

Possible chapter orders

Intro

IT

HR

Marketing B2B

Marketing B2C

Operations

Finance Funding

Operational Finance

Conclusion

Information Technology Requirements (Tynnan Conquit)

Introduction

Bachelor of Commerce, Major in Business Analytics, and Bachelor of Information Technology, Major in Web and Mobile App Development. I will be writing from the Information Technology standpoint. This will allow me to provide the IT knowledge that will allow our commerce teammates to focus on their strengths.

Solution Description

The GradeUp education platform will be a web application accessible via desktop or mobile. Students will be provided a username and password from their schools to access the platform. From there, they can complete modules, play educational games, and download resources stored in the MongoDB Atlas database.

Educators and tutors will have access to the platform via a username and password. This will give them a different interface in order to upload resources and check student progression.

The platform will be hosted on dedicated GoDaddy servers to reduce performance problems. A custom domain name will be used to create an easy to remember URL.

The development team will utilize Microsoft Office and GitHub Teams to complete their work and maintain the codebase. Further, the development team will have access to Adobe Photoshop to help create a visually appealing platform.

Staffing Requirements

1 Senior developer

The senior developer will be responsible for leading the development and maintenance of the platform. This person will act as a role model and mentor for the junior developers. As such, this person will have a major input regarding the GradeUp platform.

Responsibilities:

- Liaise with customers to understand their problems, needs, and preferences to improve the platform.

- Provide support (in-business hours) for technical problems.
- Lead and upskill the junior developers.
- Maintain and upgrade the codebase to support new modules, functionalities, and other progressions for the platform.
- Provide administrative support for the junior developers.
- Perform unit testing and lead user testing to ensure all code is quality and error free.

Requirements:

- 5+ years of relevant experience.
- Evidence of leading a team.
- Knowledge and understanding of Agile methodologies, the software development lifecycle, and programming best practices such as DRY.

Desired but not required:

- Customer service and interaction skills
- Knowledge of modern technologies and methodologies such as Azure, .NET, DevOps etc. Knowing how to use them is not important, but rather knowing how they could be used for future development and platform improvements.
- Working With Childrens Check.
- Graphic design skills.

Salary:

- **\$120'000 per year***.
 - * Based on the lower end of average senior developer salaries (Glass Door 2023). A lower salary is required given the platform being small in the first 3 years before major expansion nation-wide.
 - Role taken by CTO, Tynnan Conquit.

2 Junior developers

Junior developers will be the future of the GradeUp development team. These individuals will be motivated, willing to learn, and eager to dive right into an agile development environment. These individuals will learn from a senior developer and be given the opportunity to grow into senior roles, or specializations, in line with the expansion of GradeUp. This role is open those willing to learn and grow, not just those

Responsibilities:

- Liaise with customers to understand their problems, needs, and preferences to address issues and improve the platform.
- Provide support (in-business hours) for technical problems.
- Maintain and upgrade the codebase to support new modules, functionalities, and other progressions for the platform.
- Perform basic unit testing and user testing to ensure all code is quality and error free.

Requirements:

- Evidence of working in a team environment.
- 1+ years of relevant experience OR undergraduate degree in a relevant field.
- Knowledge and understanding of Agile methodologies, the software development lifecycle, and programming best practices such as DRY.

Desired but not required:

- Customer service and interaction skills
- Knowledge of modern technologies and methodologies such as Azure, .NET, DevOps etc. Knowing how to use them is not important, but rather knowing how they could be used for future development and platform improvements.
- Working With Childrens Check.
- Graphic design skills.

Salary:

- \$70'000 per year*.

- * Based on the lower end of average junior developer salaries (Glass Door 2023). A lower salary is required given the platform being small in the first 3 years before major expansion nation-wide.

[PB- IT staff = \$260,000]

Software and Hardware Requirements

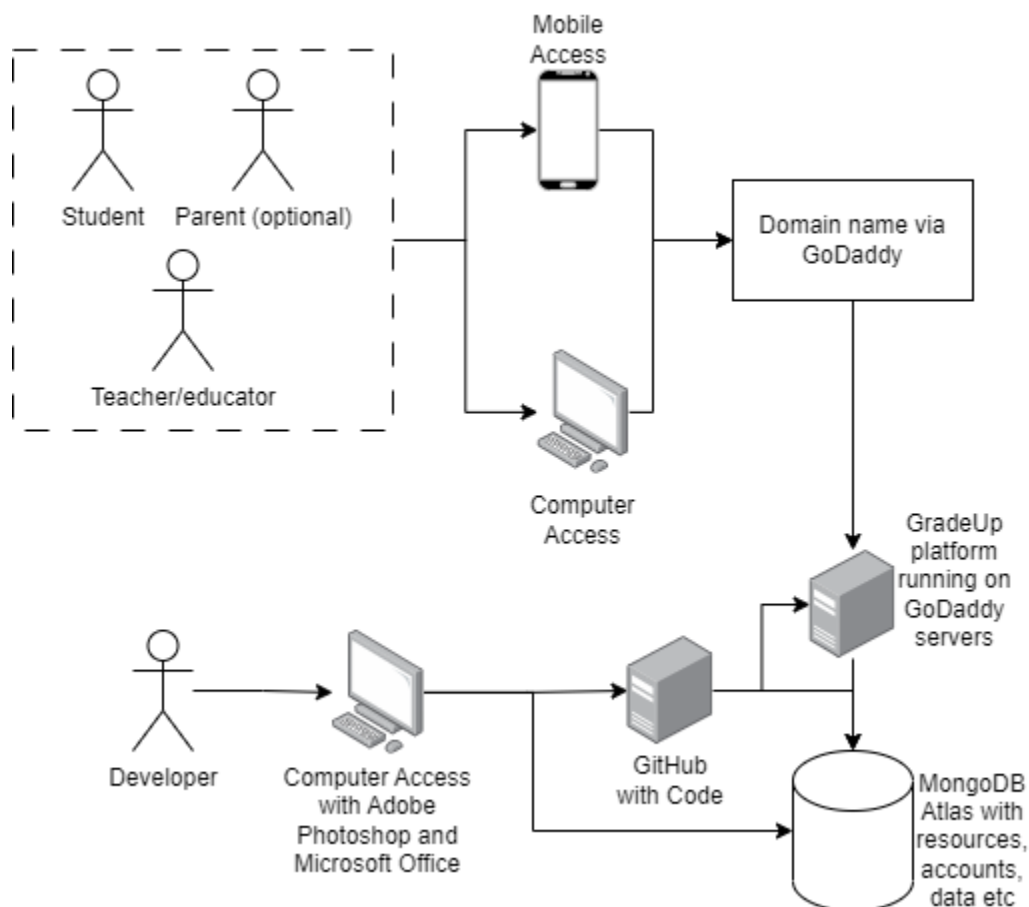


Figure 1: System architecture diagram for the GradeUp platform and development system (Self made).

Software

Dedicated server hosting

GoDaddy Dedicated Servers

Price: \$279.95/month (GoDaddy 2023)

Description: DS-64 dedicated servers are remotely accessed to allow the GradeUp platform to operate on powerful hardware leased from GoDaddy. 64GB of DDR4 RAM, server monitoring, single-tenant infrastructure, and RAID-1 are amongst the features creating a reliable platform where attacks and errors are easy to address (GoDaddy 2023).

[PB = \$3,359.40]

Domain Name, Web Host and Email

GoDaddy

Price: \$7.95/month (GoDaddy 2023)

Description: GoDaddy offers a plan containing a custom domain name and email address, packaged with one website (GoDaddy 2023). This provides the professional URL necessary to access GradeUp, and allows for a unified naming convention across web browsing, email, social media etc.

[PB = \$95.40]

Database

MongoDB Atlas

Price: \$57/month (MongoDB n.d.)

Description: MongoDB Atlas on dedicated servers provides a range of features creating a powerful platform for storing, managing, and monitoring data. This cloud service will allow for data to be reliably and securely accessed even during high traffic periods, and the flexibility available will be beneficial during the growth of the platform.

[PB = \$684]

Graphic design software

Adobe Photoshop

Price: \$29.99/month (Adobe 2023)

Description: Adobe Photoshop will provide the developers with the ability to create custom and high quality visuals. This also contributes to creating a professional looking website to appeal to schools and other stakeholders.

[PB = \$899.70]

Collaborative development environment

Github

Price: \$4/user/month (GitHub 2023)

Description: GitHub will allow the developers to store and share code in a central repository. This can provide version control, allow for remote access, and make monitoring for unauthorized changes easier.

[PB– 3 users– \$144]

Word editing/general office software

Microsoft Office for businesses

Price: \$8.20/user/month (Microsoft 2023)

Description: This suite of software will provide the basic word editing, spreadsheets, cloud storage and other functionalities that are used day to day in any business. This also includes Microsoft Teams, allowing for messaging and video conferencing.

[PB= \$984]

Hardware

None- Running a virtual business eliminates many potential costs, though there is an assumption employees have their own working computers and internet access.

Level 0 Data flow diagram

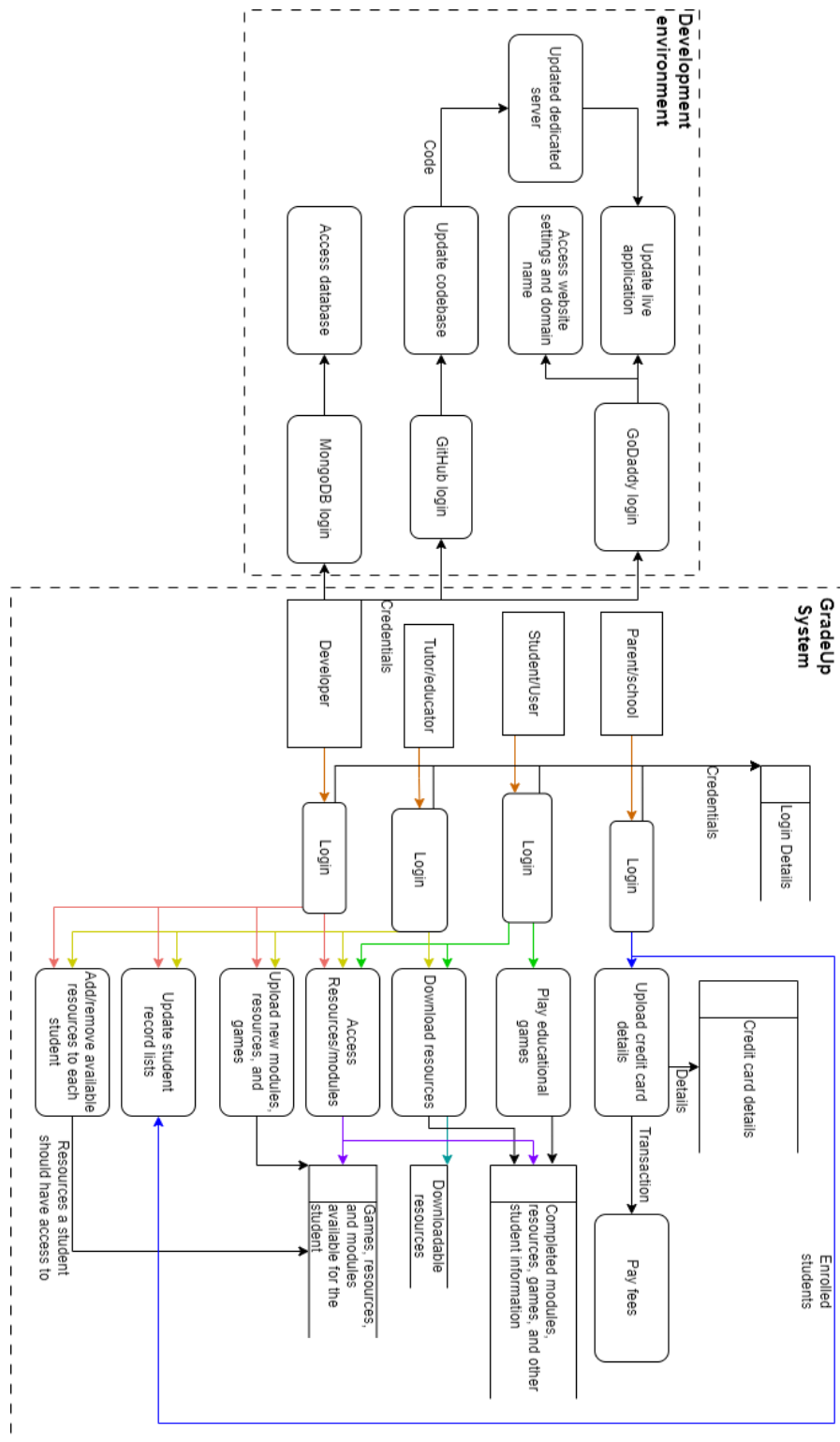


Figure 2: Level 0 Data flow diagram of GradeUp and the development environment (Self made). Coloured lines are for readability, they provide no additional information.

System Architecture Diagram

Security Considerations

An online platform like this will face many challenges. Credentials can become leaked leading to stolen credit card information. The privacy of personal information regarding minors is vital. Passwords made by children will be easily guessed etc. Some basic security techniques include:

- Utilize Hypertext transfer protocol secure (HTTPS) for the web application. This will allow for the encryption of data being sent between senders and receivers, making it harder to read and steal data.
- Enforcing passwords are complex, using letters, numbers, and special characters. Further, ensure passwords are updated regularly as part of a business security protocol to prevent credential scraping. Children however will struggle with complex passwords. Thus a unified login for all school resources, including GradeUp, could be considered to reduce the number of passwords the children require. This will also allow for security monitoring on one, not multiple, school resources, reducing complexity.
- Limit the amount of user data stored and used. The less valuable the data, the less likely it is to be targeted.

There are many more issues that must be considered in a detailed security analysis beyond the scope of this document.

Alternative solutions

The current solution focuses on in-house development. However, outsourcing development is also an option. This would involve hiring 1 senior developer, and utilize services and businesses offering IT solutions. These businesses will create a platform and website, organize resources, perform upgrades, handle errors, and address user problems. However, as the business grows, keeping development and data related activities in-house will be vital. This will provide increased security as company data and code will be under GradeUps control, and won't be exposed by other companies' poor practices. Thus, the switch to hiring developers is an inevitable outcome.

Outsourcing development will cost \$110/user/month (Steadfast Solutions 2020) (TechPath n.d.).

Timeframe for testing, MVP, public release, planned upgrades

The expected time frame for a basic MVP will be around 6 months (SPD Load n.d.) (Jones 2022). Beyond this, a plan has been established for upgrades and growth of the customer base.

ESTIMATED TIMELINE

FOR

GRADEUP

2/11/2023- PRODUCT

DEVELOPMENT BEGINS

Development team will start developing the GradeUp platform based on this document, requirement analysis, design document, and other relevant documents.

2/11/2023- TESTING

This will include Alpha testing for general functionality, beta testing for user feedback on meeting their requirements, and user acceptance testing to ensure the app performs as they desire. The feedback from these will be reflected in updated code.

MARKETING CAN BEGIN

By this stage, the marketing department will have a strong idea and prototype to utilize for advertising and beginning to attract pre-release

2/01/2024

Minimum viable product is developed and released.

2/01/2025

Minor upgrades/changes to system architecture to suit growing user base. It is expected minor errors will occur immediately after release given the unpredictable nature of users.

2/01/2026- FIRST MAJOR UPGRADE

It is expected that we will have annual major updates. Slowing down the release of these upgrades will help reduce confusion among students, as regularly changing user interfaces, functions etc may overwhelm younger users.

2/01/2027- SECOND MAJOR UPGRADE

2/01/2028- THIRD MAJOR UPGRADE

2/01/2029- FOURTH MAJOR UPGRADE

Reference List

10/05

Adobe 2023, *Compare plans and pricing*, viewed 11 May 2023,

<https://www.adobe.com/au/products/photoshop/compare-plans.html>

GitHub 2023, *Pricing*, viewed 11 May 2023, <https://github.com/pricing>

Glass Door 2023, *Developer Senior Salaries in Sydney*, viewed 10 May 2023,

https://www.glassdoor.com.au/Salaries/sydney-senior-developer-salary-SRCH_IL.0,6_IM962_KO7,23.htm

Glass Door 2023, *Junior Developer Salaries in Australia*, viewed 10 May 2023,

https://www.glassdoor.com.au/Salaries/junior-developer-salary-SRCH_KO0,16.htm

GoDaddy 2023, *Dedicated Server*, viewed 11 May 2023, <https://www.godaddy.com/en-au/hosting/dedicated-server>

GoDaddy 2023, *Domain Names*, viewed 11 May 2023, <https://www.godaddy.com/en-au>

GoDaddy 2023, *Web Hosting*, viewed 15 May 2023, <https://www.godaddy.com/en-au/hosting/web-hosting>

Jones, A 2022, 'How Long Does it Take to Complete a Typical Web App', *Make It Simple*,

viewed 16 May 2023, <https://www.makeitsimple.co.uk/blog/how-long-does-it-take-to-complete-a-typical-web-app>

Microsoft 2023, *Business*, viewed 11 May 2023, <https://www.microsoft.com/en-au/microsoft-365/business>

MongoDB n.d., *MongoDB Pricing*, viewed 11 May 2023, <https://www.mongodb.com/pricing>

SPD Load n.d., *Mobile App Development Timeline: The Breakdown by Type, Complexity,*

Team, viewed 16 May 2023, <https://spdload.com/blog/how-long-does-it-take-to-develop-an-app/>

Steadfast Solutions 2020, *Cost of Managed IT Services in Australia*, viewed 10 May 2023,

<https://www.steadfastsolutions.com.au/insights/cost-of-managed-it-services-in-australia/>

TechPath n.d., *How much do Managed IT Services Cost?*, viewed 11 May 2023,

<https://www.techpath.com.au/managed-it-services-brisbane/how-much-do-managed-it-services-cost/>

PB– Funding

TOTAL IT cost projected in the first 12 months: \$146,166.50

Clarify number of months some programs are needed– if we can wean off some programs.

B2C marketing costs:

Staff:

Marketing manager - \$120,000/year – (my role salary not included)

Digital marketer - \$80,000/year

Social media marketing campaign - \$5000/month

Focus on the value of education and how the online program can empower parents to actively participate in their child's learning journey. Share tips, resources, and strategies to help parents support their child's education at home. Emphasize the convenience and flexibility of the program, enabling parents to fit learning into their busy schedules.

Cost per individual subscription - \$X

On average, businesses make between \$2-\$4 for every \$1 spent on advertising.

If we predict we will make \$3 per \$1 spent on this social media campaign we would need to generate \$15000 in subscriptions per month. $\$15000/\X = amount of predicted subscriptions generated by the campaign per month.

Total cost for first year - \$140,000