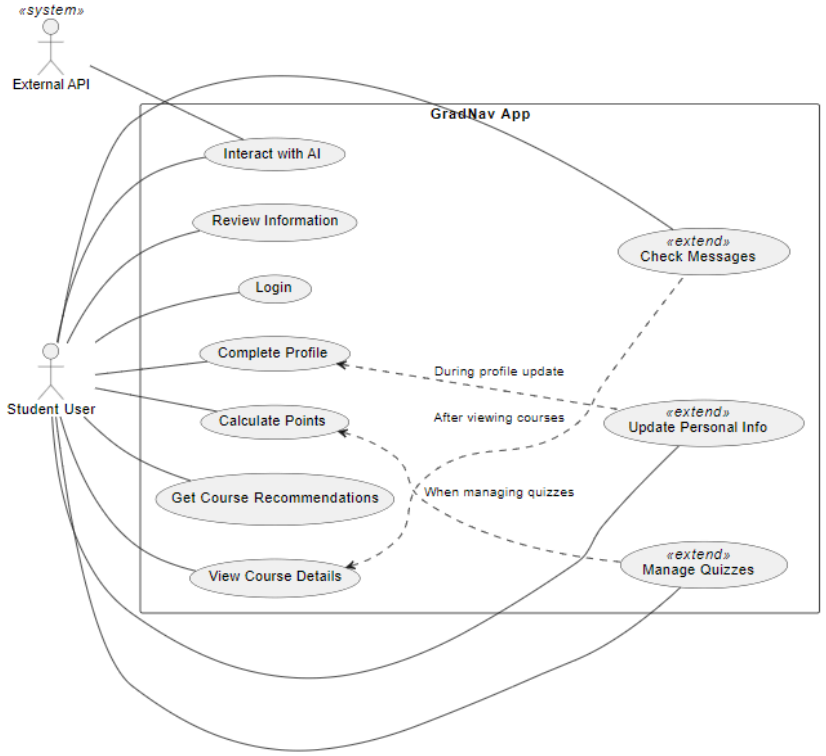
7.2 Logical Database Design



7.3 Data Flow Diagrams (DFDs)



7.4 UML Use Cases



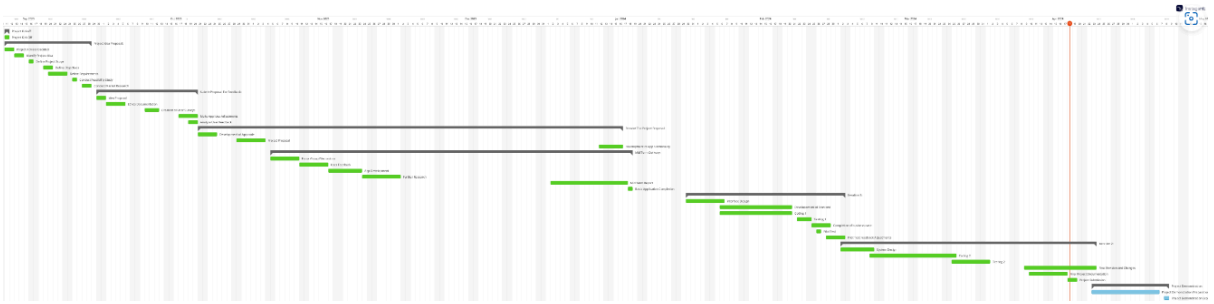
8. Preliminary Schedule

8.1 Task List

	Project Kickoff:		-	**11/Sep**	**11/Sep**		**100%**
1	Project Kick Off	St, ME	-	11/Sep	11/Sep	Finished	100%
	Project Idea Proposal:		-	**11/Sep**	**28/Sep**		**100%**
3	Project Advisor Decided	ME, St	-	11/Sep	12/Sep	Finished	100%
4	Identify Project Idea	St, ME	-	13/Sep	14/Sep	Finished	100%
5	Define Project Scope	ME, St	-	16/Sep	16/Sep	Finished	100%
6	Define Objectives	ME, St	-	19/Sep	20/Sep	Finished	100%
7	Define Requirements	ME, St	-	20/Sep	23/Sep	Finished	100%
8	Conduct Feasibility Study	ME, St	-	25/Sep	25/Sep	Finished	100%
9	Conduct Market Research	ME, St	-	27/Sep	28/Sep	Finished	100%
	Submit Proposal For Feedback:		-	**30/Sep**	**20/Oct**		**100%**
11	Idea Proposal	ME, St	-	30/Sep	01/Oct	Finished	100%
12	Ethics Documentation	ME, St	-	02/Oct	05/Oct	Finished	100%
13	Creation of User Surveys	Stephanie	-	10/Oct	12/Oct	Finished	100%
14	Make App Idea Adjustments	Martins Ejike	-	17/Oct	20/Oct	Finished	100%
15	Analyse User Feedback	ME, St	-	19/Oct	20/Oct	Finished	100%
	Present The Project Proposal:		-	**21/Oct**	**16/Jan**		**100%**
17	Development of App code	Martins Ejike	-	21/Oct	24/Oct	Finished	100%
18	Project Proposal	ME, St	-	29/Oct	03/Nov	Finished	100%
19	Development of App functio...	Stephanie	-	12/Jan	16/Jan	Finished	100%
	Mid Term Delivery:		-	**05/Nov**	**18/Jan**		**100%**
21	Focus Group Discussions	ME, St	-	05/Nov	10/Nov	Finished	100%
22	User Feedback	ME, St	-	11/Nov	16/Nov	Finished	100%
23	App Development	ME, St	-	17/Nov	23/Nov	Finished	100%
24	Further Research	ME, St	-	24/Nov	01/Dec	Finished	100%
25	Mid Term Report	ME, St	-	02/Jan	17/Jan	Finished	100%
26	Basic Application Completion	ME, St	-	18/Jan	18/Jan	Finished	100%
	Iteration 1:		-	**30/Jan**	**02/Mar**		**100%**
28	Interface Design	ME, St	-	30/Jan	06/Feb	Finished	100%
29	Developement of Frontend	ME, St	-	06/Feb	20/Feb	Finished	100%
30	Coding 1	ME, St	-	06/Feb	20/Feb	Finished	100%
31	Testing 1	ME, St	-	22/Feb	24/Feb	Finished	100%
32	Completion of business case	ME, St	-	25/Feb	28/Feb	Finished	100%

33	Pilot Test	ME, St	-	26/Feb	26/Feb	Finished	100%
34	Pilot Test Feedback Adjustm...	ME, St	-	28/Feb	02/Mar	Finished	100%
	Iteration 2:		-	**02/Mar**	**23/Apr**		**100%**
36	System Design	ME, St	-	02/Mar	08/Mar	Finished	100%
37	Coding 2	ME, St	-	08/Mar	25/Mar	Finished	100%
38	Testing 2	ME, St	-	25/Mar	01/Apr	Finished	100%
39	Final Revision and Changes	ME, St	-	09/Apr	23/Apr	Finished	100%
40	Final Project Documentation	ME, St	-	10/Apr	17/Apr	Finished	100%
41	Project Submission	ME, St	-	18/Apr	19/Apr	Finished	100%
	Project Demonstration:		-	**23/Apr**	**08/May**		**0%**
43	Project Demonstration Prep...	Unassigned	-	23/Apr	06/May	Not started	0%
44	Project Demonstration Expo	Unassigned	-	08/May	08/May	Not started	0%

8.2 Gantt Chart



9. Technical Integration

9.1 Zachman Framework point of view of the owner and technical designer

Zachman Framework Aspect	Description from Owner's Viewpoint
What (Data)	User profiles, quiz results, course information, career guidance data, and advertisement metrics are essential. Data must be structured for efficient retrieval and insightful analytics.
How (Function)	The system must support quizzes, user profile management, career/course recommendations, resources display, chat interactions, and data analytics. All functions should be streamlined and user-friendly.
Where (Network)	Services must be accessible through web and mobile platforms, with a reliable hosting solution that ensures uptime and performance.

Who (People)	The target users are students, Parents, and Career Counsellors. There must be an intuitive interface for end-users and an administrative portal for staff.
When (Time)	The system should provide real-time interactions and updates. Scheduling for maintenance and updates should minimise downtime and disruption.
Why (Motivation)	The project aims to provide valuable career and educational guidance to students, grow user base, keep more students further education, generate revenue through premium services and ads, and achieve market leadership in educational tech.

Zachman Framework Aspect	**Description from Technical Designer's Viewpoint**
What (Data)	Design a relational database schema to store user data, quiz information, course data, and analytics. Implement data caching strategies for API responses to improve performance.
How (Function)	Develop front-end interfaces using Django. Implement server-side logic in PHP for data processing. Integrate with ChatGPT and other APIs for enhanced functionality like real-time chat and dynamic content delivery.
Where (Network)	Ensure the application is hosted on a scalable cloud platform with CDN support for global accessibility. Design network security protocols to protect data in transit and at rest.
Who (People)	Create user-friendly UI/UX for students and educators, with access controls and personalisation. Design an admin panel for internal staff to manage content and view analytics.
When (Time)	Implement event-driven architecture to support real-time updates and notifications. Schedule regular database backups and maintenance tasks during off-peak hours.
Why (Motivation)	The system architecture aims to be scalable, maintainable, and secure. It is designed to deliver a seamless user experience, support GradNav’s revenue model, and position the app as a leading educational platform.

9.2 External Software Interfaces

GradNav contains an AI-powered chatbot function connected to the OpenAI API. This makes the app much more engaging for users and gives students and parents more personalised help. GradNav can understand user queries very well and correctly thanks to the OpenAI API's powerful natural language processing (NLP) algorithms. This lets the chatbot respond in a way that is relevant to the user's wants and preferences and give them useful information and suggestions. For instance, the chatbot can help students look into different career paths, learn what they need to do in order to pass a class, and find useful educational materials. Parents can also get personalised advice on how to help their kids reach their educational and job goals. This makes the whole experience more interactive and educational for everyone.

For GradNav to effectively find and show users useful educational resources, career insights, and job market information, it needs to integrate a custom search API. GradNav can get to external databases and repositories with a huge amount of up-to-date material by using the custom search API. This lets GradNav get complete and correct data from many different sources and show it in a way that is easy for users to understand on the platform. For example, users can quickly look for particular courses, universities, or job openings and get detailed information like how to apply, course syllabi, and salary information. Since the custom search API makes sure that GradNav users can access a lot of information to help them make decisions, the platform becomes more useful and valuable. It currently uses this API to display images relating to courses on the “Most Popular Careers” page. This gives users a clear, instant understanding of the type of career being ranked.

GradNav needs to connect to a payment gateway service in order to safely handle payments for subscriptions, partnership fees, and other items. GradNav makes sure that users can easily and safely pay with a variety of methods, such as credit/debit cards, digital wallets, or bank transfers, by connecting to a reputable payment platform. This improves the overall user experience by making the payment process easy and fast, which makes users happier and more likely to stick around.

9.3 Performance Requirements

Performance requirements for GradNav software are very important for making sure that users have the best experience possible. When users interact with the app, it needs to respond quickly to make sure that navigation is smooth and information is easy to find. This includes things like opening pages, getting search results, and handling user requests. All of these things should happen as quickly as possible to keep users interested and satisfied. GradNav should also aim for high system availability, with an uptime goal of at least 99% to keep problems to a minimum and make sure users can always access the platform.

The ability to grow with the number of users and the amount of work that needs to be done should not affect the speed of GradNav. This means that the platform has to be able to expand horizontally, which means that more server instances or resources have to be added as needed to handle multiple user sessions and data processing needs. It is important to handle concurrency well so that GradNav can support many users accessing different features at the same time without having performance problems or resource limits.

It is very important to be able to get data quickly, especially from outside sources like job market knowledge and educational materials. GradNav should quickly get and show data, making sure that processes are optimised to reduce latency and give users access to useful information in real time. In the same way, GradNav's search function should give users quick and correct results by quickly indexing and retrieving information to meet their needs.

GradNav's AI-powered chatbot feature needs to be very fast. The chatbot needs to be able to understand what users are asking and give them useful answers in real time. Natural language processing skills are very important in this case because they let the robot correctly understand what the user is trying to say and quickly give them useful information. GradNav also has to quickly and correctly process user data, make personalised suggestions, and do complex calculations so that users can get insights on time.

Lastly, security performance is very important. GradNav takes strong steps to protect user data and stop breaches or access by people who aren't supposed to. Key parts of this are encryption, authentication, and access controls, which keep private data safe and user trust high. Overall, GradNav can provide the best user experience and effectively carry out its goal of personalised career guidance and educational support by meeting these performance requirements.

9.4 Prototype Demonstration

In GradNav's Prototype Demonstration phase, the user authentication and training process is one of the main points, with a focus on making it easy for people to sign up and log in. Users are shown how to set up and customise their profiles, making sure that their likes and dislikes are properly recorded so that the site can meet their needs.

The prototype also shows off GradNav's personalised job assessment feature, which lets users enter their skills, interests, and personality traits. The platform then uses this information to make personalised job suggestions for users, giving them useful information about career paths that are a good fit for their strengths and goals. The prototype also lets users look through a lot of educational materials, such as course catalogues and profiles of universities. The user interface design focuses on making the search and navigation functions as easy to use as possible, so users can quickly find information about classes, universities, and academic programmes.

Along with educational resources, the prototype includes job market insights that give users useful information on job trends, salaries, and career possibilities. Users can look at job postings, pay estimates, and industry trends, which helps them make smart choices about their career paths. The AI-powered chatbot feature is also shown off. This feature gives users personalised help and answers questions about planning a job or going to school. The chatbot's natural language processing makes it easier for users to connect with and engage with the platform, making the experience more dynamic.

Also, the prototype puts a lot of emphasis on responsive design concepts to make sure that access and functionality are the same on all devices and screen sizes.

10. Development Insights

10.1 Source Code Highlights

Recommendation
(REFERENCE A.9.1 IN APPENDIX FOR ADDITIONAL INFORMATION)

Career Specific Quizzes
(REFERENCE A.9.2 IN APPENDIX FOR ADDITIONAL INFORMATION)

Chatbot
(REFERENCE A.9.3 IN APPENDIX FOR ADDITIONAL INFORMATION)

10.2 Unit Tests

Chatbot Unittest
(REFERENCE A.9.4 IN APPENDIX FOR ADDITIONAL INFORMATION)

Quiz Unittest
(REFERENCE A.9.5 IN APPENDIX FOR ADDITIONAL INFORMATION)

Register Unittest
(REFERENCE A.9.6 IN APPENDIX FOR ADDITIONAL INFORMATION)

Results
(REFERENCE A.9.7 IN APPENDIX FOR ADDITIONAL INFORMATION)

10.3 Interface Design and Rationale

(REFERENCE A.10 IN APPENDIX FOR ADDITIONAL INFORMATION)

10.4 User Acceptance Testing (UAT)

UAT Overview
This User Acceptance Testing ensures that GradNav meets the requirements of secondary school students and their parents, helping guide educational and career decisions effectively, this test was taken on the 19th April 2024.

(REFERENCE A.11 IN APPENDIX FOR ADDITIONAL INFORMATION)

11. Market Entry Challenges

11.1 Technical Challenges

(REFERENCE A.12 IN APPENDIX FOR ADDITIONAL INFORMATION)

12. Appendix

A1 - Primary Research

General Questions

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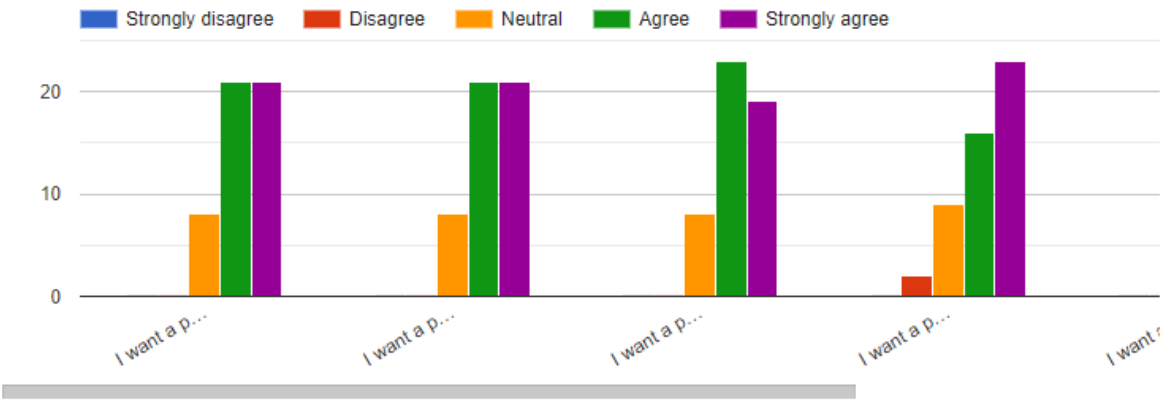
Web App User Interface

Copy



What other features would you like to see?

26 responses

more about PLC's and how to apply for them, more information about things like gap years, etc.

not sure

any

a page on what is included in courses. modules, work experience, studying abroad etc., equipment for certain courses

variety of courses and points decrease

I would like to see lots of info per course and what i may need for this

The ability to compare courses would be cool (ie have them side by side with all the important info)

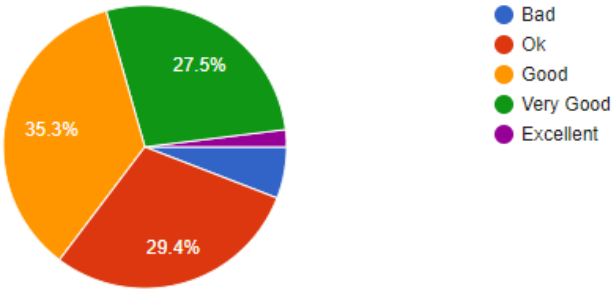
nothing

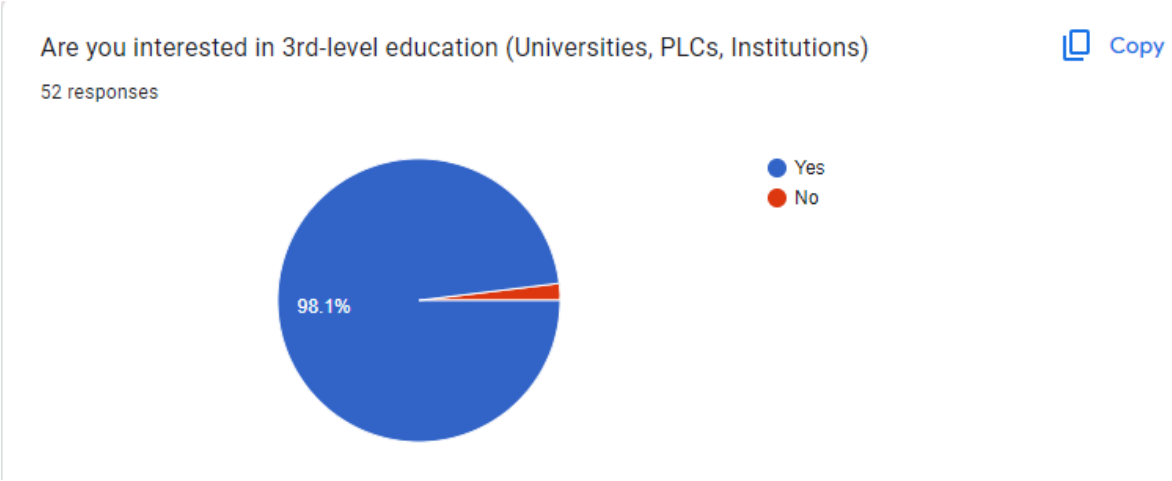
I don't know

How helpful are the resources you have found online?

Copy

51 responses





A2 - Secondary Research

[5.2] Education - CSO - Central Statistics Office. (2022, February 25). https://www.cso.ie/en/releasesandpublications/ep/p-mip/measuringirelandsprogress2020/education/

[5.3] Types of Post Primary School - SchoolDays.ie. (n.d.). https://www.schooldays.ie/articles/Types-of-post-primary-school#:~:text=There%20are%20approximatel y%20730%20post%20primary%20schools%20in%20total

[5.4] GradNav Survey - Google Forms https://docs.google.com/forms/d/e/1FAIpQLSddxp0PycJYehslE4UbqGLO6hY9NC7KHaNm0pK2ZWC8d3u9w/viewform?usp=sf_link

[5.5] C. (n.d.). Choosing a post-primary school. https://www.citizensinformation.ie/en/education/primary-and-post-primary-education/going-to-post-prim
ary-school/types-of-post-primary-school/#:~:text=Non%2Dfee%2Dpaying%20schools&text=Non%2Dfee% 2Dpaying%20voluntary%20secondary,of%20pupils%20attending%20the%20school.

A3 - First Year Financial Plan

	January	February	March	April	May	June	July	August	September	October	November	December	Total
REVENUE	**€65,442.70**	**€7,437.54**	**€6,607.10**	**€5,693.60**	**€4,336.91**	**€5,776.21**	**€5,278.38**	**€5,776.65**	**€6,025.78**	**€5,942.74**	**€6,191.87**	**€6,358.00**	**€130,867.48**
Investors	€35,000.00												€35,000.00
Premium Memberships	€3,596.00	€5,396.40	€4,646.90	€3,822.45	€2,598.00	€3,897.00	€3,447.70	€3,897.40	€4,122.25	€4,047.30	€4,272.15	€4,422.05	€48,165.60
Products	€298.47	€447.90	€385.69	€317.26	€215.63	€323.45	€286.16	€323.48	€342.15	€335.93	€354.59	€367.03	€3,997.74
Bank Loan	€25,000.00												€25,000.00
Supports and Grants	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.37	€17,500.00
Freemium Add-ons	€89.90	€134.91	€116.17	€95.56	€64.95	€97.43	€86.19	€97.44	€103.06	€101.18	€106.80	€110.55	€1,204.14
DEVELOPMENT COSTS	**€28,575.00**	**€4,000.00**	**€4,000.00**	**€4,875.00**	**€4,000.00**	**€4,000.00**	**€5,175.00**	**€4,400.00**	**€4,000.00**	**€4,875.00**	**€4,000.00**	**€4,000.00**	**€75,900.00**
Consultants	€2,000.00												€2,000.00
Legal	€300.00						€300.00						€600.00
User Acquisition	€1,000.00							€400.00					€1,400.00
Working Wage	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€48,000.00
QA Tester	€875.00			€875.00			€875.00			€875.00			€3,500.00
Software Tools	€5,000.00												€5,000.00
Data Acquisition	€3,000.00												€3,000.00
SSL Certificate	€400.00												€400.00
quipment and Technolog	€10,000.00												€10,000.00
Patents and Incorporatior	€2,000.00												€2,000.00
OPERATIONAL COSTS	**€931.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€18,549.40**
Loan Repayment		€700.00	€700.00	€700.00	€700.00	€700.00	€700.00	€700.00	€700.00	€700.00	€700.00	€700.00	€7,700.00
Communications	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€3,600.00
EO and Cloud Deploymer	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€3,960.00
main Name and Registrat	€30.00												€30.00
Data Hosting and Server	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€600.00
Web site hosting	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€59.40
MARKETING COSTS	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBEI	OCTOBER	NOVEMBEI	DECEMBER	TOTAL
Adverts and Marketing	€431.52	€647.57	€557.63	€458.69	€311.76	€467.64	€413.72	€467.69	€494.67	€485.68	€512.66	€530.65	€5,779.87
Influencer Promotions	€830.00	€450.00	€480.00	€200.00	€300.00	€350.00	€200.00	€360.00	€280.00	€370.00	€365.00	€580.00	€4,765.00
Event Promotions	€1,294.56	€1,942.70	€1,672.88	€1,376.08	€935.28	€1,402.92	€1,241.17	€1,403.06	€1,484.01	€1,457.03	€1,537.97	€1,591.94	€17,339.62
TRAINING/TRAVEL	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBEI	OCTOBER	NOVEMBEI	DECEMBER	TOTAL
Training classes	€500.00					€500.00							€1,000.00
ONTHLY TOTAL REVENU	€65,442.70	€7,437.54	€6,607.10	€5,693.60	€4,336.91	€5,776.21	€5,278.38	€5,776.65	€6,025.78	€5,942.74	€6,191.87	€6,358.00	**€130,867.48**
MONTHLY TOTAL COST	€32,511.32	€6,842.36	€6,582.42	€6,928.49	€5,856.56	€6,612.44	€7,083.52	€6,497.48	€6,279.47	€7,285.47	€6,122.45	€6,555.44	**€112,857.43**
MONTHLY TOTAL PROFIT	€32,931.38	€595.18	€24.67	-€1,234.89	-€1,519.64	-€836.23	-€1,805.14	-€720.84	-€253.68	-€1,342.73	€69.42	-€197.44	€18,010.05

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A4 - Second Year Financial Plan

	January	February	March	April	May	June	July	August	September	October	November	December	Total
REVENUE	**€40,769.80**	**€7,923.63**	**€7,030.92**	**€6,033.04**	**€4,589.96**	**€5,976.78**	**€5,552.19**	**€6,145.21**	**€6,431.73**	**€6,331.56**	**€6,565.07**	**€6,760.45**	**€110,110.34**
Investors	€35,000.00												€35,000.00
Premium Memberships	€3,596.00	€5,396.40	€4,646.90	€3,822.45	€2,598.00	€3,897.00	€3,447.70	€3,897.40	€4,122.25	€4,047.30	€4,272.15	€4,422.05	€48,165.60
Products	€298.47	€447.90	€385.69	€317.26	€215.63	€323.45	€286.16	€323.48	€342.15	€335.93	€354.59	€367.03	€3,997.74
Advertising	€315.00	€471.00	€400.00	€333.00	€217.00	€200.00	€250.00	€346.00	€379.00	€350.00	€330.00	€343.00	€3,934.00
Supports and Grants	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.33	€1,458.37	€17,500.00
Freemium Add-ons	€102.00	€150.00	€140.00	€102.00	€101.00	€98.00	€110.00	€120.00	€130.00	€140.00	€150.00	€170.00	€1,513.00
DEVELOPMENT COSTS	**€19,575.00**	**€4,000.00**	**€4,000.00**	**€4,875.00**	**€4,000.00**	**€4,000.00**	**€5,175.00**	**€4,000.00**	**€4,000.00**	**€4,875.00**	**€4,000.00**	**€4,000.00**	**€66,500.00**
Consultants	€1,000.00												€1,000.00
Legal	€300.00						€300.00						€600.00
													€0.00
Working Wage	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€4,000.00	€48,000.00
QA Tester	€875.00			€875.00			€875.00			€875.00			€3,500.00
Software Tools	€5,000.00												€5,000.00
Data Acquisition	€3,000.00												€3,000.00
SSL Certificate	€400.00												€400.00
quipment and Technolog	€5,000.00												€5,000.00
													€0.00
OPERATIONAL COSTS	**€931.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€18,549.40**
Communications	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€3,600.00
EO and Cloud Deploymer	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€3,960.00
Internet Access	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€500.00
Data Hosting and Server	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€600.00
Web site hosting	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€59.40
Web maintenance	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€2,100.00
MARKETING COSTS	**€1,661.52**	**€1,397.57**	**€1,287.63**	**€898.69**	**€701.76**	**€887.64**	**€703.72**	**€927.69**	**€1,024.67**	**€1,155.68**	**€977.66**	**€1,310.65**	**€12,934.87**
Adverts and Marketing	€431.52	€647.57	€557.63	€458.69	€311.76	€467.64	€413.72	€467.69	€494.67	€485.68	€512.66	€530.65	€5,779.87
Influencer Promotions	€830.00	€450.00	€480.00	€200.00	€300.00	€350.00	€200.00	€360.00	€280.00	€370.00	€365.00	€580.00	€4,765.00
Marketing events	€400.00	€300.00	€250.00	€240.00	€90.00	€70.00	€90.00	€100.00	€250.00	€300.00	€100.00	€200.00	€2,390.00
TRAINING / TRAVEL	**€743.18**	**€243.18**	**€243.18**	**€243.18**	**€243.18**	**€743.18**	**€243.18**	**€243.18**	**€243.18**	**€243.18**	**€243.18**	**€243.18**	**€3,918.16**
Training classes	€500.00					€500.00							€1,000.00
Travel costs	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€2,918.16
ONTHLY TOTAL REVENU	€40,769.80	€7,923.63	€7,030.92	€6,033.04	€4,589.96	€5,976.78	€5,552.19	€6,145.21	€6,431.73	€6,331.56	€6,565.07	€6,760.45	**€110,110.34**
MONTHLY TOTAL COST	€22,911.32	€6,542.36	€6,432.42	€6,918.49	€5,846.56	€6,532.44	€7,023.52	€6,072.48	€6,169.47	€7,175.47	€6,122.45	€6,455.44	**€101,902.43**
MONTHLY TOTAL PROFIT	€77.00	€1,381.27	€598.50	-€885.45	-€1,256.59	-€555.66	-€1,471.33	€72.73	€262.26	-€843.92	€442.61	€305.01	€8,207.91

A5 - Third Year Financial Plan

	January	February	March	April	May	June	July	August	September	October	November	December	Total
REVENUE	**€56,957.63**	**€9,111.03**	**€8,055.33**	**€7,578.86**	**€6,490.41**	**€6,513.73**	**€6,359.13**	**€6,898.33**	**€7,591.13**	**€7,463.83**	**€8,103.63**	**€8,678.13**	**€139,801.17**
Investors	€50,000.00												€50,000.00
Premium Memberships	€4,100.00	€5,900.00	€5,000.00	€4,657.00	€3,760.00	€3,800.00	€3,600.00	€4,000.00	€4,600.00	€4,500.00	€5,100.00	€5,600.00	€54,617.00
Products	€340.30	€489.70	€415.00	€386.53	€312.08	€315.40	€298.80	€332.00	€381.80	€373.50	€423.30	€464.80	€4,533.21
Advertising	€315.00	€471.00	€400.00	€333.00	€217.00	€200.00	€250.00	€346.00	€379.00	€350.00	€330.00	€343.00	€3,934.00
Supports and Grants	€2,100.33	€2,100.33	€2,100.33	€2,100.33	€2,100.33	€2,100.33	€2,100.33	€2,100.33	€2,100.33	€2,100.33	€2,100.33	€2,100.33	€25,203.96
Freemium Add-ons	€102.00	€150.00	€140.00	€102.00	€101.00	€98.00	€110.00	€120.00	€130.00	€140.00	€150.00	€170.00	€1,513.00
DEVELOPMENT COSTS	**€20,075.00**	**€4,500.00**	**€4,500.00**	**€5,375.00**	**€4,500.00**	**€4,500.00**	**€4,800.00**	**€4,500.00**	**€4,500.00**	**€5,375.00**	**€4,500.00**	**€4,500.00**	**€71,625.00**
Consultants	€1,000.00												€1,000.00
Legal	€300.00						€300.00						€600.00
													€0.00
Working Wage	€4,500.00	€4,500.00	€4,500.00	€4,500.00	€4,500.00	€4,500.00	€4,500.00	€4,500.00	€4,500.00	€4,500.00	€4,500.00	€4,500.00	€54,000.00
QA Tester	€875.00			€875.00						€875.00			€2,625.00
Software Tools	€5,000.00												€5,000.00
Data Acquisition	€3,000.00												€3,000.00
SSL Certificate	€400.00												€400.00
quipment and Technolog	€5,000.00												€5,000.00
													€0.00
OPERATIONAL COSTS	**€931.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€901.62**	**€18,549.40**
Communications	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€300.00	€3,600.00
EO and Cloud Deployme	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€330.00	€3,960.00
Internet Access	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€41.67	€500.00
Data Hosting and Server	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€50.00	€600.00
Web site hosting	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€4.95	€59.40
Web maintenance	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€175.00	€2,100.00
MARKETING COSTS	**€1,392.00**	**€1,210.00**	**€1,030.00**	**€690.00**	**€530.00**	**€360.00**	**€339.00**	**€740.00**	**€910.00**	**€910.00**	**€865.00**	**€1,200.00**	**€10,176.00**
Adverts and Marketing	€492.00	€460.00	€300.00	€250.00	€140.00	€150.00	€160.00	€280.00	€380.00	€390.00	€400.00	€420.00	€3,822.00
Influencer Promotions	€500.00	€450.00	€480.00	€200.00	€300.00	€140.00	€89.00	€360.00	€280.00	€220.00	€365.00	€580.00	€3,964.00
Marketing events	€400.00	€300.00	€250.00	€240.00	€90.00	€70.00	€90.00	€100.00	€250.00	€300.00	€100.00	€200.00	€2,390.00
TRAINING / TRAVEL	**€743.18**	**€243.18**	**€243.18**	**€243.18**	**€243.18**	**€743.18**	**€243.18**	**€243.18**	**€243.18**	**€243.18**	**€243.18**	**€243.18**	**€3,918.16**
Training classes	€250.00					€250.00							€500.00
Travel costs	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€243.18	€2,918.16
ONTHLY TOTAL REVENU	€56,957.63	€9,111.03	€8,055.33	€7,578.86	€6,490.41	€6,513.73	€6,359.13	€6,898.33	€7,591.13	€7,463.83	€8,103.63	€8,678.13	**€139,801.17**
MONTHLY TOTAL COST	€23,141.80	€6,854.80	€6,674.80	€7,209.80	€6,174.80	€6,504.80	€6,283.80	€6,384.80	€6,554.80	€7,429.80	€6,509.80	€6,844.80	**€104,268.56**
ONTHLY TOTAL PROFI	**€77.00**	**€2,256.23**	**€1,380.53**	**€369.06**	**€315.61**	**€8.93**	**€75.33**	**€513.53**	**€1,036.33**	**€34.03**	**€1,593.83**	**€1,833.33**	**€35,532.61**

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A7 - Team CV's

Stephanie's CV

EXPERIENCE

KPMG — *Consultant*

JAN 2023 - AUG 2023

- Engage in various consultancy projects
- Leveraged design platforms like Adobe, Figma, Uizzard, and Canva
- Define requirements and create graphics, including illustrations, logos, layouts, and photos.
- Shape visual aspects of flyers, posters & presentations
- Manage and create content for Irish social media profiles

GTA Black Women In Tech — *Content Creation*

AUG 2022 - JAN 2023

- Utilize design platforms to design content for the Irish branch.
- Visualize and create graphics, including illustrations, logos, layouts, and photos.
- Develop and maintain the Irish branch's social media profiles.

BT Group — *IT Architect*

MAY 2022 - JUL 2022

- Assist in developing high-level solutions for business applications, systems, and infrastructures.
- Contribute to the design and management of communications, security, networking, broadcasting, and storage.
- Provide technical support and quality control throughout project stages.
- Establish development tools and environments.

EDUCATION

Dublin City University, Dublin, Ireland — BSc Enterprise *Computing incl. Information Technology, Project Management)*

SEPT 2020 - MAY 2024

Modules Include: Business Systems Analysis, Database Management, Project Management, Programming Fundamentals, UI Design and Implementation, Digital Innovation Management & Enterprise

2020-2021 – 1:1
2021-2022 – 1:1
2022 - 2023 – 2:1
2023 - 2024 – predict a 1:1

SKILLS

Project Management.

IT Consulting

UI Design and Implementation

App Development

Problem-solving, Creativity & Critical Thinking

FINAL YEAR SUBJECTS

Project Management

Search Technologies

Enterprise Architecture

Innovation & Entrepreneurship

Software Engineering

Internet of Things

Cloud Computing

Web Applications

FINAL YEAR PROJECT

A web app that informs 2nd level education students on career paths and further education opportunities tailored to them based on their skills, character traits and hobbies informing them on possible courses and information on the various universities they could study in.

Martins’s CV

Martins Ejike

Aspiring Software Engineer

Martins.ejike@hotmail.c Personal Website Linkedin

PERSONAL PROFILE

Final year Computing student at DCU expecting to graduate with a 1.1. Experienced in software development, data analysis, and system design; Developed skills in programming languages such as Python and Java through completing various college projects. Demonstrated strong problem-solving abilities and teamwork skills through collaborative projects and internships in the tech industry. Committed to continuous learning and applying computing knowledge to practical, real-world challenges.

SKILLS

Programming Languages
Python, Java, Javascript, SQL, C#

Version Control
Git

Cloud Computing
AWS, Netflify, Streamlit

Web Development
CSS, HTML, JavaScript, React

Machine Learning
R, Python (Tensorflow)

Frameworks
Django, Asp.NET, .NET, Bootstrap

PROFESSIONAL EXPERIENCE

Information Technology Intern — 01/2023 – 08/2023
Irish Life — Dublin, Ireland

- Led and executed multiple database migrations, ensuring seamless transition and integrity of data, significantly reducing system downtime.
- Conducted comprehensive comparison testing between non-migrated and migrated data, identifying and addressing discrepancies to maintain data accuracy.
- Resolved numerous code errors, enhancing software functionality and reliability, and improving overall system performance.
- Managed data migration processes, coordinating effectively across teams to ensure smooth and error-free execution of migration plans.
- Detected and reported system defects, providing detailed analysis to the team, which contributed to timely and efficient resolution of issues.

Technical Support Engineer — 02/2019
Ingersoll Rand — Swords, Ireland

- Completed a one-week work experience placement as a Technical Support Assistant, gaining valuable exposure to IT system management and support.
- Assisted a Technical Support Engineer in diagnosing and resolving system issues, enhancing system performance and user satisfaction.
- Developed and organised operational plans for the effective running of IT systems, ensuring optimal efficiency and reliability.

Human Resource Assistant — 07/2017
Bruntwood — Manchester, United Kingdom

- Undertook a one-week work experience placement, providing valuable assistance to a Business Human Resource Leader.
- Gained comprehensive insight into the day-to-day operations of human resources, learning key aspects of HR management and business operations.
- Assisted in organising and setting up meetings, contributing to the efficiency and effectiveness of the HR department.

PROJECTS

ParkAtDCU Application

- Engineered 'ParkAtDCU', a Django-based web application, to offer real-time carpark availability information at DCU, enhancing campus accessibility for staff and students.
- Implemented dynamic data retrieval and processing in Django, using requests to external APIs for up-to-date carpark information across various DCU campuses.
- Crafted an intuitive user interface comprising Home, Maps, and Bus Stops pages, each integrating essential campus information and navigational aids.

University Administration System
- Developed a comprehensive University Administration System in Python, facilitating the management of university operations.
- Implemented a random number generator for unique identification purposes, enhancing the system's efficiency and data integrity.
- Designed and integrated a class structure, University, to effectively handle university data such as courses, fees, and student records.
- Ensured robust functionality through thorough testing and optimisation, focusing on system reliability and data accuracy.

EDUCATION

BSc Enterprise Computing — Dublin, Ireland
Dublin City University
Expected Graduation: May 2024
Relevant Modules: Web Design, Machine Learning, Software Engineering, Systems Analysis, App Development, Programming Fundamentals, Databases Management

CERTIFICATES

Designing & Building a Basic Web Page
Online Course - Skillsoft

JavaScript: Introduction
Online Course - Skillsoft

Web Design Basics
Online Course - Skillsoft

Web Design Enhancements
Online Course - Skillsoft

Web Fundamentals: Cascading Style Sheets for Web Pages
Online Course - Skillsoft

ASP.NET MVC Web Applications: Introduction
Online Course - Skillsoft

SQL 2016 Tables
Online Course - Skillsoft

Learning Python
Online Course - LinkedIn

MySQL Essential Training
Online Course - LinkedIn

INTERESTS

Artificial Intelligence, Software Development, Football, Coding, Fitness, Gaming, Fashion

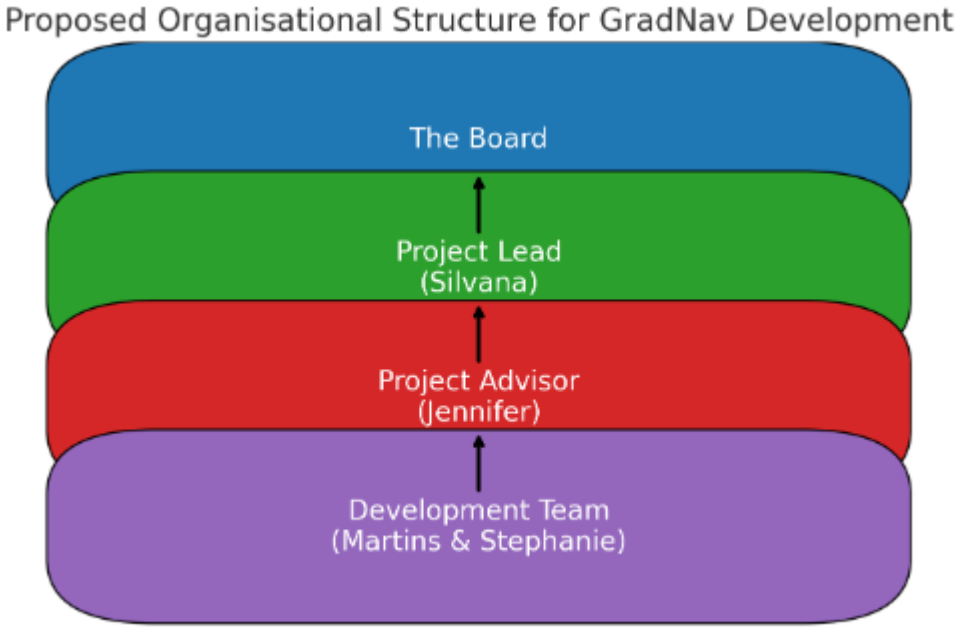
ACHIEVEMENTS

- Became a Football Association of Ireland Student Ambassador, and head of recreational 5-a-side football for Dublin City University for the year 2022 - 2023
- Senior Prefect in under 1 year of schooling in the East Manchester Academy, Manchester, United Kingdom
- Completed full driver's test first time
- Completed Python Course
- Completed MySQl Essential Training Course

REFERENCES

Available upon request

A8 - Organisational Structure



A9 - Code Samples

A9.1 - Recommendation code

```python
@login_required
@csrf_exempt  # Consider security implications in production
def get_recommendations(request):
    # This endpoint might be adapted to POST if fetching dynamic user data
    if request.method == "GET":
        # Generate the comprehensive prompt from the user's profile and quiz responses
        prompt = generate_chatgpt_prompt(request.user)

        try:
            # Create chat completion with OpenAI
            chat_completion = client.chat.completions.create(
                model="gpt-3.5-turbo",  # Adjust the model name as necessary
                messages=[
                    {"role": "system", "content": "You are a knowledgeable assistant asked to provide course and career recommendations."},
                    {"role": "user", "content": prompt}
                ]
            )
            # Extract the recommendations from the response
            recommendations = chat_completion.choices[0].message.content  # Ensure this matches the actual response structure
        except Exception as e:
            recommendations = f"An error occurred: {str(e)}"

        # Assuming you want to return the recommendations to be displayed on a webpage
        return render(request, 'recommendations.html', {'recommendations': recommendations})
    else:
        # Handle unexpected method
        return JsonResponse({"error": "Method not allowed"}, status=405)
```

```python
# Adjust import as necessary
def generate_chatgpt_prompt(user):
    from account.models import Profile, Background

    profile = Profile.objects.get(user=user)

    # Gathering information from the profile
    skills = ", ".join([skill.name for skill in profile.skills.all()])
    subjects = ", ".join([subject.name for subject in profile.subjects.all()])
    hobbies = ", ".join([hobby.name for hobby in profile.hobbies.all()])
    character_traits = ", ".join([trait.name for trait in profile.character_traits.all()])
    wants_needs = ", ".join([want_need.name for want_need in profile.wants_needs.all()])

    # Organizing background information
    background_entries = Background.objects.filter(profiles=profile)
    background_str = ""
    for category in Background.CATEGORY_CHOICES:
        category_code, category_name = category
        entries = background_entries.filter(category=category_code)
        if entries:
            entry_str = ", ".join(entry.detail for entry in entries)
            background_str += f"{category_name}: {entry_str}. "

    prompt = f"""
Given a student with the following profile:
- Skills: {skills}
- Academic Focus (Subjects): {subjects}
- Hobbies: {hobbies}
- Character Traits: {character_traits}
- Wants and Needs: {wants_needs}
- Background: {background_str}
```

```
Could you recommend:
1. Related job opportunities and their descriptions and personality types that suit the role.
2. Bachelor's degree courses available in Ireland related to the quiz topic and what colleges they can be studied in with points to match.
3. Salary insights for jobs related to the quiz topic.
4. Nearby accommodation options for students based on the courses recommended.
5. Any other relevant information.
For each career path and university course recommended, please provide a brief explanation of why they are suited to the student's profile.
"""

    return prompt
```

This Django code for generating course and career recommendations demonstrates good software development practices. It uses a separate function, generate_chatgpt_prompt from utils.py, to create prompts, which keeps the main view function simple and easy to maintain. The code includes strong error handling to manage API failures gracefully, which helps prevent the application from crashing and improves user experience. It also ensures that only logged-in users can access this feature, adding a layer of security. However, the use of @csrf_exempt should be carefully considered; while sometimes necessary, generally turning off CSRF protection can risk security and should be avoided. Overall, the code is well-organised and secure, showing clear programming practices while suggesting areas for potential security enhancements.

A9.2 - Career Specific Quizzes code

```python
@login_required(login_url='login')
def quiz_view(request, quiz_id):
    user_object = User.objects.get(username=request.user)
    user_profile = Profile.objects.get(user=user_object)
    quiz = Quiz.objects.filter(id=quiz_id).first()
    total_questions = quiz.question_set.all().count()

    # This check ensures that the quiz exists before proceeding
    if not quiz:
        messages.error(request, "The requested quiz does not exist.")
        return redirect('all_quiz')

    if request.method == "POST":
        score = int(request.POST.get('score', 0))

        # Check if the user has already submitted this quiz and update the score
        submission, created = QuizSubmission.objects.update_or_create(
            user=request.user,
            quiz=quiz,
            defaults={'score': score}
        )

        # Provide feedback to the user based on the score
        if score >= 5:
            # Set the session variable to true to indicate that the additional information should be displayed
            request.session['display_additional_info'] = True
            messages.success(request, f"You scored {score} out of {total_questions}. Click below to get more information.")
        else:
            # If the score is less than 5, inform the user they are not recommended for the course
            messages.info(request, f"You scored {score} out of {total_questions}. You are not recommended for the course.")
```

```
    # Redirect to the same quiz page to display the messages
    return redirect('quiz', quiz_id=quiz_id)

# If it's a GET request, display the quiz
# The display_additional_info is popped from the session to check if the button should be displayed
context = {
    "user_profile": user_profile,
    "quiz": quiz,
    "total_questions": total_questions,
    # The pop method will remove the display_additional_info from the session after accessing its value
    "display_additional_info": request.session.pop('display_additional_info', False)
}
return render(request, 'quiz.html', context)
```

```
@login_required
def display_additional_info(request, quiz_title):
    # Ensure the user has scored enough to access this view.
    # If not, redirect them and show a warning message.
    if not request.session.get('display_additional_info', False):
        messages.warning(request, "Take the Quiz!, You are not recommended this career yet")
        # Redirect to the detailed quiz view.
        return redirect('quiz_details', quiz_title=quiz_title)

    # Clear the session variable after checking it.
    del request.session['display_additional_info']

    # OpenAI API call logic
    openai.api_key = settings.OPENAI_API_KEY
    prompt = f"""
Given the quiz title '{quiz_title}', provide the following information:
1. Related job opportunities and their descriptions and personality types that suit the role.
2. Bachelor's degree courses available in Ireland related to the quiz topic and what colleges they can be studied in with points to match.
3. Salary insights for jobs related to the quiz topic.
4. Nearby accommodation options for students based on the courses recommended.
5. Any other relevant information.
"""
    try:
        response = openai.Completion.create(
            engine="gpt-3.5-turbo",
            prompt=prompt,
            temperature=0.5,
            max_tokens=1000
        )
        text_response = response.choices[0].message['content'].strip()
    except Exception as e:
        messages.error(request, f"An error occurred while retrieving additional information: {e}")
        return redirect('quiz_details', quiz_title=quiz_title)

    # Return the additional information as an HttpResponse
    return HttpResponse(text_response, content_type="text/plain")
```

The Django code for the quiz feature effectively uses login requirements to ensure that only authorised users can access the quiz. It checks if the quiz exists before users proceed and handles errors smoothly, which makes the application reliable and user-friendly. It provides personalised feedback based on how well users perform: if a user scores high enough, they can see more detailed information. Why It's Great: This feature improves user engagement by providing feedback that is specific to their performance. It also makes the quiz more educational and interactive by allowing high-scoring users to access additional information. Furthermore, the code clearly separates different tasks (like showing the quiz and processing submissions), which makes it easier to manage and update.

A9.3 - Chatbot Code

```python
from django.http import JsonResponse
from django.views.decorators.http import require_http_methods
from django.views.decorators.csrf import csrf_exempt
import requests
from django.conf import settings

@csrf_exempt  # CSRF exemption for demonstration purposes only
@require_http_methods(["POST"])  # Ensure this view only accepts POST requests
def chat_with_gpt(request):
    # Extract the user message from the AJAX POST request
    user_message = request.POST.get("message")

    # Prepare the API URL and headers
    url = "https://api.openai.com/v1/chat/completions"
    headers = {
        "Content-Type": "application/json",
        "Authorization": f"Bearer {settings.OPENAI_API_KEY}"
    }

    # Prepare the data to be sent in the POST request
    data = {
        "model": "gpt-3.5-turbo",
        "messages": [{"role": "user", "content": user_message}],
        "temperature": 0.7
    }

    try:
        # Make the POST request to the OpenAI API
        response = requests.post(url, json=data, headers=headers)
        response_data = response.json()
```

```python
        # Extract the chat response
        if response.status_code == 200:
            chat_response = response_data['choices'][0]['message']['content']
        else:
            chat_response = "Failed to get response from OpenAI API"
    except Exception as e:
        chat_response = f"An error occurred: {str(e)}"

    # Return the chatbot's response in JSON format
    return JsonResponse({"response": chat_response})
```

```
<!-- Chatbot Widget -->
<div id="chatbot-widget-container">
  <!-- Chatbot widget button -->
  <button id="chatbot-toggle">&#129302;</button>

  <!-- Chatbot widget -->
  <div id="chatbot-widget" style="display:none;">
      <!-- Header of the chat widget -->
      <div id="chat-header">
          <span>GradNav Chatbot</span>
          <button id="chat-close">&#10005;</button>
      </div>

      <!-- Where the chat messages will appear -->
      <div id="chat-messages" class="chat-messages"></div>

      <!-- User input area -->
      <textarea id="chat-input" class="chat-input" placeholder="Ask me any question..."></textarea>

      <!-- Send button -->
      <button id="chat-send" class="chat-send">Send</button>
  </div>
</div>
```

The Django chatbot code is designed to handle messages securely and efficiently. It uses special settings to only accept messages sent via POST requests, ensuring that the chat operates correctly and safely. When a user sends a message, the code captures it, formats it properly, and sends it to the OpenAI API using settings that include secure authentication. The chatbot then waits for a response from OpenAI. If everything goes smoothly, it returns the AI's response back to the user. If there's an error, the code handles it neatly and informs the user that something went wrong. Why It's Great: This setup keeps the chatbot secure and user-friendly. It effectively deals with user inputs and any issues that might arise during the process, ensuring that users have a smooth and engaging experience with the chatbot. This approach demonstrates how to build robust and interactive chat features in web applications.

A9.4 - Unit Tests (Chatbot)

```python
class ChatWithGPTTests(TestCase):
    def setUp(self):
        # Set up a client to use in tests
        self.client = Client()

    def test_post_request_with_message(self):
        # Test the view with a valid POST request
        with patch('requests.post') as mock_post:
            mock_post.return_value.status_code = 200
            mock_post.return_value.json.return_value = {
                'choices': [{'message': {'content': 'Hello, how can I help you?'}}]
            }

            response = self.client.post(reverse('chat_with_gpt'), {'message': 'Hello'})
            self.assertEqual(response.status_code, 200)
            self.assertEqual(response.json(), {'response': 'Hello, how can I help you?'})


    def test_get_request_rejected(self):
        # Ensure that GET requests are rejected
        response = self.client.get(reverse('chat_with_gpt'))
        self.assertNotEqual(response.status_code, 200)

    def test_api_failure_handling(self):
        # Test the API failure scenario
        with patch('requests.post') as mock_post:
            mock_post.return_value.status_code = 400
            mock_post.return_value.json.return_value = {}

            response = self.client.post(reverse('chat_with_gpt'), {'message': 'Test'})
            self.assertEqual(response.status_code, 200)
            self.assertEqual(response.json(), {'response': 'Failed to get response from OpenAI API'})
```

```python
    def test_exception_handling(self):
        # Test exception handling in the view
        with patch('requests.post') as mock_post:
            mock_post.side_effect = Exception("Some error")

            response = self.client.post(reverse('chat_with_gpt'), {'message': 'Test'})
            self.assertEqual(response.status_code, 200)
            self.assertTrue('An error occurred' in response.json()['response'])
```

This Testcase is designed to comprehensively test a chatbot feature, ensuring it works correctly under various scenarios. It uses a testing tool to simulate user interactions with the chatbot, testing how well the chatbot handles good inputs, wrong request types, and errors from the external service it depends on. The tests cleverly use a tool called patch to fake responses from the OpenAI service, which allows the tests to check if the chatbot responds appropriately without needing to connect to the actual service. Why It's Great: This method is excellent because it ensures the chatbot is reliable and handles every situation properly, whether it's a normal conversation or an unexpected error. This is crucial for keeping the chatbot functioning well for users no matter what happens, thereby maintaining a smooth and engaging user experience.

A9.5 - Unit Tests (Quiz)

```python
class QuizViewTest(TestCase):
    def setUp(self):
        # Login before each test
        self.client.login(username='testuser', password='12345')

    def test_quiz_access(self):
        # User accesses the quiz page
        response = self.client.get(self.quiz_url)
        self.assertEqual(response.status_code, 200)
        self.assertTemplateUsed(response, 'quiz.html')
        self.assertIn('quiz', response.context)
        self.assertEqual(response.context['quiz'].id, self.quiz.id)

    def test_nonexistent_quiz_access_raises_error(self):
    # Expecting an error when trying to access a non-existent quiz
        with self.assertRaises(AttributeError):
            self.client.get(reverse('quiz', kwargs={'quiz_id': 999}))

    def test_quiz_submission_redirect(self):
        # User submits a quiz score
        response = self.client.post(self.quiz_url, {'score': '7'})
        self.assertRedirects(response, self.quiz_url)

    def test_quiz_submission_message_high_score(self):
        # Check for success message on high score
        response = self.client.post(self.quiz_url, {'score': '8'})
        messages = list(get_messages(response.wsgi_request))
        self.assertTrue(any("Click below to get more information" in str(message) for message in messages))

    def test_quiz_submission_message_low_score(self):
        # Check for info message on low score
        response = self.client.post(self.quiz_url, {'score': '3'})
        messages = list(get_messages(response.wsgi_request))
        self.assertTrue(any("You are not recommended for the course" in str(message) for message in messages))
```

This Testcase effectively tests the quiz functionality of a GradNav to ensure it works correctly under different situations. It prepares detailed test data, including a user profile and quiz information, and checks important aspects such as accessing the quiz, dealing with quizzes that don't exist, and the system's response to different quiz scores. The tests confirm that the right web pages are shown, proper errors are displayed for quizzes that can't be found, and that users receive appropriate messages based on their scores after submitting a quiz. Why It's Great: This thorough testing guarantees that the quiz feature functions smoothly and reliably, offering users a seamless and interactive experience. It ensures that the system provides accurate feedback and handles errors well, which is vital for educational applications where user experience and precise feedback are key.

A9.6 - Unit Tests (Register)

```python
class RegisterViewTests(TestCase):
    def setUp(self):
        self.user = User.objects.create_user(username='testuser', email='test@example.com', password='password123')
        Profile.objects.create(user=self.user)
        self.skills = [Skill.objects.create(name="Creativity")]
        self.subjects = [Subject.objects.create(name="Music")]
        self.hobbies = [Hobby.objects.create(name="Dancing")]
        self.character_traits = [CharacterTrait.objects.create(name="Driven")]
        self.wants_needs = [WantsNeeds.objects.create(name="Career Stability")]
        self.backgrounds = [Background.objects.create(category='family_structure', detail='Big Family')]
        self.register_url = reverse('register')
        self.profile_url = reverse('profile', kwargs={'username': self.user.username})
        self.get_recommendations_url = reverse('get_recommendations')

    def test_authenticated_redirect(self):
        self.client.login(username='testuser', password='password123')
        response = self.client.get(self.register_url)
        self.assertRedirects(response, self.profile_url)

    def test_register_step_one_valid(self):
        self.client.session['register_step'] = 1  # Set the step explicitly
        self.client.session.save()  # Make sure session is saved before the request
        form_data = {
            'username': 'newuser',
            'email': 'newuser@example.com',
            'password': 'securepassword123',
            'password2': 'securepassword123',
        }
        response = self.client.post(self.register_url, form_data)
        self.client.session.save()  # Save session after the post
        self.assertEqual(self.client.session.get('register_step'), 2)
```

This Testcase tests the registration process of a GradNav to ensure it works correctly. It sets up a detailed test environment that mimics real user scenarios by pre-populating the database with user profiles and various attributes like skills and hobbies. The tests check important aspects like whether users are redirected correctly after logging in and if the registration steps progress properly when valid information is submitted. Why It's Great: This detailed testing approach helps catch potential errors early, making the registration process secure and user-friendly. It confirms that the system behaves as expected, protecting user data and making the registration feature reliable. The structured tests also make it easy to adapt and verify any changes to the registration process, maintaining the application's functionality and user satisfaction as it updates and grows.

A9.7 - Unit Tests (Results)

As you can see tests of the major functionalities of our application passed unit tests showing how robust the application is.

```
PS C:\Users\Marti\Desktop\GradNav Final\2024-ca472-sulogwara2-ejikec2\gradnav-backend-django> python manage.py tes
Found 11 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
...........
----------------------------------------------------------------------
Ran 11 tests in 3.255s

OK
```

A10 - Interface Design Rationale

Introduction

GradNav is designed to assist secondary school students in Ireland by providing personalised career pathways and course recommendations. Recognising the anxiety and uncertainty faced by students during course selections, GradNav aims to simplify these decisions by combining user-specific data with detailed educational resources.

User Personas and Stories

User Persona: Alex - 6th Year Secondary School Student

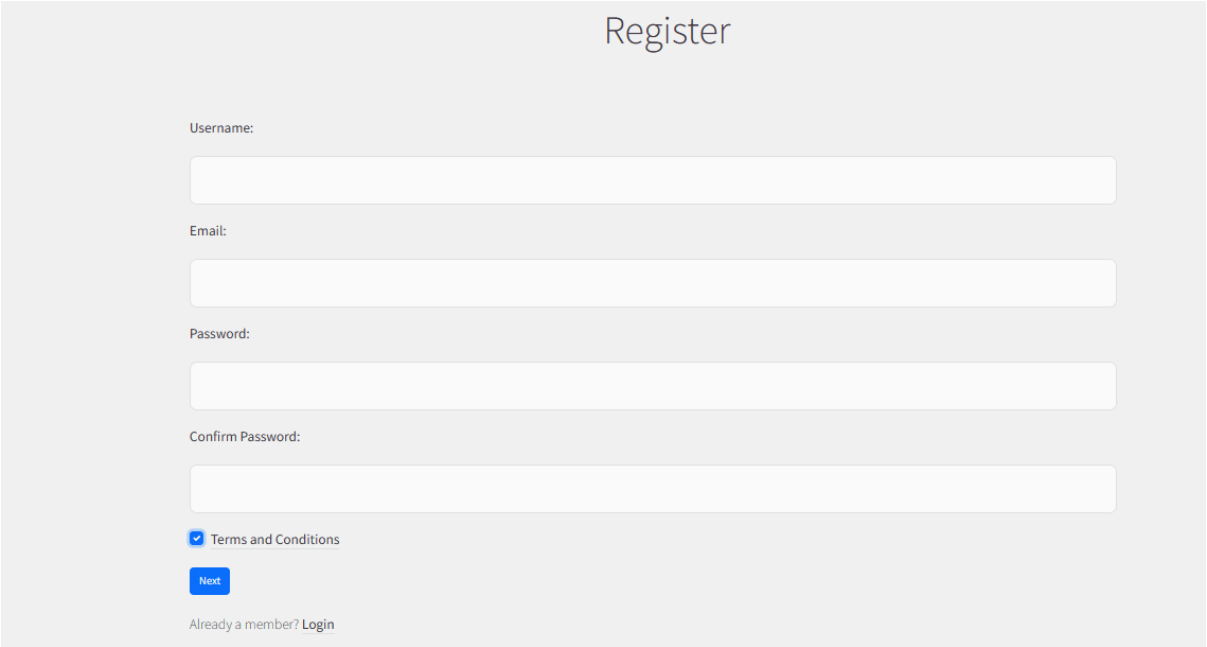
Goals: Discover and select suitable college courses and potential career paths.
Challenges: Overwhelmed by the choices, unclear about the requirements and prospects of various courses.
Interactions with GradNav: Uses the app to receive personalised recommendations, explore courses, and clarify doubts through a chatbot.

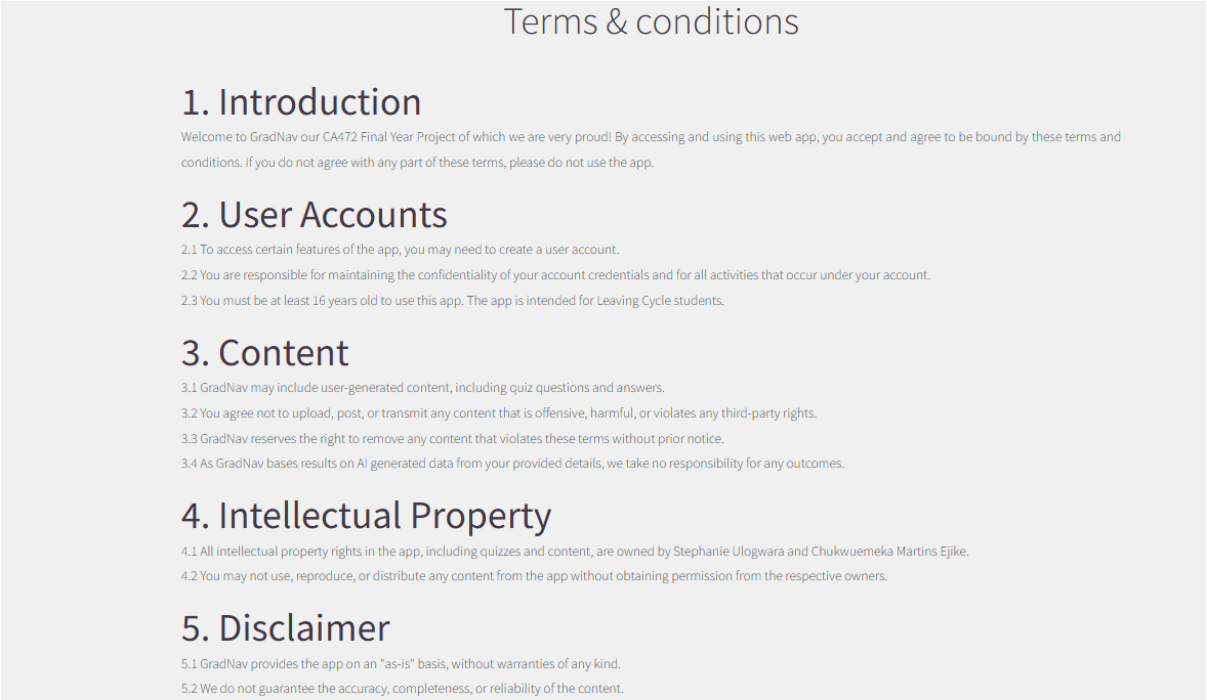
User Story:

As Alex, I want to register and input my academic and personal preferences so that I can receive personalised career and course recommendations.
Interface Mock-up and Functionality Walk-through

1. Registration Process:

Alex starts by creating an account where he inputs his personal and educational details.
Mock-up Rationale: The registration form is designed to be intuitive and engaging, using a step-by-step process to reduce the complexity and potential stress of inputting a large amount of data.

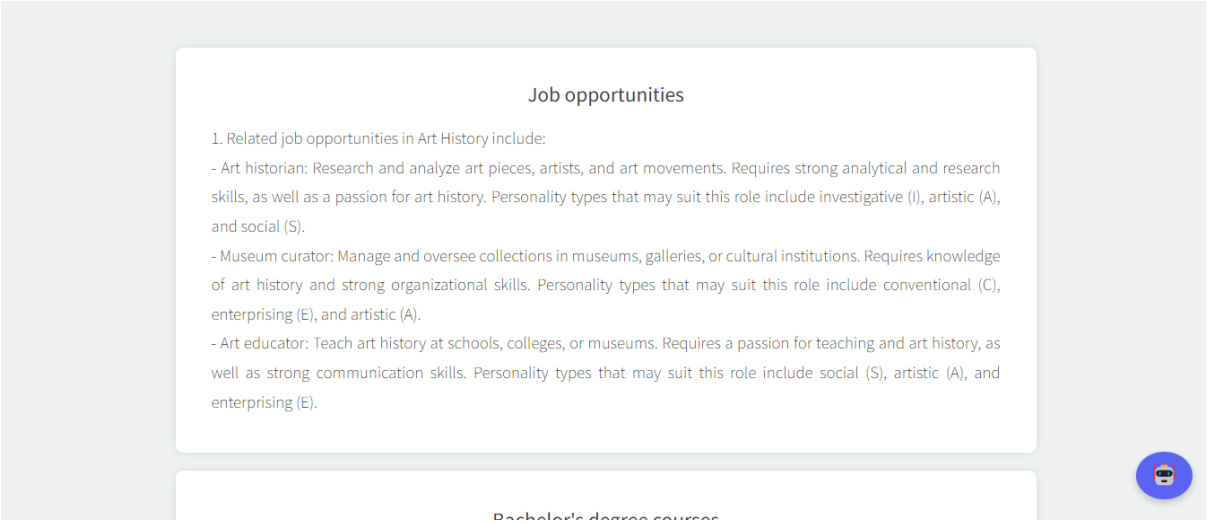




Alex must accept the terms and conditions in order to use the app, our 3.4 within the image says " As GradNav bases results on AI generated data from your provided details, we take no responsibility for any outcomes." users have to tick terms and conditions in order to make an account if they do not they can't use the app, so they must agree to "As GradNav bases results on AI generated data from your provided details, we take no responsibility for any outcomes" meaning if our recommendations are AI based and we are not taking any responsibility for recommendations that are not accurate for users.

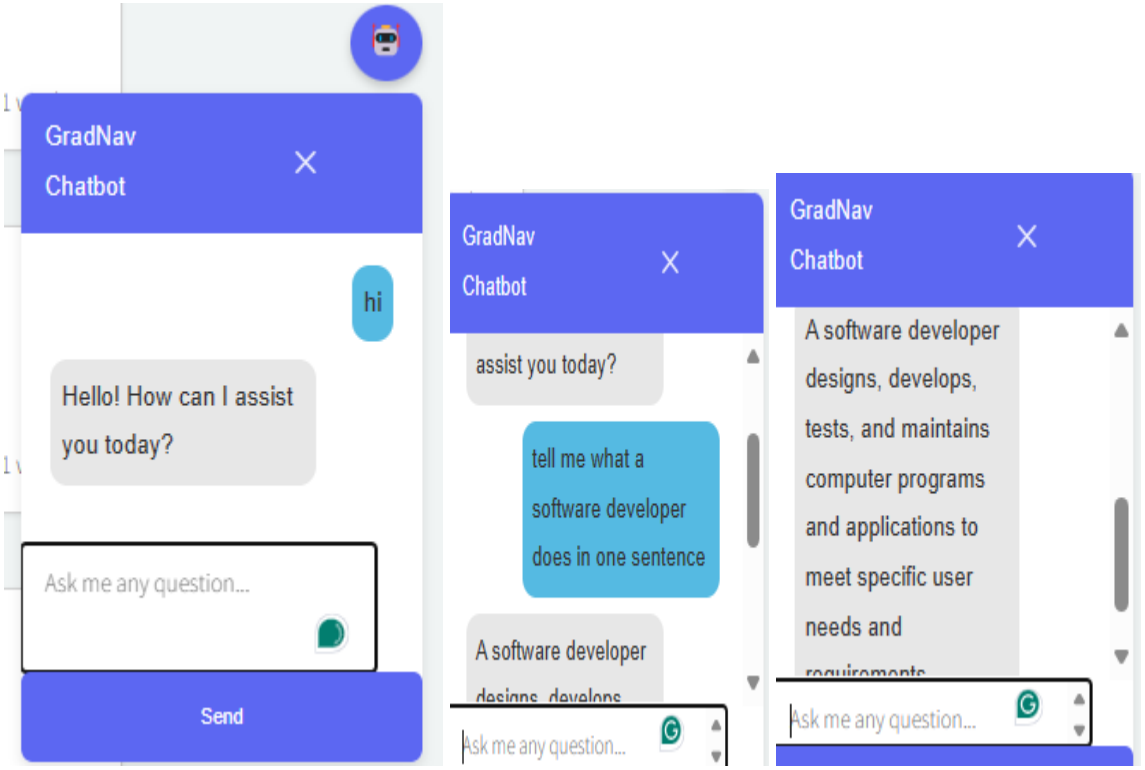
2. Personalised Recommendations:

Immediately after registration, Alex receives five tailored career opportunities and detailed course suggestions.
Mock-up Rationale: Each recommendation includes CAO points, potential salaries, and accommodation options, providing a comprehensive overview that helps in making an informed decision.



3. Chatbot Interaction:

For any inquiries, Alex interacts with a sophisticated chatbot powered by GPT-3.5-turbo, capable of answering detailed queries.
Mock-up Rationale: The chatbot interface is designed to be conversational and user-friendly, encouraging students to seek clarifications and explore their options thoroughly.



4. Career-Specific Quizzes:

Alex can engage with career-specific quizzes to further explore suitable careers based on his quiz outcomes.
Mock-up Rationale: The quiz interface is simple and direct, providing immediate feedback that is crucial for keeping the user engaged and informed.

All Quizzes

All Quiz | Technology | Business | Engineering | Science | Health&Medicine | Law | Social Sciences | Education | Arts&Design | Arts&Humanities

Search | Search

Web Developing
Total Questions - 9
A career in Web Developing?
Start Quiz — 5 hours, 6 minutes ago

Systems Analyst
Total Questions - 9
A Career in Systems Analysis?
Start Quiz — 5 hours, 7 minutes ago

Software Engineer
Total Questions - 9
A career Software Engineering?
Start Quiz — 5 hours, 7 minutes ago

Network Administrator
Total Questions - 9
A Career in Networks?
Start Quiz — 5 hours, 8 minutes ago

IT Consulting
Total Questions - 9
A Career in Technology Consultancy?
Start Quiz — 5 hours, 9 minutes ago

Database Administration
Total Questions - 9
A Career in Data?
Start Quiz — 5 hours, 10 minutes ago

Cyber Security
Total Questions - 9
A career in Cyber Security?

Sociology
Total Questions - 9
A career in Sociology?

Psychology
Total Questions - 9
A career in Psychology?

GradNav | Profile | Quiz | Popular Quizzes | Other | Logout

Art History!!.. But What is That?

Let's Get Into It!

Career and Education Matching

Find colleges that offer courses tailored to your desired career paths, complete with insights into potential job opportunities and salary expectations.

Living and Learning Support

Access essential information on accommodation, cost of living, and other resources to ensure a smooth transition into your chosen field and educational environment.

Bachelor's degree courses

Bachelor's degree courses related to Philosophy in Ireland include:
- Bachelor of Arts in Philosophy at University College Dublin (UCD) - 533 points
- Bachelor of Arts in Philosophy, Politics, Economics and Sociology at Trinity College Dublin (TCD) - 555 points
- Bachelor of Arts in Philosophy, Politics and Economics at University College Cork (UCC) - 500 points

Salary insights

Salary insights for entry-level positions related to Philosophy:
- Philosopher: Entry-level salary range is around €30,000 to €40,000 per year. With career progression and experience, salaries can increase to over €70,000 per year.
- Ethics Officer: Entry-level salary range is around €35,000 to €45,000 per year. With career progression, salaries can increase to over €60,000 per year.
- Policy Analyst: Entry-level salary range is around €30,000 to €40,000 per year. With career progression, salaries can increase to over €50,000 per year.

Certain feedback from the survey on students from A1 stated:

- Careers after the course
- support quotes or make it colourful loved this guys best off luck
- Information about Hpat for the students who want to pursue Medicine
- a page on what is included in courses. modules, work experience, studying abroad etc., equipment for certain courses
- I would like to see lots of info per course and what i may need for this
- The ability to compare courses would be cool (ie have them side by side with all the important info)

Feedback Implementation:

Career Information: Post-course career opportunities are clearly detailed, addressing users' needs for understanding the long-term benefits of each course. This helps students like Alex envision a clear career path post-graduation.
Interactive Elements: Features like the ability to compare courses side by side were added to empower users like Alex to make comparisons directly.
Educational Content: Additional information such as modules, work experience opportunities, and studying abroad options are included for each course.
Aesthetics and Support: The interface incorporates vibrant colours and support quotes to make the navigation and learning process enjoyable and motivational.
Chatbot Integration: In-app chatbot powered by GPT-3.5-turbo was implemented to provide real-time, interactive support. Users like Alex can ask detailed questions about courses, careers, and educational pathways and receive instant, well-informed responses. This feature was particularly highlighted in user feedback as a significant enhancement

Conclusion

The design of GradNav is shaped by feedback from the users it's meant to help. We made sure it works well and looks good, meeting the needs and likes of its users. GradNav provides detailed information about courses, fun interactive parts, and strong support. This makes choosing courses less confusing and helps students make confident decisions.

A11 - User Acceptance Testing (UAT) for GradNav

Participants

Tracy: A secondary school student using GradNav to explore educational paths and career options.
James: Another secondary school student, sibling to Tracy, using GradNav for similar purposes.
Chris: Father of Tracy and James, interested in understanding and supporting his children's educational planning.

Test Case	User	Expected Outcome	Actual Outcome	Status	Comments
Register	Tracy	Smooth registration process with immediate access to features	Registration successful no issues	Pass	Smooth and intuitive registration process.
Register	James	Smooth registration process with immediate access to features	Minor issues with password	Pass with notes	Password format should be clearer
Receive Course Recommendation	Tracy	Receive tailored course suggestions based on individual profile	Recommendations relevant and well-received	Pass	Accurate and aligned with interests.
Receive Course Recommendation	James	Receive tailored course suggestions based on individual profile	Recommendations insightful and practical	Pass	Engaging and relevant to career aspirations.
Access Popular Quizzes	Chris	Easily find and understand popular quizzes for educational insights	Content found easily, navigation intuitive	Pass	Quizzes found to be relevant and educational.

Answer Career Specific Quizzes	Tracy	Engaging and informative quizzes that help clarify career interests	Quizzes engaging, no issues	Pass	Enjoyed the variety and depth of quizzes.
Answer Career Specific Quizzes	James	Engaging and informative quizzes that help clarify career interests	Quizzes engaging, no issues	Pass	Liked the design of the quizzes
Talk to Chatbot	Chris	Quick and accurate responses to queries about app functionality	Responses helpful and quick	Pass	Shocked at the speed of the bot replies, loved it!

User Sign-off

All users confirmed that GradNav met their requirements and expectations. Each user has signed off on their portion of the testing, indicating their acceptance of the application for production use.

Signed by

A12 - Technical Challenges

Getting the GradNav project to market has been hard in a number of technical ways that have required careful thought and problem-solving. One big problem has been that the codebase has to be updated all the time to match new API instructions. Since API specifications are always changing, making sure that older versions still work with the newest ones has been a constant job. Because of this problem, API changes have to be constantly checked for and code has to be carefully changed to match, which makes the development process more difficult.

Figuring out how Django views methods work with front-end technologies like JavaScript and CSS has been another technical challenge. It took a deep understanding of both backend and frontend

development concepts to make these parts work together smoothly to create a unified user experience. To get past this problem, a lot of testing, fixing, and tweaking have been needed to make the platform work the way we want it to and look good.

There have also been technical problems with connecting the different sub-applications in the GradNav project. With many sub-apps like base, account, question, and GradNav, each with its own Python files and features, making sure that these parts can talk to each other and work together smoothly has been hard. Setting up strong communication methods and making sure that sub-applications depend on each other clearly has been key to keeping the code clean and making it easier for team members to work together efficiently.

Setting up specialised features like the CAO calculator and the well-known games page has been harder than expected. In order for the CAO calculator to correctly calculate course points based on user input, it needed complicated algorithms and logic. This made the backend functionality more difficult to understand. In the same way, creating and implementing the popular quizzes page required careful thought about what users wanted and how to measure engagement to make sure that the page had the right content.

Creating a chatbot for our app was a real challenge. Normally, you have to spend ages training models to make the bot smarter at dealing with user questions. But we wanted to move faster, so we decided to use a big, ready-made AI model called GPT-3.5-turbo. Fitting this AI into our Django app wasn't easy because it meant weaving code into several different places, not just one single .py file. Plus, we wanted the chatbot to pop up as a little widget on the screen, not take over the whole page, and getting that right was tricky.

Then there was the task of figuring out how to suggest the right courses to our users. We wanted the recommendations to be spot on, which was tough. We ended up using an API that calls on the GPT-3.5-turbo AI to look at what users tell us and then suggest career and course options that fit them best. At first, our registration process was just on one page, which was simple but not very thorough. To really tailor our recommendations, we had to expand it into a multi-page form where users could tell us about their skills, subjects, and more. Making sure all that info was stored and then used correctly by the AI to give course suggestions was quite the hurdle.

As coders with little experience with Django, the project has also required us to put in a lot of time and effort to learn independently. Finding a good balance between programming jobs and ongoing self-directed learning has proven to be difficult. To learn new things effectively, it was needed to be disciplined and persistent. Even with these problems, the commitment to always learning and improving skills has been a big part of getting past technology problems and moving the GradNav project closer to its launch.

A13 - Glossary

Term	Description

API (Application Programming Interface)	A set of rules that allows different software entities to communicate with each other, enabling integration of different systems and technologies.
AWS (Amazon Web Services)	A cloud computing platform used by the system for hosting the web application, ensuring scalability and reliability.
CAO (Central Applications Office)	The organisation in Ireland responsible for overseeing the application process for undergraduate programs in Irish higher education institutions.
CSS (Cascading Style Sheets)	Utilised to describe the presentation of a document written in a markup language such as HTML, enhancing the visual aesthetics of the system's web interface.
Chatbot	A software application used to conduct an online chat conversation via text or text-to-speech, simulating how a human would behave as a conversational partner.
Co-Developers	Developers working together on the creation of software, handling both the technical aspects and collaborative problem-solving.
Data Flow Diagram (DFD)	A graphical representation of the flow of data through an information system. It illustrates how data is processed by a system in terms of inputs and outputs.
Development Team	The group of individuals responsible for building and maintaining the software application. This includes both front-end and back-end development tasks.
Django	A high-level Python web framework used in the development of the system's web application for efficient and robust coding.
Executive Leadership	Refers to the highest-level management roles within an organisation, responsible for strategic decisions and overall project delivery.
Figma and Canva	Design tools employed by the system for creating an engaging and user-friendly interface.
Freemium	A pricing strategy by which a product or service (typically a digital offering such as software, media, games, or web services) is provided free of charge, but money is charged for additional features, services, or virtual goods.

Gantt Chart	A type of bar chart that illustrates a project schedule. It shows the start and finish dates of the terminal elements and summary elements of a project.
GradNav	The software project described in the document, intended to provide career pathways and course recommendations for students in Ireland.
GUI (Graphical User Interface)	A type of interface facilitating interaction with electronic devices like computers and handheld devices, ensuring user-friendly navigation within the system web application.
HTML (Hyper Text Markup Language)	A language essential for web content creation, defining structures and layouts using tags and attributes.
LLM (Large Language Model)	A sophisticated neural network architecture designed to comprehend and generate human-like text, producing content that seamlessly integrates with natural language.
MySQL	A relational database management system that utilises SQL for efficient data processing within its database. It offers multi-user access to various databases.
PHP (PHP Hypertext Processor)	An open-source server-side scripting language specifically crafted for creating dynamic web pages, empowering the development of interactive and responsive web content.
Project Advisor	An expert who supports the project by providing strategic advice and feedback throughout the development process.
Project Lead	The main point of contact for the project at the executive level, responsible for securing resources and representing the project before stakeholders.
PyCharm	An Integrated Development Environment (IDE) used by the system's developers for efficient Python coding.
UAT (User Acceptance Testing)	The final phase of software testing where the actual software users test the software to make sure it can handle required tasks in real-world scenarios.
UML (Unified Modeling Language)	A standardised modelling language in the field of software engineering, used to visualise the design of a system.

Zachman Framework	A framework for enterprise architecture that provides a structured way to view and define an enterprise from different perspectives.