Assignment 3
Introduction to Information Technology
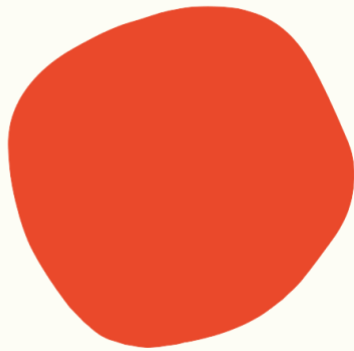
umi

Linguistic rights
are human rights.

Us —

We are a symbiosis of devout problem-solvers, creative savants and alpha-geek developers with a unified goal–to deliver a simple translation solution to the palm of your hand. UMI marries linguistic rights with cutting edge technology to empower people of all language backgrounds around the world.

Our Mission

To disrupt longstanding language barriers in the hospitality industry & provoke a paradigm shift in the way we interact in ordinary exchanges.

Our Vision

Realising the full potential of language translation for hospitality businesses and individuals. A world where everybody has access to a meaningful dining experience, not just those who speak the native language.

Team Profile —

Daniel Blake

I'm Daniel Blake (s3910924) of UMI. I'm from an English background but moved to Australia at a young age. I love AFL and the west coast Eagles. I also spend a lot of time camping, fishing, and at the beach. My professional background is in Operational Technology and Vehicle Automation specific to the resources sector. My interest in IT is to expand my knowledge and career opportunities in mining or other industrial technology fields. Go UMI!!!

Nicholas Drinkwater

Hey! I'm Nick Drinkwater (s3508178) of UMI. I was born in Sydney but grew up in Melbourne. Whilst I don't have any formal IT experience, I actually previously started this degree back in 2015. After completing half a year, I left to go traveling, spending 2 years living in Edinburgh, Scotland.

With Coronavirus and being unable to travel, I decided to use this time to return and finish my degree! I love traveling, film, and baseball. My interests in IT include programming, building IT systems, and hardware. I hope to learn the necessary skills and knowledge to help me enter the IT industry in my career, as well as exposure to inspiring topics and fields of IT that I haven't seen or encountered before.

Abby Durbridge

I'm Abby Durbridge (s3794613) of UMI– a Melbourne resident living in the heart of Southbank and loving every moment. My passions lie in creative arts and languages and use most of my spare time growing my skills in each. Historically, I've worked with an Engineering firm before transitioning into a SaaS company within the Childcare Industry. A hefty lockdown saw me trying to develop new skills and interests and evidently picking up another degree. My interest in IT hasn't been at the forefront of my life but rather a natural necessity, and it wasn't until I began to think of developing my own software or being able to work remotely for any company that I pursued IT professionally.

Mathew Dwyer

My name is Mathew Dwyer (sS3807459) of UMI. I'm 27 years old and based in Newcastle, NSW. English is my primary language, however I'm in the process of learning German. Previously, I've completed 3 semesters of a Bachelor of Communications at University of Newcastle, as well as partially completed a video game course through TAFE. I love playing with electronics and am currently expanding my skills with 3D printing, 3D modelling and CAD to facilitate the printing of miniatures and terrain for my DnD games.

My experience in IT is specific to web development and electronics, having played an integral role in the development and ongoing maintenance of the website of a retail store I worked for. Additionally, I've had involvement in video game development and have created several small games for various competitions. Software development, automation and cybersecurity are all areas I'd like to explore during the course of my education and career.

Erin Paton

I'm Erin (s3910930) of UMI. Originally from Sydney, I relocated to Byron Bay for a change of pace and to get closer to nature - most of my weekends are now spent hiking, exploring waterfalls, or at the beach. Currently, I'm fluent in English but I have a passion for French culture and intend to study the language up to C-level (only after I've knocked over a few programming languages!).

My experience with IT is specific to marketing technology, and the software used to implement it. Art, Design, Psychology, Health & Wellness, and Sexual Education are all areas that are important to me and while I don't have plans to further my education in these fields, the possibility of exploring their convergence with emerging technologies is something that excites me. I'd love to play a role in increasing the accessibility and interoperability of these spaces in some way throughout the course of my career.

Harrison Tang

My name is Harrison Tang, s3908223 of Team UMI. Born to migrant Chinese parents, I am a second-generation Australian and denizen of Brisbane Town/Meanjin. Whilst not possessing an extensive background in IT, I grew up in the 1990's and 2000's playing video games and exploring the internet. Eventually, technologies would play a crucial part in my life in staying connected with friends

and family, discovering art and music, educating and expressing myself, and seeking new employment and career opportunities. Recent work performing administration and data collection for an infrastructure company prompted an exploration into avenues in programming, cloud services, and app and web design leading to pursuing a formal education in IT. Currently, I play guitar as part of the 'strings' section in a ten-member pop-punk cover band/orchestra and occasionally travel interstate to perform.

Group Processes

Retrospectively, working as a group went exceptionally well for UMI and we felt that the entire team contributed equally and consistently during Assignment 2. We were pleasantly surprised to observe that the team's commitment, motivation, and participation throughout the project was consistently high, which afforded the team peace of mind and confidence in one another.

This observation is especially true considering the majority of the team initially entered the collaborative environment with apprehensions about the possibility of workload disparities, confrontations and roadblocks. These assumptions were due to previous encounters with substandard teamwork experiences. We were fortunate enough to find ourselves in a group of self-starters, all of whom demonstrated a fair disposition and an openness to suggestions and constructive criticism.

While our group worked exceptionally well together, we still identified areas for improvement moving forward and we have strived to integrate the learnings from these experiences into Assignment 3. These areas of improvement include more structure around individual deadlines - we often found the agreed upon due dates were generally not adhered to, making subsequent meetings lengthier and more discussion required around how individuals were tracking. The team implemented harder deadlines to mitigate this issue, enabling a more transparent overview of progress and allowing more time to collaborate across various tasks.

Additionally, we learned that our quality control processes were far less efficient than intended, with excessive editing required to ensure the written elements of the assignment were palatable for readers of all technical understanding and to achieve a consistent tone of voice across the project. To reduce this load, the team devised an improved QC process that required more stringent checks of one's individual work preceding QC submission. With a few added steps marked off using a templated checklist, we aimed to prevent the rewriting of significant segments and free up the quality controller's time for more technical tasks. Subsequently, QC editing was focused primarily on minor spelling and grammar issues, plus some

minor tweaks to maintain continuity of tone. Additionally, multiple team members were introduced to the QC process to prevent the inundation of work to any one team member.

We also concluded that more contribution from the entire team to GitHub would provide greater insight into our progress along the way. We found that we failed to form this habit in the early stages of Assignment 2, which was frequently overlooked or left to one team member. Consequently, the team emphasised the importance of GitHub and committed to utilising it more frequently to generate an audit trail of our work.

Career Plans

As covered in Assignment 2, our ideal jobs and career plans fall into two distinct categories and based on our continued experience and feedback, we stand by our initial comparison and analysis as per our previous assignment.

The first of these categories includes career plans that centre on engineering and developmental roles. The ideal jobs we selected that fell into this category include Software Engineer, Automation Software Engineer and App Developer. The second category encapsulates roles distinguished by leadership and seniority. The ideal positions that fell into this category were Strategic Technology Lead, Chief Technology Officer and Project Manager.

The career plans within their corresponding category share numerous similarities whilst also differentiating from those in the opposing group. The below visual matrix demonstrates this dichotomy and the shared attributes between each position.

	Programming (Java/Python)	Project Management	Business Management	Building Relationships	Technical Support	Software Engineering	Communication	Problem Solving	Organisational Skills	Troubleshooting	Planning	Detail-Orientated	Research	Leadership	Time Management
Strategic Technology Lead - Daniel Blake		•	•	•	•		•	•	•		•	•		•	•
Software Engineer - Nicholas Drinkwater	•				•	•	•	•	•	•	•				•
Chief Technology Officer - Abby Durbridge		•	•	•			•	•	•		•	•		•	•
Automation Software Engineer - Mathew Dwyer	•				•	•	•	•	•	•		•			•
Project Manager - Erin Paton		•	•	•			•	•	•		•	•	•	•	•
App Developer - Harrison Tang	•				•	•	•	•	•			•	•		•

As detailed in the matrix, there are clear intersects in both soft and hard skills. This data highlights the significance of skill sets that are perhaps less often regarded when considering a career in IT, such as relationship-building, communication, and organisational skills. Also notable is the experience required across these positions, with most requiring a substantial incumbency in a similar role.
Overall, our ideal jobs continue to have more in common than they differ, particularly within their respective category. Whilst half of our chosen career paths

are distinct from the other, our career progression and outlook remain closely intertwined. As we found in Assignment 2, this represents an excellent opportunity to foster advantageous connections as graduates and excel in our chosen positions.

Tools —

Group Website
blakey83.github.io/Intro-to-IT---assignment-3

Group GitHub Repository
github.com/blakey83/Intro-to-IT---assignment-3

Individual Websites
s3910930.github.io/erinpaton/home.html
aabbayy.github.io/space-junk/
harrisontang.github.io/Assignment1MyProfile/
drinkwatern.github.io/IIT/index.html
matdwyer94.github.io/COSC2196-Assignment-1/
blakey83.github.io/

What We've Done/GitHub Audit Trail
Considering our success with the tools used in Assignment 2, and the need to maintain maximum efficiency, the team utilised the same core tools for Assignment 3. These core tools remain using GitHub to house all artefacts, including the report, website, wireframes, mockups, and documents to take better advantage of its audit trail in this stage of the project. Despite committing to adopting GitHub more, the team observed that this process was less ideal than alternatives such as Google Docs, Google Drive and Trello, which proved to be more intuitive and suited to our needs. We struggled to discern ways in which GitHub was more advantageous than other tools and technology but speculated this viewpoint would swing if we were to enter into the developmental stage of the project scope. Overall, we were satisfied with the tools relied upon throughout Assignment 2 and 3.

The continuation of Google Docs for collaborative, real-time report contributions was valuable, particularly given the conflicting nature of our schedules. The ability to review and monitor other's progress without the need to establish a call or meeting was helpful and highlighted areas to raise during our scheduled meetings. We upheld Microsoft Teams as the primary means of communication; however, we would more than likely look to Slack as a more comprehensive and integrated option in the future.

We also continued our Trello workflow into Assignment 3, favouring it for its transparency, usability, effortless collaboration and clear activity log. The checklists were particularly beneficial to the quality control process, and due dates helped manage and meet impending deadlines with transparent accountability. Additionally, we introduced a suite of new systems and tools to facilitate the production of prototypes and other artefacts to contextualise the report. We elected Figma as our primary interface design, wire-framing and prototyping tool, chosen for its ubiquity in the UI/UX field, its collaborative capability, the ability to export markup and other programming logic to developers for visual elements, the embed feature, and its overall intuitive design interface. Figma enabled us to create professional quality mockups and live prototypes that we considered crucial to our business funding endeavours, being a start-up requiring capital investment. Visualising our application and demonstrating its functionality served as a vehicle to convey its value and describe the user journey to stakeholders.

To achieve prevailing project management best practices, the team also introduced Monday to the mix. We discussed replacing Trello entirely with Monday; however, after weighing the limited scope and timeframe of the project, we identified the risk of setbacks occurring if we were to dedicate working hours to learning Monday's Kanban view. Subsequently, we introduced Monday as a supplementary platform to Trello and utilised its Gantt Chart view to maintain an overview of the project schedule, plot dependencies, track milestones, and divide the project into weekly sprints. Ordinarily, we would utilise the two-way integrations available between Trello and Monday to solve for cross platform use and automate some of the manual steps involved, however, we were limited by the costs associated with upgrading our accounts to accommodate this.

The team recognised Monday as a superior tool to Trello and concluded that projects should be consolidated into this platform in the future.

Project Overview—

Topic

The UMI project primarily aims to broker connections between multicultural communities by eliminating language barriers to new and localised culinary experiences. As local populations increasingly reflect a globalised world, cross-cultural relatability and sensitivity become ever more critical to maintaining communal integration and hegemony. Studies show that culture experienced through cuisine forms stronger ties of cross-culture relatability, connecting people from many backgrounds to enjoy exotic foods and new culinary experiences. (Zafari et al. 2015, p565). For this project to be a success, UMI has devised a four-phased

approach to achieving the end goal. The project's overall aim is to produce a market-ready application to launch at the end of phase four, scheduled for February 8th, 2022. The first two phases are research-based, in which the business will investigate the feasibility and marketability of the application. In phase 3, UMI will look at prototyping the app. In phase four, the business will perfect the application and begin the marketing and feedback gathering to ensure a successful launch.

Motivation

During unprecedented times, UMI's translation concept was born with COVID-19 forcing people globally to halt their thirst for travel in a long-globalised and traditionally unrestricted world. Cognisant of the culinary experience being a significant component of cross-cultural travel, the project's primary aim is to reconnect people through the lens of food as they gradually return to the world from which they were jettisoned. UMI imagines a more accessible and culturally sensitive approach to connecting through culinary experiences, understanding that negotiating language barriers can be a nerve-wracking and anxiety-inducing ordeal that most would rather avoid. Presently, travellers must employ tactics such as memorising basic phrases or verbally mimicking translation applications to overcome these obstacles, often avoiding the interaction altogether and subsequently missing opportunities to fully immerse in the culture.

UMI's text-based natural language translation application seeks to provide a smooth, user-friendly, free service that allows people to quickly decipher food menus within participating restaurants in response to these disadvantages. The user will receive the menu digitally on their mobile device, convert it to their chosen language, and place an order–all from the palm of their hand in a matter of seconds. Not only does this process alleviate some of the major barriers experienced by the consumer, but it improves the efficiency and overall operations of the venue, allowing staff to focus their attention on other duties and to streamline existing workflows.

UMI's most profound and perhaps ambitious aim comes with a recognition that every human, regardless of their cultural heritage, geographical disposition, and primary language, maintains the right to carry out activities in the public and private domains in their native language (Article 3, Universal Declaration of Linguistic Rights, 1996). Additionally, Article 3 further encapsulates accessibility to cultural services, communications media integrating their language, and governments communicating with them in their native language. (Universal Declaration of Linguistic Rights, 1996).

Furthermore, Article 4 considers persons who immigrate to a different culture to maintain the right to amalgamation with their new culture, meaning such persons may perpetuate the qualities of their cultural heritage and impart sufficient references, values, and traditions that allow them to behave socially without facing disadvantages not experienced by citizens of that community. Another language community have the right to maintain an attitude of integration towards their new community, meaning such persons may preserve their original cultural characteristics while sharing with their new community sufficient references, values, and forms of behaviour to enable them to function socially without greater difficulties than those experience by host-community members (Universal Declaration of Linguistic Rights, 1996).

The UMI project intends to adhere to these articles, advocating for observance of cultural plurality and a multilinguistic society by opening avenues for non-native speaking community members to preserve and communicate from their own cultural context. Moreover, Clause(s) Seven and Eight of the Girona Manifesto on Linguistic Rights, a revised and commemorative document marking the fifteenth anniversary of the Universal Declaration of Linguistic Rights (PEN International, 2011), states that multi-linguistic communities favour empathy and intellectual openness (Clause 7, PEN International, 2011), with translation of language and culture an important element in producing greater understanding and respect among human beings (Clause 8, PEN International, 2011). These clauses further speak to our mission to create and connect ties between humans, between linguistic rights and human rights.

> "It is desirable for citizens to have a general knowledge of various languages, because it favours empathy and intellectual openness, and contributes to a deeper knowledge of one's own tongue.
>
> The translation of texts, especially the great works of various cultures, represents a very important element in the necessary process of greater understanding and respect among human beings." - Girona Manifesto on Linguistic Rights, 2011

UMI developed its foundations in Australia and, as such, will be launched at home before addressing additional global services. One in five (21%) Australians speak a language other than English in their own homes, attributed to Australia's vast multicultural population demographic. Within the above statistic, 3.5% of bilingual speakers report having difficulty speaking English (Australian Bureau of Statistics 2017). Statistically, this figure represents over 800,000 Australians who could benefit or choose to access the linguistic conversion that UMI seeks to provide,

further enhancing communication and bilingual navigation in a predominantly English-speaking nation.

Furthermore, an increase in monolingual English speakers and a coinciding decline of LOTE (Language other than English) taught in Australian schools was observed between 2011 and 2016 (Proficiency in English | Australia | Community profile 2016). 10% of secondary graduates completed a second language during this time, compared with 40% seen in the 1960s (SBS News 2021). Despite a 21% increase of overseas arrivals who are conventionally multilingual, a disconnect appears to exist between the two communities - a bridge that UMI aims to form (Australian Bureau of Statistics 2017).

With reference to Clause 7 of the Girona Manifesto on Linguistic Rights, demonstrating general knowledge of various languages fosters empathy for fellow humans. UMI aims to engage those who experience an aversion to learning a new language by their own volition by removing verbal communication barriers and introducing opportunities for cross-cultural interactions in everyday scenarios.

Landscape

To better understand UMI's user-base potential and scope of applications into the future, a thorough analysis of existing translation service providers is essential. The business must identify potential market gaps and pain points in competitor offerings to render a superior service to a wide variety of demographics.

In-depth competitor analysis will impart significant insight into supply and demand and inform the development of additional features. This data will prepare UMI to meet future market trends and reduce the risk of competitor innovation blindsiding the business (Bergen & Peteraf 2002; Lee, 2021).

Google Translate

Perhaps the most widely used translation application is Google Translate, with over 100 billion words translated by 500 million people each day (Aiken, 2019). Accessible between three different platforms (a web platform, Apple iOS application, and Android application), the application supports 103 different languages, 52 of which function in an offline capacity (Google Cloud, 2021). Through "deep learning" via a neural machine translation premise, Google Translate compares whole sentences against a vast range of sources and contexts to determine the most relevant, grammatically correct, and human-like translation (Sommerlad, 2021; Turovsky, 2016).

Across a spate of metrics measuring translation accuracy and human comprehension, research shows Afrikaans is the most accurately translated language, followed by German and Portuguese, where the quality is considered nearing human-like translation. Other languages, such as Malaysian, Hindi, and Thai, have higher rates of failure or mistranslation (Aiken, 2019), whilst other studies note Bengali, Haitian Creole, and Tajik prove difficult for Google Translate to interpret (Tirosh, 2018). The application can translate spoken inputs and instant messages. It also reads and decodes handwritten characters and AR functionality to translate physical signage, packaging, and documents (Google Cloud, 2021). Additionally, Google Translate offers AutoML Translation services for developers and translators, and Translation API software for document translation processing (Google Cloud, 2021), a technology likely utilised by UMI translation services.

As an industry-specific service, UMI's primary differentiation strategy is to overcome the barriers traditionally experienced during person-to-person interactions and develop a nuanced, culturally appropriate translation of menu items that accommodates food alterations and billing procedures. The application will cater to non-native speakers and foreign travellers, as well as those interested in learning a new language or culture through the experience of dining.

Translation Application App Rating and Global Ranking (sourced from www.apptrace.com)
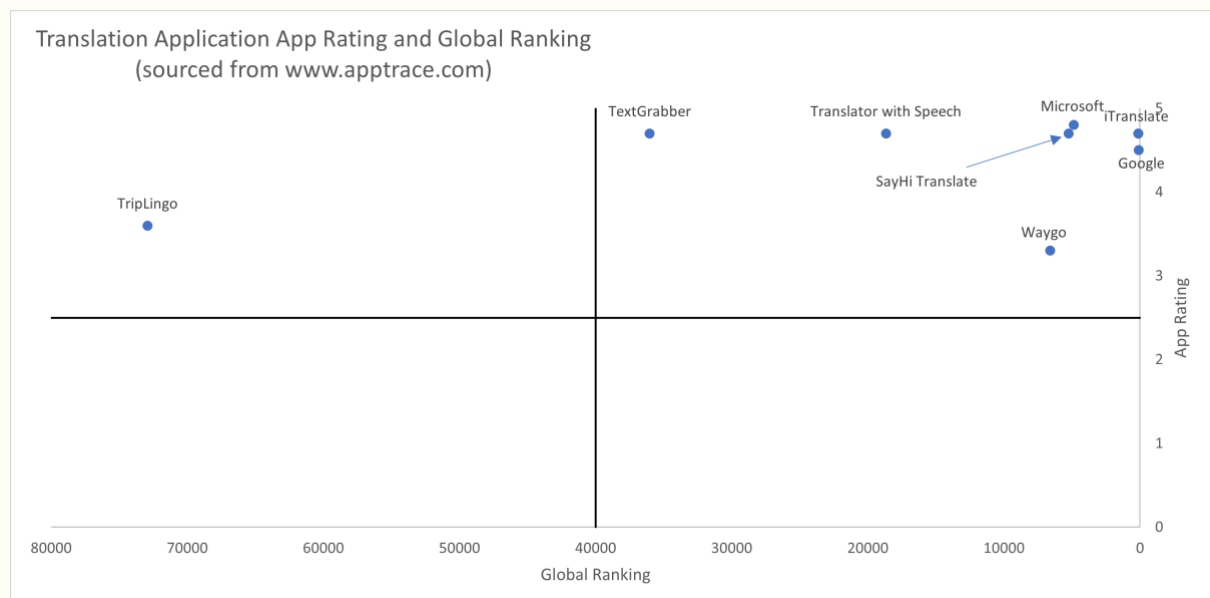
iTranslate

Another popular translation application is iTranslate. Functioning similarly to Google Translate, iTranslate offers a multitude of products and platforms, from their free, standardised translator application iTranslate (iTranslate, 2021), to their subscription-based suite of products. iTranslate's Converse application supports thirty-eight commonly spoken languages for person-to-person conversation (iTranslate Converse, 2021), iTranslate Lingo supports fourteen languages designed for language learning (iTranslate Lingo, 2021), and iTranslate Keyboard provides a

translation extension for keyboards and typing functionality (iTranslate Keyboard, 2021).

Additionally, iTranslate offers enterprise-specific solutions focused on medical and law-enforcement fields with tailored and custom-built applications (iTranslate Enterprise Solutions, 2021) and access to their API technology (iTranslate Translation API, 2021). A 2017 study into iTranslate voice recognition translation accuracy from English to Spanish and Chinese Mandarin showed comparable quality to human translators on simple to medium difficulty sentences, with more complex and longer sentences drawing more errors (Chen, Acosta & Barry, 2017). In its current iteration, UMI plans to develop a single product for document translation to augment the communicative relationship between hospitality businesses and their non-native speaking customer base, thus increasing accessibility for customers to a broader range of hospitality businesses and products. Further iteration on document translation services could expand to healthcare, legal, and government services.

Project Description—

Aims

Our project aims to have a market-ready translation application to be used in restaurants around the world. To achieve this, we have broken up our project into 4 phases. Each phase will have goals and deliverables required to pass to the next phase.

Phase 1 was the planning phase, where we decided on an application and investigated the tools and technology to deliver it. Phase 2 is the sales phase. We are refining our application based on feedback, creating a video outlining the business objectives, and creating deliverables that ensure our product looks marketable. Phase 3 is the prototype phase, in which we will secure the infrastructure needed to build the app, write the code and create a working application—one that can translate! Finally, phase 4 is the test and release phase. We will beta test the prototype during this phase and receive feedback on improvements and bugs in the software. Beyond this, we will begin marketing the product, releasing a limited number of preview versions, and establishing a continuous improvement model to ensure that the app is as good as it can be when released on 8th February 2022.

Phase 1: Ends 23rd April 2021

Our first goal for phase 1 was to produce a comprehensive written report including a complete description of the application, the motivations behind it, and the tools and technology needed to bring it to life. The report will ensure that we have all the relevant information in one place to move to phase 2 of our plan.

Another phase 1 goal is to have a functional website dedicated to the project. This website will reflect the information contained in the report. The website is an essential step in our project, as it allows us to share our ideas with the world, bring on investors, and be our first steps in marketing the product.

Phase 2: Ends 28th May 2021

In phase 2, the first goal is to write up a second report. This report will provide more nuance and detail regarding the planned operation and incorporation of feedback received during the rollout of the phase 1 report. This report is crucial as it allows us to refine our plans and our product and demonstrate significant growth in the project.

We will produce an informational video for the completion of phase 2. The video will include a description of the application, its motivations and objectives, and how our application differentiates from other translation services. The video is an important marketing tool and is available to send out to investors and other relevant stakeholders.

Phase 2 will require the team to create a model of how the application will look on a user's device. The process will involve using Figma to provide an interactive interface prototype. The model is another critical step in showing relevant stakeholders and potential customers how the app will look and feel upon release.

Phase 3: Ends 6th August 2021

The primary goal for phase 3 will be to have a working prototype by completion. The process will involve procuring the needed infrastructure and completing the development to run working translations. Prototype completion is crucial as we need the application to function adequately to begin testing and further secure funding for testing and marketing.

Phase 4: Ends 8th February 2022

By the end of phase 4, we will need to have a tested and working application ready for market. We will need to complete beta testing and fix any bugs or issues to ensure we can launch the application at a professional standard. Market launch is essential, as we will need to start generating income beyond the launch to pay back investors and ourselves.

By the end of phase 4 of the project, we should have a comprehensive ongoing marketing plan. Marketing will involve having detailed digital marketing strategies and ongoing customer engagement. After launch, we must know how we will grow the business and have documented plans to showcase our application to the world.

Our final goal for the end of phase 4 is to institute a continuous improvement plan. Continuous improvement ensures that all customer feedback can be stored, collated, and acted upon promptly. This is important as our application exists in a competitive landscape, and continuous improvement is the only way we can stay ahead of any potential future competitors.

Plans and Progress

Early Plans

The first iteration of our project was a language translation application that could translate messages between people using Near Field communications. Customers would download the application onto their mobile devices and exchange messages to communicate across language barriers. Our early design work involved having an application available for both Android and Apple but using a standard back-end design.

The end-user will download the application onto their device (or load the web page if on a computer), where the application will prompt them to log in or create a new account. Once logged in, the user can submit text or documents they wish to translate into another language.

The application will send uploaded documents to the webserver through the Hypertext transfer protocol (HTTP) server. The web server will then send the documents to the application server, converting, via an API, into SQL data stored onto the user database.

The application will then convert the document into text and send it to the NMT server to translate. The NMT server will use wordnet databases in both the original and target language. The translated text will then return to the application server to convert back into a document. It will be stored on the user database and will be available to the user for future use.

The user can then share the message with anyone they wish, in any language they wish. In addition, the app supports the use of Near Field Communication (NFC) to exchange information between users. So, for example, if a user has a document or message they wish to share with another user in a different language, they can
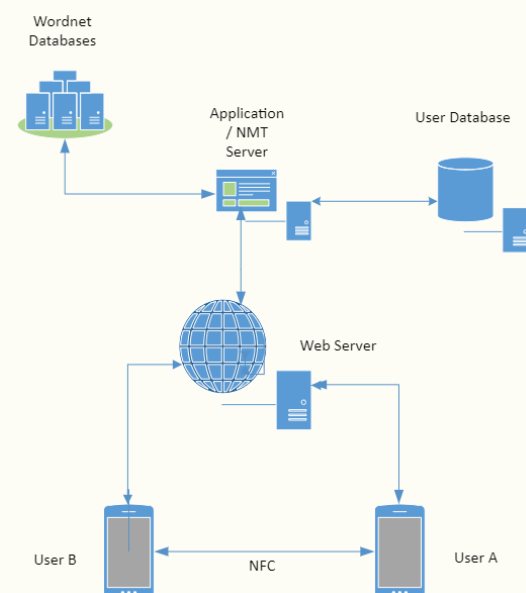
submit the original document to the app and then share a link to the second user through NFC. The second user will send a request to the application server, which pulls the original text, passing it to the NMT server for translation. The translated text is subsequently returned to the second user via the web server HTTP link to their device.

However, after conducting preliminary primary market research (interviewing family, friends, and co-workers), it was concluded that requiring strangers to tap their phones together in circumstances where they could not communicate would be difficult. There are both real and perceived security threats; the theft of data and cultural misunderstandings would make things particularly difficult. The group decided this would not be a marketable product in the real world.

UMI 2.0

The team unanimously concluded that the original idea would need to pivot to create a marketable solution. The group met and floated many ideas, including weighing the possibility of entirely changing the project idea. Nevertheless, the group decided that the original idea, although flawed, had merit, not to mention the considerable research and work the team had invested into this idea. After some collective spit balling, the team decided to proceed with an idea to modify the app to service the hospitality industry. The assumption was that a customer who does not speak the language of a particular restaurant would have a significantly better dining experience if they could instantly translate menu information with a simple tap of their phone. The team hypothesised that the customer would download the venue's menu by tapping their mobile device onto an NFC reader installed at the restaurant with the translated menu being transmitted to their phone. The customer would subsequently return their order to the restaurant with any notes or changes, with the application translating the text back into the language of the restaurant.
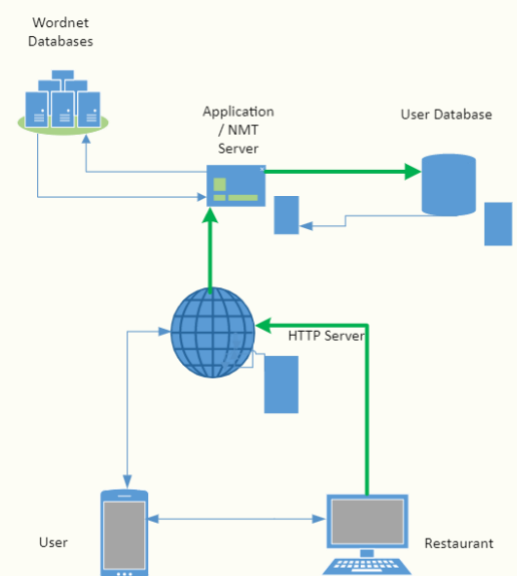
This pivot requires us to make changes to the front-end design. These include making the app more geared toward a web browser model for restaurants, ensuring that our product could fit into existing infrastructure, and investigating NFC readers that would work on USB. Our approach was now to have two distinct functionalities: downloading a menu and making an order.

Restauranteurs will need access to a computer connected to the worldwide web to log into our HTML web page. From here, they can upload menus, show previous orders, and, most importantly, ensure the customer's billing details are up to date. First, the restaurant client will upload the menu to the HTTP server, which passes it to the Application server, who then converts it to the SQL format and stores it on the Client database.

The restaurant customer will open the application on their NFC-enabled device and then tapping their phone onto the NFC device installed at the restaurant's counter. A request will then be sent through the webserver to the application server to retrieve the restaurant's menu. Next, the text will be sent, along with the user's language information, to the Neuro Machine translation (NMT) server. The NMT server will then use the NMT algorithm to choose words from the user's language wordnet database to translate the menu into the user's language. Finally, the app will send a translation to the user via the HTTP server.
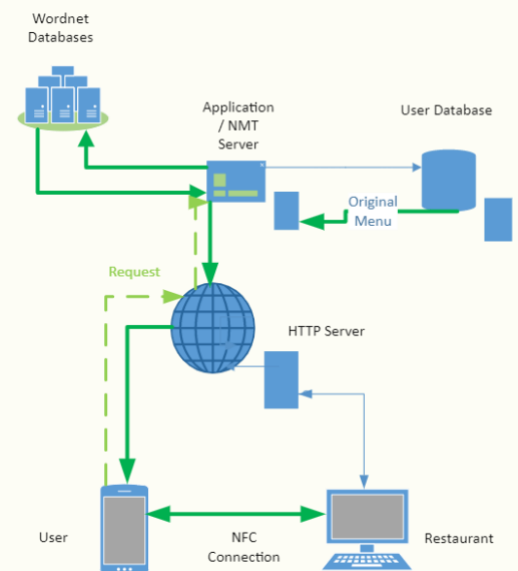
Component Details
Front End Development
The front end is the user interface, usually a web page for the restaurant user or through an app on their phone for the customer. Once signed in, the user has a landing screen. From here, they can see their account information in their language. Once the customer requests a menu, a translated version of the menu will be made available. Translation can be completed automatically through the app, with the preferred method being a data transfer via near field communication (NFC). Once the device has tapped the NFC hotspot, it will connect to the app's web server and download the menu in the language of the user's choice.

The website and mobile app should be designed and developed in tandem. The development will require the X code coding suite to develop the iPhone App (Ching, 2019), Android studio for the Android version (TheZachBales, n.d.) In addition, we will create Web pages with a combination of HTML, CSS, and JavaScript (Cox, 2020).

Near Field Communication
Near Field Communication (NFC) devices allow the peer-to-peer transfer of secure information between two clients in the same geographical location (Sauter, 2016). Our app is about communication between a hospitality business and potential customers.

As the restaurant side would mainly be using PC or laptops already, there would be a need for them to purchase an NFC reader for around $60 (Square Reader, n.d.). To program the NFC Reader for the app, they will need to be encoded for around 25c per tag with Go-to tag encoder (Go To. n.d.)

Web Server
The app requires a connection to the internet to send and receive data from the client to the app's back end. Therefore, UMI needs a Hypertext transfer protocol (HTTP) connection over the world wide web that connects to the web server in the cloud (Schuler, 2002). The client can request data such as database information and photos.

After researching various options, including buying and setting up the UMI server, the team concluded that using a cloud service was preferable. Apache with the Ubuntu web server is one of the oldest and most popular HTTP server Infrastructure as a service (IAAS) products on the market (AWS 2021, a) and, as such, is the preferred option.

Application Server, APIs and Customer Database
The application server is the real brains of the operation. It is here that the front-end makes requests for information, and the requests are processed. For example, suppose a client wishes to add a document to the database. In that case, the application server will request and add the relevant metadata to ensure the user can access the document in the future. (IT pro team, 2018).

UMI's application server will require the project to have an application programming interface (API) between the HTTP server and the Neural Machine Translation sever. Amazon offers an NMT solution and API that UMI could use. In addition, Amazon translate is a scalable solution for the product, perfect for UMI's business needs (AWS 2021, b). The project team also investigated using Microsoft Azure, which priced similarly (Azure 2021); however, the team concluded that Amazon Web Service (AWS) better suited the business growth plan.

Additionally, UMI will require an Application Programming Interface to facilitate application to customer service information and menu data, billing data, and personal preferences into a logical database system. The team decided that the best way forward was to bundle services with AWS, as they were competitive on price. Consolidating UMI's APIs and IAAS within the same company could be beneficial when looking at it from an interoperability perspective. The slash DB product creates automated APIs for relational databases (AWS 2021, c). As a result,

the application can store and pull data quickly and create new features for UMI's customers.

Project Deliverables

So far, the project has made several plans and had numerous discussions around what it plans to achieve. The team is currently working on various deliverables to ensure a smooth transition into the project's next phase. First, the team has produced a Figma prototype so that potential investors and customers can experience the product's interface before UMI commences development. The prototype is an interactive mock-up of UMI's mobile application, with working buttons and menus.

The team has also created a professional video presentation, which will demonstrate what the application does. This video represents a further opportunity for all stakeholders, future customers and potential investors.

Other deliverables include a detailed project scope statement—The Scope of Works document. With a definite project scope, managers can easily stay on track and achieve all deadlines throughout the project life cycle (Kissflow, 2021). The project scope statement defines the limitations of the project, breaks down the work, and ensures that all stakeholders are clear on objectives (Kissflow, 2021).

Future

The team has divided the project into 4 phases. The first phase was to bring the group together, develop a workable idea, investigate the design, investigate the tools and technology, and put forward a detailed description of the application. During this time, the team spent time collectively investigating IT technologies, careers and creating group processes.

Phase 2, the current phase, is about refining the team's output. The team has determined key deliverables and adhered to established internal processes in achieving them. The team has refined the product with considerable research invested in uncovering ways to improve the implementation of the translation service and how to develop a working prototype in phase 3.
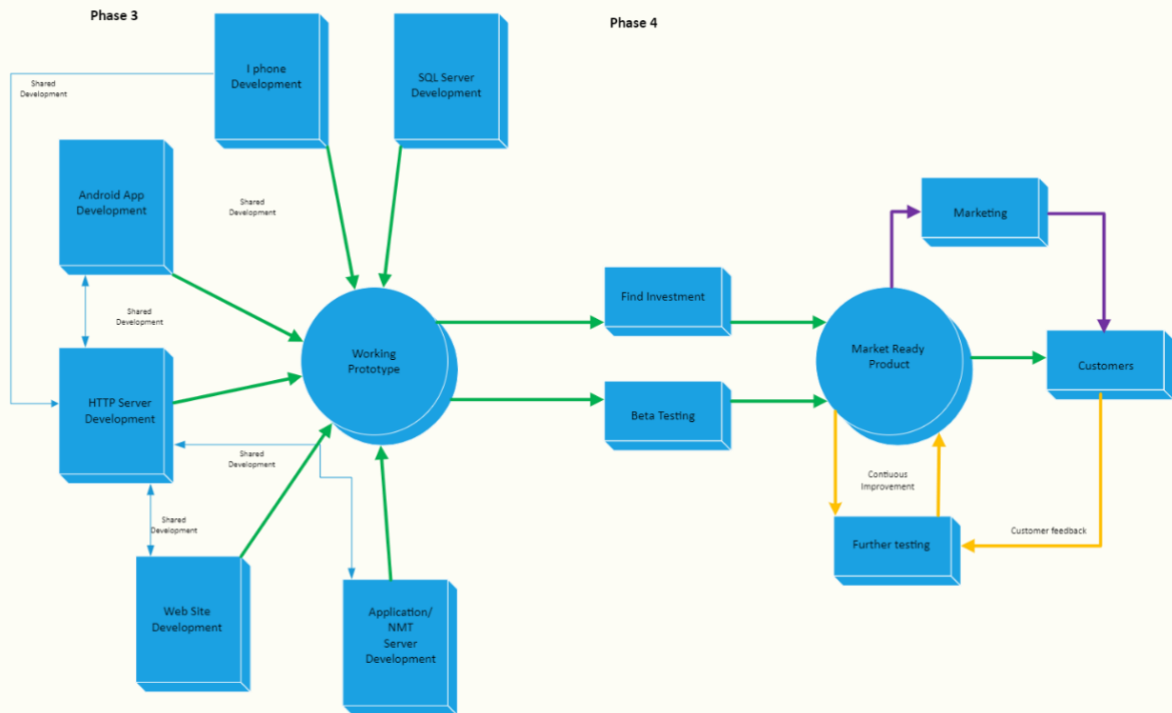
Phase 3 is primarily concerned with the creation of a working prototype. The team expects this to take place over ten weeks, from the 31st May through to 6th August 2021. The idea would be to divide up the team between the front-end and back-end development. Thus, the project would run as a series of sprints—goals for each sprint to back up the overall aim.

Phase 4 is the final stage and involves taking the working prototype and creating a market-ready product. The most crucial part of this phase is beta testing. Testing will allow the team to improve and refine the code to be the best it can be at launch. The phase will last from 8th August until a launch date that will be 8th February 2022.

Roles

Early in Assignment 3, the team distilled the six core positions needed to deliver the project successfully. Subsequently, the team assigned roles based on individuals skill sets, interests, and the nature of the work that they had volunteered to complete from the project's inception, relative to the core positions. The team documented and justified these roles in the Scope of Works.

Being an Agile working environment in which tasks were performed in short-term sprints, there was naturally occasional overlap in duties. The team decided that the most appropriate structure was to maintain the core positions, with each person

acting as figureheads in their respective field. This decision meant that we were able to adhere to Agile principles, in that no one person owned any given task. Instead, leaders in each department were clearly which the remaining team assembled around to complete work with support and guidance. This formation lent itself to a natural escalation protocol under circumstances where roadblocks or issues arose and enabled team members to receive incidental learning through their interactions with more experienced colleagues.

The below table outlines the designated roles and their justification within the project:

Name	Role	Justification
Erin Paton	Project Manager	Crucial to the organisation, resource distribution, budgeting, planning and delivery of the project. Responsible for providing accurate and useful insights that inform future projects and business decisions.
Nicholas Drinkwater	Front-end Developer	Responsible for developing client-facing website and application elements, maintaining functionality and usability to existing and potential customers. The business cannot operate without a working website and app.
Abby Durbridge	UX Designer	Needed to produce usable, intuitive interfaces crucial to retaining customers and consequential in converting new customers through reviews and social proof.
Daniel Blake	Back-end Developer	Essential to build the technology the application will function on, maintaining the server and the database.
Harrison Tang	R&D Engineer	Crucial in developing new features & products, improving existing products, conducting testing and improving overall efficiency within internal processes. The business cannot remain competitive without this role.
Mathew Dwyer	Technical Producer	Required to generate technical video content needed to secure investment, inform stakeholders, train staff, educate customers and advertise the business.

Scope and Limits

To ensure that the team remains focused throughout the project and can deliver on the primary aim, the team must designate limits to the expectations during the

project's critical path. The project comprises four distinct phases (as referenced in the Scope of Works document appended to the report) requiring a granular scope assigned to each.

Phase one should be limited to writing a report and one website only. Phase two will be limited to a report, a website, a scope of work document, a Figma prototype, and four job advertisements for the personnel we are hiring for phase four. Phase three will be focused entirely on the application prototype. The prototype will remain simple, with only menu storage, near field communication integration, and translation services. Finally, phase four will consist of the beta testing plan, marketing the product to airport eateries, customer engagement, continuous improvement planning, and release.

Beyond the scope of this project, there are features that we would like to implement in the future. Plans include broadening our customer base to include restaurants in busy metropolitan areas. To facilitate this, we would like to include map functionality so that customers can find the restaurants that have our service. We would also like to include recommendations and reviews of restaurants. These can be written in any language and understood by all our customers.

Tools and Technologies

The project requires significant infrastructure to bring the application to fruition. Fortunately, we have identified the value and accessibility of cloud-based infrastructure as a service, which offers the most scalable and cost-effective path forward.

The application requires a web server to deliver a working solution. The team has researched various options and identified Amazon Web Services (AWS) as the most suitable infrastructure, employing Elastic Compute Cloud (EC2). In addition, the project will run Apache's open-source web server with Ubuntu 18.04, also available to purchase as a service from AWS (AWS 2021, a).

Additionally, the application necessitates a Neural Machine Translation Application Programming interface (API) to accommodate the translation functionality. The project will proceed with the Amazon Translation service, offering a scalable solution and good value for money (AWS 2021, b).

The application also needs a database to store customer data such as personal details, billing information, and restaurant menus. We have chosen to use Oracle's MySQL cloud-based service, providing a lower-cost option than the Amazon RDS and a suitable fit for our business model (MySQL 2021).

The application calls for coding expertise to enable the application to behave as intended. As such, we require the following programming for the website: Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), and JavaScript for the company's website (Cox 2020). Java will be used to program the android application (TheZachBales n.d.), while Xcode will underpin the iPhone version of the application (ching 2019). For the back end, we will conduct server-side scripting in python. The database will use structured query language (SQL) to store and receive large amounts of information. The APIs will be acquired primarily as a service from Amazon, including slashDB for our database API (AWS 2021, c). Knowledge of the JSON programming language will be required to ensure that our applications work together.

Testing

To help deliver on our project and bring our idea to fruition, UMI incorporates a myriad of existing and proven technologies, minimising the testing requirements as a result of their inherent reliability. Nevertheless, testing remains a crucial process for the development of the application and will continue unabated throughout the life of the business.

The first testing method adopted by UMI was a horizontal, UX/UI-centric prototype, focusing solely on the interface design and subsequent usability of the application. The business opted for Figma to facilitate the production of high-fidelity user prototypes created to demonstrate the basic functionality of the mobile application. Figma does not require any coding to produce wireframes or prototypes, meaning the team could carry out this testing method during Phase 2 of the project. The user prototype produced formed the basis of UMI's preliminary results and feedback surrounding the performance of the application/website. These results will inform the front-end development in Phase 3.

Following user prototypes, UMI will move to vertical prototyping to test the back-end methods of the front-end functions, connecting UMI's interfaces with working databases and systems. The primary goal of the vertical prototype is to refine the functionality of the application, validate the proposed user journey and present a more in-depth view of functionality congruent with the database to UMI's investors and key stakeholders. Vertical prototyping will require UMI's developers to produce a Python web server to interact with the API from Amazon, and a web page that can interact with the web server.

The next phase of testing will occur after the website, application, and database development are complete. UMI will implement User Acceptance Testing (UAT), using a small group of users who will carry out a series of test scenarios devised by the product team. These test scenarios will mirror real-life scenarios as closely as possible and produce high-quality data that will inform the final production of the application.

As UMI is a global language translation application, the business will select end-users of various cultural backgrounds and primary languages to participate in the UAT testing and users within the hospitality industry who can provide relevant insights and feedback. The central aim of this testing phase is to increase customer satisfaction whilst minimising commercial setbacks as a result of post-mortem recognition of user-related failures (Setter n.d.). As part of UMI's pre-launch marketing strategy, significant budget will be allocated to launch targeted PPC ad campaigns designed to build a database. When the business is ready to execute UAT testing, the database will be contacted offering first access to the application via beta testing and applicants will be required to fill in a survey to register their interest. From those applicants, 10 users will be selected to undertake the UAT process via Apple's TestFlight.
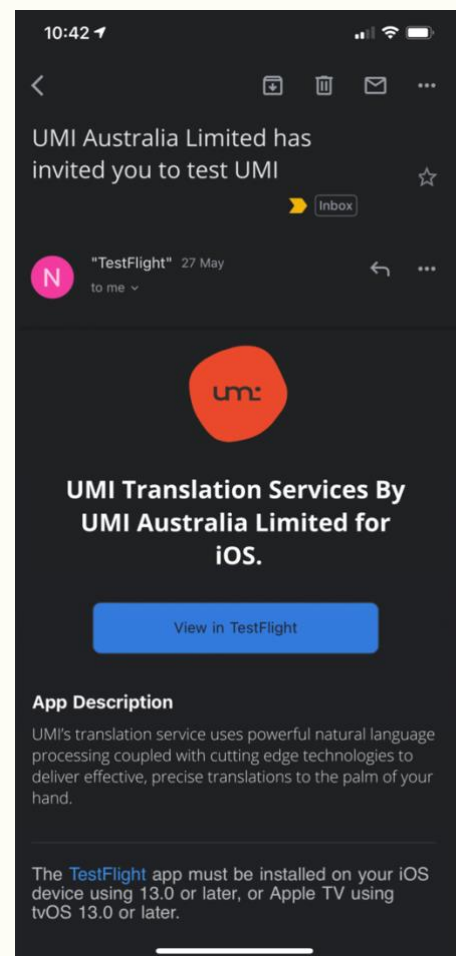
UMI will endeavour to produce a marketable end product that is free of errors; however, the business is mindful of how challenging and often impractical it is to test all facets of any given software and guarantee it is free of bugs (Awedikian & Yannou 2014). Determining the appropriate time to cease pre-launch testing and release software is a critical step in the development process that can present a problematic compromise between continuing to test or executing the product launch (Awedikian & Yannou 2014). With the relative size and scope of the project considered, UMI is confident that a phased approach of the aforementioned testing methods will provide a satisfactory basis for product release, without being hindered by a lengthy testing cycle. Comprising both an application and a client-facing website affords the business some flexibility and the opportunity to iteratively release updates and conduct bug fixes where required, ensuring that the project is fully functional at all times.

Timeframe

https://app.pitch.com/app/public/presentation/f27be563-11ac-4335-8c38-b5f6aaa18651

Risks

As with any business endeavour, our project carries considerable risks as outlined in the Scope of Works document and the Risk Matrix appended. Although there is always a chance of anything happening, the team is focusing its efforts on preparing for and mitigating the risks identified in the aforementioned documents. The most considerable risks to the project's success are organisational, security, and financial risks.

Organisational risk exists in any scenario where multiple people come together to achieve an objective (Spacey 2015). Although we have conducted substantial and comprehensive research, there is a legitimate chance that the application will not work. Perhaps the technology is not as advanced as we predicted, or we failed to account for particular methods crucial to the development process. Furthermore, our limited training and experience in the IT field compounds these potential risk factors. There is a real possibility that we will not learn the programming required within the limited timeframe.

As we are predominantly an online organisation, security risks are high (Borges 2021). Our application processes and stores a large amount of data pertaining to the customer's personal information. Government regulations must be identified and upheld and failing to meet these requirements would result in severe setbacks to us as individuals and as a business. The application will also process financial information, which carries tremendous responsibility with the potential of failing to meet government and industry requirements, and the threat posed to our customers.

Budgetary risk is evident whenever there is expenditure and profit involved in an organisation (Brannon 2006). One such risk for UMI is over expenditure on capital equipment. As a small organisation, we need to be mindful of this and allow the organisation to grow organically. There is also a risk that the budget may be inadequate for expenses such as infrastructure hire and wages, the possibility that our revenue will not reach expectations, or that the business will fail to provide a positive return on investment.

Group Processes and Communications

Process

The team developed its processes around one core objective—to ensure we could deliver the most robust, professional project possible despite our limits. To achieve this, Erin, our project manager, investigated best practice methods and produced a comprehensive Scope of Works document for the team to work from. A better understanding of project management has improved our resource and time management, critical thinking, forecasting and planning, communication skills, and overall efficiency.

The team implemented Trello in Assignment 2—a collaborative Kanban board for task tracking accessible online (Atlassian 2021). A Kanban board is a graphical representation of jobs using cards at differing levels of completion (Atlassian 2021). During the project, we divided tasks into a series of Agile sprints. Each sprint comprises a set timeframe, goals, and an evaluation performed before progressing to the next sprint (all of us at Monday.com 2021). We tracked and managed our sprints through Monday's Gantt chart view, allowing us to assign members, set deadlines, establish deliverables and milestones, and plot interdependencies between tasks.

To store files and code, the team continued to use a GitHub repository. GitHub repositories allow our members to upload and download documents and source code quickly and allow for version control (Finley 2012). Additionally, the team used Google Docs for reporting elements. This decision allowed for transparency around how individuals were tracking and easy access to content elements ready for the website.

Communication

Our primary means of communication is via MS Teams—a Microsoft product that allows text chat and video conference calling (Finnegan 2020). Our meetings occurred bi-weekly throughout the project, as documented in the Scope of Works. The expectation was for Maximum attendance; however, the team understood that some members might not be available to attend every meeting. If a member could not make a meeting for whatever reason, it was expected that they inform the group in advance and review the recorded meeting and agenda as soon as possible. If a member missed a meeting without advance notice on two occasions, a warning was issued. Any further absences resulted in portions of work being re-distributed to remaining team members, and the resulting share in their feedback reduced.

Additionally, the team utilised the comment feature within Trello and Monday to communicate directly with members regarding specific tasks.

Skills and Jobs —

Account Manager

We're UMI - an innovative start-up on a mission to democratise the dining experience by enabling simple, effective language translation within the hospitality industry. This position represents an exciting opportunity to join a paradigm-shifting organisation and play an instrumental role in our evolution.

UMI's Account Managers foster authentic relationships with our key hospitality partners, helping to strengthen their customer growth and retention, and identify areas where our products can help their businesses to succeed. A day in the life of an Account Manager at UMI entails continuous communication with venue managers Australia-wide and regular site visitations to consult, pitch new products and provide system training to clients. You'll gather and analyse client feedback and liaise with our product team to continuously improve our service, produce regular performance and financial reports, formulate data-informed client plans with KPIs in mind, and participate in the occasional merciless Table Tennis match. This is a local, on-site position with the flexibility to work from home when feasible.

Minimum Qualifications:
- 2 years Account Manager experience, or 5+ years in an Account Executive role.
- Demonstrated Sales experience.
- Experience working autonomously.
- Excellent written and verbal communication skills.
- Diplomatic demeanour and strong interpersonal skills.

Bonus skills:
- Experience working with hospitality clients.
- Experience working within a technology company.

At UMI, cultivating a diverse and inclusive environment is extremely important to us. We believe in absolute equality in every respect and take our team's well-being very seriously, and as such, are looking for applicants that share similar values. If this sounds like you, we'd love to hear from you! Please direct CV and resume to careers@umi.com.au.

Marketing Manager

We're UMI - an innovative start-up on a mission to democratise the dining experience by enabling simple, effective language translation within the hospitality industry. This position represents an exciting opportunity to join a paradigm-shifting organisation and play an instrumental role in our evolution.

As UMI's Marketing Manager, you will be responsible for the strategy and execution of all marketing campaigns across each touchpoint and lead all aspects of the customer journey. You'll formulate high-impact digital marketing campaigns and provide robust insights into performance metrics with high growth targets. This is a remote position and is open to all global applicants, with the option to relocate to Australia and work from our Sydney HQ if desired.

Minimum Qualifications:
-   Bachelor's degree.
-   6+ years marketing experience.
-   Experience marketing digital products.
-   Demonstrated experience with Google Ads and Google Analytics.
-   Demonstrated experience with Facebook Advertising.
-   Experience working with stakeholders across multinational sites.
-   Experience with significant budgets.
-   Exceptional written and verbal communication skills.

Bonus skills:
-   Experience working with hospitality clients.
-   Experience with high-level data analysis.
-   Sales experience.
-   SEM & SEO experience.

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Front-End Developer

We're UMI - an innovative start-up on a mission to democratise the dining experience by enabling simple, effective language translation within the hospitality industry. This position represents an exciting opportunity to join a paradigm-shifting organisation and play an instrumental role in our evolution. You'll be responsible for supporting our testing endeavours over the coming months and ensuring our application is market-ready by launch date.

As UMI's front-end developer, you'll be instrumental in transforming our prototype into a robust, functional, user-friendly product. We're looking for a hungry, passionate developer who can think outside the box and can offer expertise in UX & UI best practices, information retrieval, data security, NLP, NFC, and more. This is a remote position and is open to all global applicants, with the option to relocate to Australia and work from our Sydney HQ if desired.

Minimum Qualifications:
- Bachelor's in Computer Science or Information Technology.
- 6+ years experience in the workplace.
- HTML, JavaScript, CSS, Java proficiency.
- XCode experience.
- Demonstrated UX & UI experience.
- Firm handle on data structures.
- Exceptional problem-solving and critical thinking ability.

Bonus Skills:
- Software development experience.

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Back-End Developer

We're UMI - an innovative start-up on a mission to democratise the dining experience by enabling simple, effective language translation within the hospitality industry. This position represents an exciting opportunity to join a paradigm-shifting organisation and play an instrumental role in our evolution.

UMI's back-end developers design and deploy cutting edge technologies that support our business objectives and mission. You'll helm our testing endeavours over the coming months to ensure our application is market-ready by launch date, as well as continuously iterating and improving our product offering. This is a remote position and is open to all global applicants, with the option to relocate to Australia and work from our Sydney HQ if desired.

Minimum Qualifications:
- Bachelor's in Computer Science or Information Technology.
- 6+ years experience in development space.
- Java, JavaScript, Python, SQL proficiency.
- Linux experience.

- JSON experience.
- Firm handle on data structures & algorithms.
- Exceptional problem-solving and critical thinking ability.

Bonus Skills:
- Masters or PHD in Computer Science.

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Reflection —

Daniel Blake

In this second assignment, I was impressed by how much most group members learned from the first group assignment. In the last attempt, we left work far too late for the assignment. Late work caused problems with editing, and things were left very late. However, the group completed work early on this occasion, and stress levels were much lower heading into the final week.

I think that working on too many systems of storage caused a little confusion. Having a google doc, separate google storage space, and GitHub may have been somewhat inefficient. Also, I do believe that some members' contributions were a little late in arriving. Late arriving work made it somewhat harder to coordinate a congruent piece of work in the end.

I was pleasantly surprised by the effort put in by our group leader into researching and implementing agile project management practices. This structured approach made the team function on a much more efficient level. Also, sprints kept everyone informed of team expectations and enabled positive task tracking.

In groups, it pays to have an in-depth plan. Our group benefited from using project planning tools, such as a Gannt chart, Trello, and sprints, which made the combined effort a lot easier. The tracking enabled a significant improvement on the first assignment. I also learned that it pays to try and understand the human element. I made the mistake of criticising people unprofessionally, which I regret, as the team works much better when treating members with respect.

Nicholas Drinkwater

Coming off the success of Assignment Two, I had high hopes and expectations that the team would be able to not only continue with but improve upon the work that

we produced for the previous assignment. Despite these high expectations I had set, I was still surprised at the team's ability to work even harder in this assignment and the team's willingness to fully take on board the feedback that we collated and received following Assignment 2. Throughout this assignment, it constantly felt as though the entire team was endeavouring to produce the best work that they could and I'm extremely grateful that I've been able to work with this group. Especially, I was impressed with the deadlines that we were able to set ourselves and stick to, to ensure that work was being submitted in a timely matter and not left until close to the last minute.

Whilst the team has improved in so many areas, we could continue to work on ensuring that the work is evenly divided between group members and that visibility is provided to everyone in the group about what is being worked on. As the assignment progressed and work was assigned, there was times where no work in progress or update was visible for certain tasks and whilst it is necessary to delegate the tasks required, an overall picture of the project was at times hard to discern due to this.

In my Assignment 2 reflection, I mentioned that I was hesitant to work within groups due to the horror stories about group work that you hear, where work is left for just one or two group members to complete. I was pleasantly surprised to find that this wasn't the case and throughout both Assignment 2 and 3, I've learned that working in a group doesn't have to be a negative thing. Finding the right group to work with, I've found that the work that you can produce is of a much higher standard than if you were to work by yourself. By being a part of UMI, it makes me look forward to other group projects as I continue through my studies. Whilst I'm sure there will be times where group work doesn't go the right way, being a part of this group has given me a new outlook and motivation for working in groups in the future.

Abby Durbridge

Having established strong team morale and connections during Assessment 2, progressing onto Assessment 3 became a much easier endeavour due to open communication channels and a better grasp of the team's strengths/weaknesses. Once again, each team member leaned into their strengths and offered to take on the tasks most suited to them. I was thoroughly impressed and grateful to the leadership team who demonstrated mature project and people management skills. The team, under great leadership, continued to improve our time management and produce content much more timely.

Though working in a remote function, I do feel there was more collaborative work across the board to contribute towards the assignment's artefacts. Whether members were able to meet in person or break the tasks up in manageable parts to contribute to one whole section.

Overall, the level of work produced for this tertiary assignment was phenomenal and undoubtedly helped prepare me for not only future units but also the workforce. The areas I would consider need further development, should we embark as a company towards full product completion, are aligning our values and our why behind the brand UMI. Having the advantage of the original project idea and writing the motivations section, I felt a deeper connection behind the project's why.

Mathew Dwyer

I was extremely pleasantly surprised at how well we did on assignment 2, so it seemed our teamwork had paid off. While we weren't quite as organised as we could have been, what we did have had worked quite well regardless.

This time around, our organisation was much better, meaning we were able to make much more effective use of time. Everyone in the group contributed well and helped all other group members when needed.

Having had mostly bad experiences working in groups previously, I have been very happy working within this one, with everyone being open to suggestions and criticism, communicating often and effectively, and any inter-team conflict resolved quickly and without any bad blood.

The biggest take away I have from this team is the importance of having clear goals for each individual so that everyone can be confident that each team member is contributing towards the group's overall goal in a meaningful way. It is also the importance of constant open communication so if anyone feels like they are falling behind, they are not afraid to let others know and ask for help.

Erin Paton

Reflecting on Assessment Three, I can confidently say that most of the bottlenecks and areas for improvement experienced during Assessment Two were effectively mitigated. UMI's organisational and communication skills were already strong, however, the team has demonstrated clear growth in these areas with the addition of new tools and communication protocols introduced from the outset.

We initiated Assessment Three with a video meeting to discuss our feedback and to openly communicate areas we each felt needed refinement to avoid conflict, setbacks, and undue double-handling that the team had previously observed. As a result, we agreed upon adopting an Agile Methodology and producing work in pre-planned weekly Sprints in order to maintain stricter deadlines. We integrated Monday's Gantt board into our existing workflows and by plotting

interdependencies between tasks, we were able to maintain unspoken, transparent accountability.

During Assessment Two, the team experienced significant double-handling of tasks due partly to individuals working offline which permitted virtually no transparency on progress and ownership, and partly due to my inadequate Quality Control protocol. Moving into Assessment Three, the QC process was improved by providing the team with the resources needed to effectively check their own work for unintentional plagiarism, spelling errors, word count and rubric issues before submitting to QC. This refinement reduced my workload considerably during Assessment Three, freeing up my time for more technical tasks.

Additionally, a new method of ownership was introduced that assigned team leads in their field of expertise whom the team would assemble around to complete tasks, with the idea that they had someone skilled to lean on and subsequently learn from. I can't speak for the rest of the team, but I found this approach invaluable as I found I was absorbing information incidentally through the collaborative process.

Overall, Assessment Three felt much smoother and less stressful than Assessment Two and I would attribute that to the team's willingness and enthusiasm to ameliorate, their tolerance for constructive criticism and their dedication to achieving the best possible result.

Harrison Tang

After completing Assessment Two and beginning work on Assessment Three, the group collectively decided to improve on certain factors that would enhance collaboration and revision of works done by group members. These improvements would include harder deadlines to submit and display work, regular communications around work progression and collaborative opportunities, and better use of GitHub and project management tools.

With the assessment brief calling for more in-depth detailing of our project idea, UMI Translation, we were able to contribute to each other's delegated tasks more closely and effectively than in Assignment Two. Tracking progression of our GitHub website, artefacts, and deliverables was made easier due to excellent work-flow management and consistent use of project management tools, while we consistently adhered to a bi-weekly schedule of group meetings to discuss work progress and ideas. Each group member was able to contribute a unique element to the project in line with their strengths, skills, and superior knowledge across particular fields, while collaboration on assessment elements was observed more frequently due to the more focussed nature of the assessment brief and the content produced.

Because of the unique challenges of studying and collaborating online and through management programs such as Microsoft Teams, not all project processes proceed as planned. Overall, improvements to communications and more regular insight into progress made on tasks would provide everyone with a stronger understanding of the intricate details of the overall project, which would lead to stronger collaboration on ideas, research, and direction. With this in mind, more even delegation of tasks may lead to more collaborative work and provide a more rounded learning experience, although this is nit-picking the details at this stage.

What surprised me in this experience was how open communications between group members were. The commitment shown by group members to produce their highest quality of work has been humbling and inspiring. To have effective and profound collaboration over university assessment between peoples living hundreds to thousands of kilometres apart shows how powerful modern technological advancements have become.

I have learned that forming groups is a powerful tool for sharing and enhancing ideas. People from various backgrounds are able to connect over a somewhat buggy, limited platform to produce a beautiful report and website about a translation application. Over the course of the last nine or so weeks, I have thoroughly enjoyed getting to know my fellow group members, and I intend to continue connecting with them over the course of our university studies.

Group
Following the feedback from Assessment 2, and considering our own personal experiences throughout the project, the team committed to identifying and improving upon areas that caused bottlenecks and setbacks with open and honest communication. We did so by initiating a video meeting in which we examined the Assessment 3 spec and rubric through the lens of our tutor and group feedback. We subsequently spitballed ways to solve for problems that had arisen previously and established more stricture around our deadlines and processes going forward.

Reflecting back as a group, the ability to critique our own and others work with candour set the tone for Assessment 3. We found vast improvements in our collaborative efforts, our communication, our adherence to deadlines and the unwavering commitment to produce work of the highest quality we could reasonably attain. In particular, the documentation of the overall project scope from the outset and the introduction of new organisational tools, such as Monday, fostered a tension-free environment. Previously, we'd experienced ebbs and flows of high-stress periods where the team felt unorganised, flustered or behind schedule and the lack of planning and structure amplified this.

Collectively, the team echoed similar sentiments regarding the experience throughout Assessment 3. The steady pace of the work was more manageable with the deliverables being granulated. This created more room to breathe and for individuals to produce work in more reasonable blocks.

Moving forward, a fairer system for delineation of tasks would contribute to a more rounded learning experience, where group members can be better exposed to unfamiliar platforms and processes to aid them in their learning. Large tasks can be identified and broken down into smaller tasks to mitigate work overload and more evenly distribute work and contributions. Additionally, collective demonstrations of work produced would provide a deeper insight into project details and more opportunities for collective contributions and opportunities for collaboration. Instances of this occurred during group meetings where group members showcased their work through the platforms they were working on and were extremely helpful in better understanding details of the overall project and the tools and technologies involved.

Group work is a powerful tool for the development of ideas by drawing the talents of many people to produce a single project. We learned creating a positive and open environment, coupled with excellent project management skills and consistent communication, can lead to producing some of our best work. Despite this being our final project together for Introduction to Information Technology, each team member displayed drive and enthusiasm for their work, and for the project. We should be extremely proud of our collective efforts.

Artefacts—

Figma App Prototype
https://www.figma.com/proto/yDd1ss81i53cPXS9tNHBfR/Misc?node-id=311%3A2&scaling=scale-down&page-id=0%3A1

Video Presentation
https://youtu.be/Aoncqe1ke24

Project Scope of Work
Cognisant of the manifold risk's concomitant to any project, UMI prioritised in-depth scoping to inform the planning and execution of works to be completed. A multi-phased approach was adopted to ensure reasonable deliverables with achievable lead times.

This Project Scope of Work document provided a centralised plan containing a clear delineation of tasks, communication schedules, escalation plans, identified stakeholders, strategies and objectives, and referenced related documents in a manner that would comprehensively inform new and existing participants in the project development, including newly onboarded staff and investors. To view the Project Scope of Work, please find it as a secondary document uploaded along with this report in Canvas. The Project Scope of Work can also be viewed through our website.

Video Presentation

https://youtu.be/Aoncqe1ke24

Risk Assessment Matrix

Risk	Likelihood (1-5)	Consequence	Risk Rating	Action
Security	3	Critical	High	Identify and encrypt sensitive data, use endpoint security measures, employ security personnel.
Timeframe	4	Moderate	High	Strict Project Management parameters, set realistic deadlines, track thoroughly, use time estimation formula.
Budget	3	Moderate	Medium	Regular budget planning & reporting, MD approval required for large expenditures, hire financial advisor.
Demand	1	Marginal	Low	Formulate pre-launch strategy that allows early adoption for restaurants, use an auto-scaling system.
HR	2	Marginal	Low	Hire eternal HR company, map and document internal SOPs and escalation plan, regular open communication.

RISK ASSESSMENT MATRIX

	Insignificant (A)	Marginal (B)	Moderate (C)	Critical (D)	Catastrophic (E)
Unlikely (1)		DEMAND			
Seldom (2)	HR				
Occasional (3)			BUDGET	SECURITY	
Likely (4)			TIMEFRAME		
Definite (5)					

Likelihood (vertical axis) — Consequence (horizontal axis)

Story Board and Script Draft

[section 1]

With today's diverse and multicultural society, as well as ease of access to travel, language barriers can be one of the hardest things to overcome. This can be especially prevalent when trying to order or purchase something from a restaurant or other hospitality business(es) in a foreign country. That's why we created UMI.

[section 2]

UMI utilises smart devices and NFC technology to help streamline the translation process and eliminate the need for cumbersome verbal interpretation.

[section 3]

We all have our reasons to travel, and we all share the same need to eat! We hope to break down the barriers and eliminate the sometimes nerve-wracking or anxiety inducing process of trying to purchase food in a foreign language. Wouldn't you rather have a simple, easy way to communicate, rather than trying to play a bad game of charades or butchering the local language to the point of not being understood. That is where UMI comes to save the day. We utilise state of the art technology to take care of the process for you. NFC or Near Field Communication is used to instantly send the restaurant's information to a customer's smart device, while Neural Machine Translation analyses the text to be translated and automatically sends it to the customer in their preferred language.

[Section 4]

It starts by having a business sign up for an UMI account. When a business signs up they will be taken to a merchant specific page for their place of business. From here, they can upload menu images and descriptions, view previous orders made through UMI, manage their billing details, and more. Once a menu item has been uploaded, it will be automatically stored in our database, ready for a customer to view in their preferred language. From there, all that is needed is a small NFC device readily accessible for customers to tap their smart device on.

[section 5]

For a customer to then make orders through UMI, they would download our UMI app from the application store, register for an account and login. Once they are an UMI member, they can select their preferred language to receive information in. Using this information, when accessing the menu of an UMI enabled business, our server will retrieve the data, and automatically translate it into the desired language using a worldwide language database. All the customer will need to do is tap their smart device to the business' NFC device and voila, an instantly translated menu. From there, they select what they'd like to order, pay through the app, and their order is delivered to the business in their preferred language ready to satisfy their taste buds.

[Section 6]

You might be thinking "this is just another translation app"; but what sets us apart is our love for creating and connecting ties between people, over great food. We accomplish this through enticing those who view foreign language as a barrier; by streamlining the translation process. Rather than having to enter menu items one by one into a translator or try to take a photo with a visual translator; UMI is an all-in-one solution, providing an automatically translated menu, order portal, and an online payment gateway.
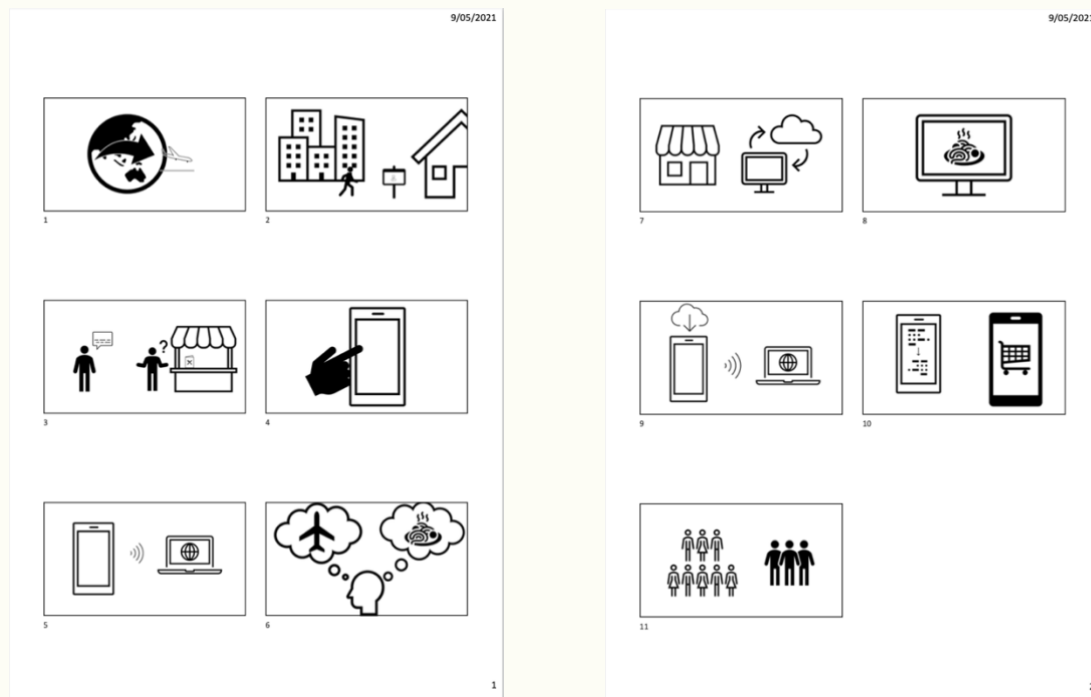
[Section 7]

It's not all about those who travel. UMI can also be used to help those who might move to a different country, but don't yet know the language. With UMI, they would be able to go out and enjoy dining experiences in their new home, or even start a business themselves, with the ability to connect with the locals.

[Section 8]

Here at UMI, we believe that linguistic rights are human rights, that's why we created this application with accessibility to the mainstream consumer experiences at its core, and to advocate for a shift in cultural relatability through the experience of food and dining. UMI aims to create and connect the ties between human experiences, both familiar and unfamiliar once again.

[Section 9]

So, come check out UMI, and unlock an easy way to experience a diverse world of food and dining experiences.
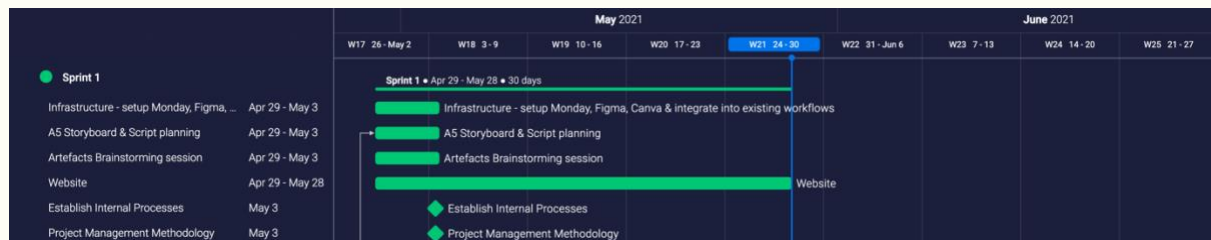
Figma Website Wireframe

https://www.figma.com/proto/AdFLq5HwklvYV184xJl9uJ/UMI-WEB?node-id=343605%3A468&scaling=scale-down&page-id=0%3A1
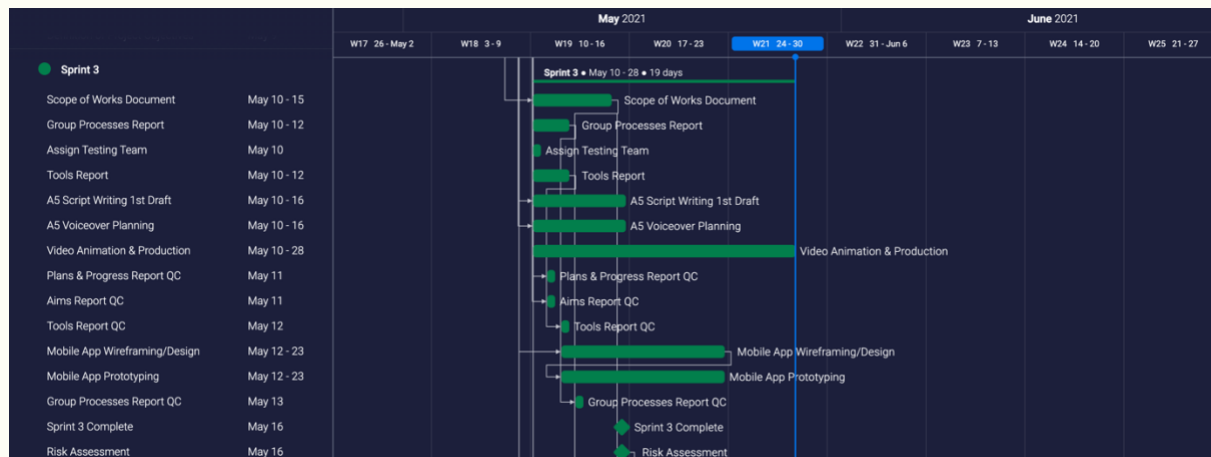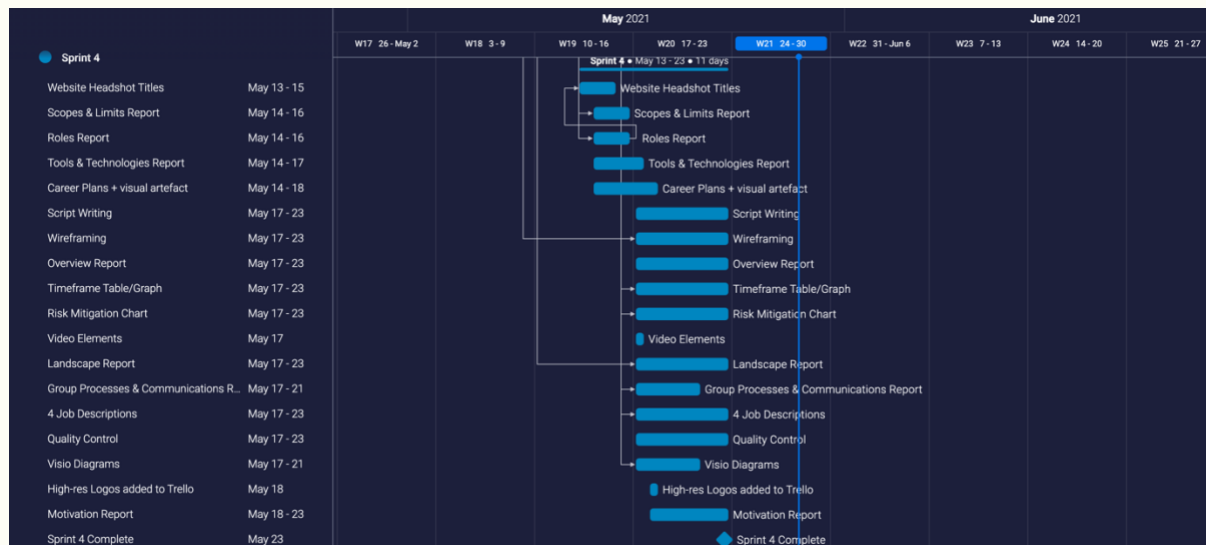
Monday – Gantt Charts

Sprint One

Sprint Two

Sprint Three

Sprint Four

Sprint Five

Reference Library —

Project

Topic

1. Zafari, K, Allison, G, Demangeot, C, Yuri, S, Angela, G, Cruz,B, Yuri S, Cruz, A & Kim-Shyan F, 'Practising conviviality: social uses of ethnic cuisine in an Asian multicultural environment' Journal of consumer marketing Vol 32 pp 564-575

Motivation

1. Follow-Up Committee 1998, UNIVERSAL DECLARATION OF LINGUISTIC RIGHTS, Institut d'Edicions de la Diputació de Barcelona. https://culturalrights.net/descargas/drets_culturals389.pdf
2. PEN International 2011, Girona Manifesto on Linguistic Rights, https://pen-international.org/app/uploads/Girona-Manifesto-ENGLISH.pdf
3. Migration, Australia, 2019-20 financial year 2021, Australian Bureau of Statistics, Australian Bureau of Statistics, viewed 26 May 2021, https://www.abs.gov.au/statistics/people/population/migration-australia/2019-20#australia-s-population-by-country-of-birth.
4. SBS News 2021, Census 2016: Second-language learning in Australia 'needs urgent attention', SBS News, viewed 26 May 2021,

<https://www.sbs.com.au/news/census-2016-second-language-learning-in-australia-needs-urgent-attention>.

5. Proficiency in English | Australia | Community profile 2016, Id.com.au, viewed 26 May 2021, <https://profile.id.com.au/australia/speaks-english>.

Landscape

6. Aiken, M., 2019. An Updated Evaluation of Google Translate Accuracy. Studies in Linguistics and Literature, 3(3), p.p253.

7. Bergen, M. and Peteraf, M., 2002. Competitor identification and competitor analysis: a broad-based managerial approach. Managerial and Decision Economics, 23(4-5), pp.157-169.

8. Chen, X., Acosta, S. and Barry, A., 2017. Machine or Human? Evaluating the Quality of a Language Translation Mobile App for Diabetes Education Material. JMIR Diabetes, 2(1), p.e13.

9. Google Cloud. 2021. Cloud Translation | Google Cloud. [online] Available at: <https://cloud.google.com/translate/> [Accessed 17 May 2021].

10. Itranslate.com. 2021. iTranslate Converse. [online] Available at: <https://www.itranslate.com/converse> [Accessed 20 May 2021].

11. Itranslate.com. 2021. iTranslate Enterprise Solutions. [online] Available at: <https://www.itranslate.com/enterprise> [Accessed 20 May 2021].

12. Itranslate.com. 2021. iTranslate Keyboard. [online] Available at: <https://www.itranslate.com/keyboard> [Accessed 20 May 2021].

13. Itranslate.com. 2021. iTranslate Lingo. [online] Available at: <https://www.itranslate.com/lingo> [Accessed 20 May 2021].

14. Itranslate.com. 2021. iTranslate Translation API. [online] Available at: <https://www.itranslate.com/api> [Accessed 20 May 2021].

15. Lee, Y., 2021. Extraction of Competitive Factors in a Competitor Analysis Using an Explainable Neural Network. Neural Processing Letters,.

16. Sommerlad, J., 2021. Google Translate: How Does the Multilingual Interpreter Actually Work?. [online] The Independent. Available at: <https://www.independent.co.uk/life-style/gadgets-and-tech/news/how-does-google-translate-work-b1821775.html> [Accessed 18 May 2021].

17. Itranslate.com. 2021. The Leading Translation and Dictionary App – iTranslate. [online] Available at: <https://www.itranslate.com/> [Accessed 20 May 2021].

18. Tirosh, O., 2018. Which language does Google Translate translate best?. [online] Tomedes.com. Available at: <https://www.tomedes.com/business-center/language-Google-Translate-translate> [Accessed 18 May 2021].

19. Turovsky, B., 2016. Found in translation: More accurate, fluent sentences in Google Translate. [Blog] The Keyword, Available at: <https://blog.google/products/translate/found-translation-more-

accurate-fluent-sentences-google-translate/> [Accessed 20 May 2021].

Plans and Progress

1. Amazon Web Services, Inc. 2021. Amazon Translate Features – Amazon Web Services (AWS). [online] Available at: <https://aws.amazon.com/translate/details/> [Accessed 7 May 2021].
2. Aws.amazon.com. 2021. AWS Marketplace: Apache Web Server with Ubuntu 18.04. [online] Available at: <https://aws.amazon.com/marketplace/pp/B082XJD2RW?qid=1618209672009&sr=0-2&ref_=srh_res_product_title> [Accessed 5 May 2021].
3. Aws.amazon.com. 2021. AWS Marketplace: SlashDB - Automatic REST API for Databases. [online] Available at: <https://aws.amazon.com/marketplace/pp/B00FFKW0GC> [Accessed 6 May 2021].
4. Azure.microsoft.com. 2021. Pricing - Translator | Microsoft Azure. [online] Available at: <https://azure.microsoft.com/en-us/pricing/details/cognitive-services/translator/> [Accessed 6 May 2021].
5. C, C., 2019. Xcode Tutorial for Beginners (Just updated for Xcode 11). [online] CodeWithChris. Available at: <https://codewithchris.com/xcode-tutorial/> [Accessed 9 April 2021].
6. Cox, L., 2020. Web Design 101: How HTML, CSS, and JavaScript Work. [online] Blog.hubspot.com. Available at: <https://blog.hubspot.com/marketing/web-design-html-css-javascript#:~:text=HTML%2C%20CSS%2C%20%26%20JavaScript%3A,the%20behavior%20of%20different%20elements> [Accessed 5 May 2021].
7. Instructables.com. n.d. How to create and android app with android studio. [online] Available at: <https://www.instructables.com/How-To-Create-An-Android-App-With-Android-Studio/> [Accessed 9 April 2021].
8. Itpro.co.uk. 2018. What is an application server. [online] Available at: <https://www.itpro.co.uk/strategy/29643/what-is-an-application-server> [Accessed 6 May 2021].
9. Kissflow. 2021. What is Project Scope Management and Why is it Important?. [online] Available at: <https://kissflow.com/project/project-scope-management/> [Accessed 5 May 2021].
10. Nye, K., n.d. Encoder - GoToTags. [online] GoToTags. Available at: <https://gototags.com/encoder> [Accessed 5 May 2021].
11. Reader, S., n.d. Buy Square Reader | Square Shop. [online] Square Reader. Available at: <https://squareup.com/shop/hardware/au/en/products/chip-credit-card-reader-with-nfc-au?device

Testing

1. Awedikian, R & Yannou, B 2014, 'Software Testing, Verification and Reliability', Software testing, verification & reliability, vol. 24, no. 2, pp. 85-123.
2. Setter, M n.d., 'User Acceptance Testing – How To Do It Right!', Usersnap, blog post, viewed 25 May 2021,<https://usersnap.com/blog/user-acceptance-testing-right/>

Risks

1. Spacey, J 2015, What is organizational risk, Simplicable, viewed 14 May 2021, <https://simplicable.com/new/organizational-risk#:~:text=Organizational%20risk%20is%20a%20potential,legal%2C%20security%20and%20operational%20risks>
2. Borges, E 2021, Top Ten Common Security Risks Explained, viewed 14 May 2021 <https://securitytrails.com/blog/top-10-common-network-security-threats-explained>
3. Brannan, L 2006, Project budgeting using the project management knowledge areas, viewed 14 May 2021, <https://www.pmi.org/learning/library/project-budgeting-management-knowledge-areas-8132>

Group Processes and Communication

1. Atlassian 2021, Trello helps teams move work forward, Atlassian, viewed 15 May 2021, <https://trello.com/en>
2. all of us at Monday.com, Agile Planning: a step by step guide, Monday.com, viewed 15 May 2021, <https://monday.com/blog/project-management/agile-planning/#:~:text=Agile%20planning%20is%20a%20project,and%20aims%20to%20complete%20them>Atla>
3. Finley, K 2012, What exactly is GitHub anyway?, Tech Crunch, viewed 15 May 2021, <https://techcrunch.com/2012/07/14/what-exactly-is-github-anyway/>
4. Finnegan, M 2020, Microsoft Teams: How to use it, and how it stacks up against slack and zoom, Computer world, viewed 15 May 2021, <https://www.computerworld.com/article/3276276/microsoft-teams-its-features-how-it-compares-to-slack-and-other-rivals.html>