PROJECT PROPOSAL

Kitabein and offee

Assignment 1 – Project Management
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Program: Bachelors in IT
Course code: 1802ICT
Trimester 2 – Week 4 Submission

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Identify the problem

1.System Vision Document

Problem Description

"Kitabein & Koffee" is a café-library located in Brisbane, Australia. This café lives up to its name Kitabein (books) and Koffee (coffee) and was well known amongst readers and authors. After the current owner took over the company, it was apparent that the owner lacked industrial understanding on how to run a business, which has caused the café to steadily drop in its customer base, and loyal customers.
The owner has commissioned the development of a new rewards system to be implemented into the business, to allow customers to gain loyalty points through actions such as purchasing items at the café or borrowing a book. Furthermore, the owner wants a mobile app, and kiosk interface developed that will allow customers to create an account, to monitor their rewards balance, and receive café specials. Research from the ACCC [1] has detailed the advantages of a rewards system, creating an increase in customer loyalty and customer base, which will in turn boost business revenue and popularity, and fix the current issues of the business. [1] Australian competition & Consumer Commission

System Capabilities

The system will provide the following capabilities:

- Customers can create an account via an app or an in-house kiosk.
- Customers can view their rewards balance.
- Customers can gain rewards by ordering food/beverages, borrowing books and recycling coffee cups.
- Customers can check/spend their rewards points via the app, and in-house kiosk.
- App contains promotions and specials for the café.
- App contains information regarding the café (location, menu, pricing, etc.).
- Kiosk displays library database.
- System provides reports and graphs of the café's customer base.
- System will record customers information into the system's database and update a customer's rewards points in real-time.

Business Benefits

This system will provide the potential projected Business Benefits:

- Increase customer base, and loyalty through new implemented rewards, and promotions system.
- Increase in popularity and customer satisfaction.
- Increased Revenue from sale growth, and customer order size.
- Decrease in staff errors with the new digital system.
- Employee's productivity will increase by promoting the rewards program.
- In-app promotions incentivise customers to visit café.
- Customers publicise business to friends and family, increasing customer base.
- Statistics created from the system will give the business an edge in the market.
- Coffee cup recycling scheme will gain loyalty to environmentally savvy customers.

Quantify Project Approval Factors

2a Project Completion Time

Table 2A shows the subsystems necessary for the “Kitabein & Koffee's” proposed model, covering functional requirements, anticipated runtime, and iterations required. The connection between the two requirements, that is, functional and iteration is determined by the subsystem’s complexity. The timeline is based on 40-hour work week, which equated to 8 hours per each weekday. The anticipated accomplishment time is 17 weeks, as portrayed in the table beneath.

Estimated time for Kitabein & Koffee café new implementations			
Subsystem	**Functional Requirements**	**Iterations Required**	**Estimated Time**
Customer Database Subsystem [1]	6	3	2 Weeks
Rewards Database Subsystem [2]	3	3	2 Weeks
Inventory System [3]	5	4	3 Weeks
POS subsystem [4]	3	2	2 Weeks
Mobile Interface Subsystem [5]	3	2	2 Weeks
Mobile App subsystem [6]	4	3	2 Weeks
Kiosk Interface Subsystem [7]	4	2	1 Week
Promotion Subsystem [8]	3	2	1 Week
Total Development Time			15 Weeks
Final Testing and Deployment time			2 Weeks
Total Project Time			17 Weeks

Table 2A – Estimated Time for Project Completion

Inventory System [8]

[1] The customer database subsystem corresponds to the digital structure that will be built in order to accurately store provided data. These will comprise the creation of a customer account, the modification of information in the database, as well as the communication flow between the POS and the database to verify the client's account.

[2] The rewards database subsystem describes the process of categorising a range of activities that will allow customers to earn points, as well as a database of items that help customers earn points when they purchase café menu items, issue hardbacks, and recycle their in-café used coffee cups. It is also flexible, enabling adjustments throughout any ongoing and upcoming events, discounted rates, and promotional offers.

[3] The inventory Subsystem refers to a management system that allows the user to keep track of the stock of the café, as well as the reward point value given to each item, which is identified when scanned into the POS machine.

[4] The POS subsystem refers to the payment system's reward project execution, which includes deducting the money, attaching items to pay for and accumulating points in the domain of rewards, as well as numerous payment choices and cashback offers.

[5] The mobile Interface subsystem refers to an app on one's mobile which will constantly provide them with the updates on "Today's special coffee" items, view details of address and contact information. Furthermore, also help the customer track down previously placed order, current orders, till date achieved reward bank points and on-going/upcoming discounts on events.

[6] The mobile app subsystem refers to flexibility provided to the customers by displaying café menu items, books available in the library for issuing and account creation/update information.

[7] The kiosk Subsystem refers to availability of programmed kiosk for customer to view their personal account, reward point details and perform changes to them as well.

[8] The Promotions Subsystem allows for promotional material to be added into the system and queued up with a specific date to when it will be displayed on the app and Kiosk.

2b Project Development Costs (Budget)

Table 2b shows the projected expenses of implementing the proposed project. The overall cost of the new system is expected to be $ 100,000. The financial plan is described in detail in the table below (cost analysis).

Development Cost for Project	
Expenses	**Amount (AUD)**
Project Manager [1]	$31,064.95
System Analyst [2]	$14,209.00
System Developer x2 [3]	$32,300.00
Support Staff [4]	$2,992.00
Equipment/Hardware [5]	$7000.00
Training [6]	$1265.00
Licencing [7]	$336.00
Travel [8]	$200.00
Office Space [9]	$10,556.45
Total	$99,923.00

Table 2b – Development Costs for the Project

[1] The Project Manager is the leader of the project, who creates schedules, budgets, and plans, allocates tasks to team members, and keep the project on track. The average hourly rate of a Project manager is set at $52.21 (Via PayScale). 35 hours a week, for 17 weeks of the project's length will cost $31,064.95.

[2] The System Analyst works to define the system requirements and creating documentation on said requirements. The average hourly rate for a System Analyst is set at $27.86 (via PayScale). 30 hours a week at 17 weeks of the project's length will cost $14,208.60.

[3] The System Developers are responsible for developing and building the system, as well as conducting the system tests. The average hourly rate for a System Developer is set at $47.50

(via PayScale). 20 hours a week at 17 weeks of the project's length for two developers will cost $32,300.

[4] The support staff are required for the project, by assisting the team members in planning, scheduling and bookings required for the project. From this perspective, the support staff contribute to the success of the project. The average hourly rate of a support staff member is set at $22 (Via indeed.com). Average of 8 hours of support a week, at 17 weeks of the project's length will cost $2,992.00.

[5] Training is required for the developer, who will attend a 3-day training course costing $1265 to gain the skills required to use the Office 365 programs as well as Microsoft Access for SQL development. (Via nexacu)

[6] Office 365 Business Premium is required for the use of creating diagrams, documentation, and the creation of databases. Licensing for the project's period costs $336 for three users.

[7] Equipment needed to complete the project includes an iPad pro ($1,500), which is used for App testing, a Kiosk ($2,500) to install within the café, and a shop-based Server ($3000) to create a quick and reliable system without paying yearly hosting and operating fees.

[8] Travelling costs are estimated at $200 for the fuel and public transport fees needed to travel in between places of work for meeting with client and stakeholder.

[9] Office spaces within Brisbane for 5 people cost $539/person/month (Rubber desk). For the duration of the project (17 weeks), it will cost A$10,556.45 to rent out an office space.

2c Project Annual Operating Costs

Summary of estimated annual operating costs	
Yearly Expenses	Amount (AUD)
Licensing Costs [1]	$330
Hardware maintenance [2]	$1560
Training [3]	$3,180
Total	$5,070

Table 2c – Estimated Annual Operating Costs

[1] Licensing costs yearly will be derived from Office 365 for continued license for Microsoft Access which comes to $330 yearly.

[2] Hardware Maintenance costs yearly comes from the upkeep of the kiosk, which requires a monthly check-up to make sure it's working correctly, which is estimated to costs $1200 yearly (Via Kiosk Marketplace). The upkeep of the sever is estimated at $1560 yearly (Via Server Mania)

[3] Training will be required for ensuring that the staff is well familiarised with the new system. An estimated 8-hour training will be required. Therefore, the total cost is $28.40 *8 hours per week*2 weeks = $3,180

2d.i Project Tangible and Intangible Benefits

The envisioned system's implementation will lead to several tangible and intangible benefits, which are outlined below. Tangible advantages are definable, measurable benefits that are generally recognized in financial terms. Intangible benefits, on the other hand, are qualitative benefits that cannot be adequately evaluated against a definite economic value but are rather estimated by looking at annual financials.

Tangible Benefits:

- Customer base will experience major growth with the new rewards system, which in-turn, will increase sales, and revenue, as 5% customer retention can add up to 95% profits within a company. (Loyalty lion).
- The new rewards app will incentivise members by displaying promotions and sales within the app, and kiosk, resulting in revenue.
- The cafe can transition from a paper-based management system to a digital management system, lowering publishing costs, and paid labour.
- With the implementation of mobile app for the café, it'll no longer have to worry about publishing costs for brochures to advertise promos.
- With the incentive of gaining reward points, customers are urged to spend more per purchase, increasing spending from customers and in turn increase revenue and profit.

Intangible Benefits:

- As a café which promotes awareness of the environment, by asking the customers to recycle the cups/wrappers/straws used while being in the café in exchange of reward points will attract more environmentally savvy customers.
- Creating a phone app will make customer registration simple and will update them about upcoming/ongoing offers and enable them to view their reward points at their fingertips which will in turn improve customer base and gain their trust; improve loyalty and improve customer engagement.
- The new system will lower staff's workload with new digital management and processes that require a fraction of the time that an old system would, and in turn increases staff productivity.
- Staff of the café will spend time advertising the new rewards system to customers, increasing staff productivity, and acts as advertisement for the new rewards system.
- Positive impact on the environment by recycling used plastic items and saving on paper by not printing un-necessary pamphlets, which increases the public's view on the business, and furthermore, increase customer loyalty as a result.
- The new system created statistics that allows the business to gain a further understanding of customers, and their needs, creating a lead on other rival businesses.

2d. ii Project Annual Benefits

The annual value of the tangible benefits that the new system is predicted to deliver is estimated to be $180,300.00. Table 2D states the tangible benefits, discussed in the previous section and the amount saved. The benefits/Cost saving contains all things that the business will save on, with all being very significant in understanding how the new system will benefit the business financially annually.

Estimated annual Benefits	
Benefits/Cost saving	**Amount (AUD)**
Increased sales due to flexibility [1]	$5,240.00
Reduced Publishing Costs [2]	$7,000.00
Reduced Labour Costs [3]	$96,000.00
Reduced Printing works [4]	$40,000.00
Reduced cost of marketing and sales [5]	$2,060.00
Increased Revenue [6]	$30,000.00
Total	**$180,300.00**

Table 2D – Estimated Annual Benefits

[1] In today's fast life people tend to be looking for approaches to save their time. Hence, by introducing online library system into the café's system, customers will have easy access to the library and can have a look at, as to which books are available for issuing/buying. Also, the customer can grab the opportunity of different discounts available during certain times of the year, without having to come at the café.

[2] As the new system focuses on mobile app development, publishing costs can be saved on pamphlets, coupons, and vouchers. This cost is calculated based on the amount quotes given by the artistic publisher. The projected cost saving is $7,000.

[3] Introduction to automated digital database system would cut on the requirements of labour work. The amount is calculated based on hourly wage provided to the part-time/full-time workers, 40 hours a week for an entire year for 2 workers. An average PayScale for a café worker is around 25$. Therefore $25*40*4*12*3 = $96,000.

[4] Because of adaptability of digital database system, the café is no longer required to print and save the data manually by using various stationeries. If 4,000 bills were to be printed annually at the cost of $0.1 per script, it would cost about $40,000.

[5] The new system does not need to provide the customer with physical sheets for marketing, as the mobile app does the work. The cost is calculated as:
$0.86(per flyer)*200(Flyers per month)*12 = $2,064 ~ 2,060.

[6] With the implementation of mobile app into the development plan, the café's revenue is estimated to increase by 20%. So, $150,000*20% = $30,000.

Risk and Feasibility Analysis

3a Organisational Risks and Feasibility

"Kitabein and Koffee" is a somewhat primitive business, with a lack of technology within its framework, making most tasks tedious, but familiar. With the new system and change in framework, it may an affect the staff and customers negatively, with a jarring change in the framework of the business. These potential risks are listed below:

- New system and business framework may cause fear of change within the staff.
- Staff may react negatively or reluctantly towards the new system.
- Current loyal customers may react negatively towards new technology.
- Staff and customer fear towards knowledge required to operate new technology.
- Fear towards lack of increased customer base and loyalty.
- Fear on the potential loss of employment due to lack of labour needs.

Solutions to diminish these risks are listed below:

- Staff will be taught the benefits of the new system, allowing for a better understanding of the systems structure and use.
- Staff will receive training relating to the use of the new system, to ease them into the new way of working.
- Advertisements and brochures will be created to explain the changes and benefits of the new system to existing and new customers.

3b Technological Risks and Feasibility

The technological risks include risks that may occur when creating and implementing the new system:

- Lack of expertise in software needed for new system may be evident during development.
- Issues implementing old paper-based data into new system.
- Issues with data security within online app, and customer database.
- Data security within app and database may be at risk without a proper security method in place.
- Phone app only supports IOS users, lowers the customer accessibility.

Solutions to diminish these risks are listed below:

- Training the Developers in required programs will occur before system development begins.
- Time will be allocated to train staff on how to add new and existing items to the database and work the new system.
- Researching, and applying proper security software will be essential to keep customers data safe.
- Kiosk installed within café will allow non-IOS users access to same features evident within the app.

3c Resource Risks and Feasibility

The resource risks include risks that may occur when creating and implementing the new system:

- Skilled team members may not be available to work on project, resulting in team members without proper skills and training.
- Loss of team member during project development.
- Risk of new elements identified during project resulting in change in project scope.
- Risk of increase of budget due to unexpected changes, or delays.

Solutions to diminish these risks are listed below:

- Query for staff that have the proper skill to take on the project.
- If skilled members are unavailable, then acquiring training for unskilled team members is required.
- Have team members keep a structured and detailed journal of their work for the possibility that a new member may take their place.
- Consistent meeting with client and team to keep up to date with project scope and requirements.

4d Schedule Risks and Feasibility

The schedule risks include risks that may occur when creating and implementing the new system:

- Lack of proper time management and planning.
- Lack of availability of team members.
- Team member may need to complete training to assist in project
- Project missing milestones consistently.
- Issues with supplying equipment needed to complete project.

Solutions to diminish these risks are listed below:

- Meetings with client to understand proper scope of project to create an accurate timeline.
- Meet with team members before project begins to ensure training and availability is planned.
- Order equipment for team before project starts to receive on time.

Project Environment

4a Project Tools and Software

The table below lists all the informative repositories and tools that will be required and made use of by the management team during the project development. Table 4A provides information gathered during the project that is essential for the project's documentation and development. Tools, which comprise of hardware and software components that can document and showcase the important collected information, are assigned to each piece of information. Furthermore, user access determines who has viewing and editing rights of captured information during the projects development, and is determined by their role.

Information Repositories and Tools		
Information Captured	**Electronic Tool**	**User Access**
Project Schedule	Microsoft Project/Microsoft Excel	Project Manager
Screen and report Specifications	Microsoft Project/Lucid Chart	Project Manager, All Team members
Requirements Analysis	Microsoft Word	System Analyst, All Team Members
Program code repository	Visual Studio Code/Git	Project Manager, Developer
Models and Diagrams	Lucid Chart/Microsoft Excel	System Analyst, All Team Members
Database Creation	Microsoft Access	Project manager, Developer
Test cases and User acceptance test	Microsoft Word	Developer, All Team Members
Error Log	Microsoft Excel	All Team members
Team Communication	Skype/Microsoft Teams	All Team Members
Project Team Detailed Notes	Microsoft Word	All Team Members

Table 4A – Information Capture

4b Project Work Environment

Developing a proper work environment is essential in a project, as it allows for the project team to assemble and work coherently and productively during the project. Included within the work environment includes the hardware and software required to complete the project, the physical environment, and the staff assisting the project

Hardware and Software

During the development of the project, the project team members have been allocated specific hardware and software to fit their needs during the project. The hardware includes a desktop computer which lives within the workspace, and a portable notebook for work completed at home or during travel. These computers contain specifications that are needed for the team members jobs to provide absolute efficiency during development. Other hardware includes a purchased iPad pro, which will allow for IOS app testing throughout its development.

The software provided to the staff will include any software needed for development, documentation, and meetings. Development software includes Lucid chart, which is used to develop any visual based documentation. Microsoft Office 365 Pro will be supplied to all team members, which includes cloud storage, MS Teams, and skype, which are all vital for collaboration between staff, and simple content sharing as well as meetings between staff and client. MS project is used to keep track of the project's completion, and any other related manager needs. MS Word, MS Excel, and MS PowerPoint will allow collaboration within documentation, scheduling, and presentation for the project, and MS Access will be used to create the databases required for the system. Visual Studio code, and Git will be used for the creation and display of the code created by the developers during the project.

Physical Environment

During the project duration, a workspace will be funded by the client, that will allow five team members to work within the same environment, allowing proper collaboration. This workspace will include space for five desks complied with required hardware, a meeting room which will also be sourced to allow for meetings between team members, and with the client. The rest of the workspace will include a printer and scanner, a landline, as well as a projector for presenting information.

Support Staff

A support member will be on call to help the needs of the project members which will include scheduling, meeting arrangements, logging resources and information, and any general task or details that will need to be completed to assist the project. The staff member is not sourced for full employment during the projects length, and is contacted when assistance is required by the support staff.

4c Project Processes and Procedures

Reporting and Documentation

During the project, the process of reporting and documenting parts of the project will be done throughout the duration of the project. The specific reports and information can be found in Table 4a.

Majority of the documentation and scheduling will be completed by the project manager as well as documenting any changes or information about the project. The information is compiled into MS Word Documents and created as reports to distribute to Team members or the client.

The system Analyst will document the projects approach to development and structure by converting information on the business into graphical models and diagrams by using Lucid Chart and MS Excel. They are also responsible in understanding the system's requirements, creating the basis of the whole project.

The developers are required to document their process and progress throughout their work, document the outcomes of system and user testing at the end of each iteration, as well as any feedback received from said tests, which will be used to change the system accordingly.

Programming

Programming within each iteration will be broken down into smaller, individual tasks and handed out by the Project Manager via Microsoft Project to keep work manageable. Most tasks will be managed to allow for single programming, but larger tasks will require pair programming as VSC (Visual Studio Code) allows. Developers are required to report on their progress and task's completion when necessary to allow for proper project updates, and also keep track of all of their progress within a document.

Testing

When Developers complete programming tasks, they will document and update the tasks via MS project to show that they have completed the programming task and needs testing. Programmer Testing requires the system analysts to set the requirements of the program must complete, which prompts the developers to test the program accordingly. Any errors or issues that the programmers face will be recorded and documented in the error log within MS Excel. These issues are then revised, and further development is issues to fix any issues found.

User experience testing is carried out by the developers and client identify any issues the client may face while using the program, and for the client to give feedback on the experience on its utility, and the ease of use. Any issues present during the client's test will be documented and changes will occur to make sure the approval of the client is present.

Deliverables

The deliverables present at the end of the project's development include the IOS App, as well as the Kiosk with an identical app, a new POS system, a new rewards system, and a new inventory system. All these new systems and applications will be delivered to the client after the development and completion of the system and tested to be acceptable by the user and design team. The new system will be implemented into the café by replacing the old outdated system and revitalising the store.

Code and Version Control

The procedure of code and version control consists of developing the code within VSC and storing and controlling the code within Git to track any changes or conflicts within the code, and if errors or bugs are found in the code, they will be documented, and further development would be required to fix the issues.

During development, the code is made to be relatively synonymous, then permissions and access will be granted to support team responsible to keeping the system up to date, and supported, as well as the client and related co-workers.

Schedule the Work

5a Project Work Breakdown Structure

The supplied Work Breakdown Structure table represents the first iteration of the Rewards Database Subsystem. Each activity within the iteration is broken into tasks, simple enough to estimate the effort required to complete said task. Each Task is also identified with a Task ID, which is used to identify what tasks must be completed before the next one begins. Each task is also allocated Project Team Members in the column "Resources". This column identifies which team member is required to complete each task during the iteration, creating a fluid and working timeline.

Most tasks are only a few hours long, as that is what's required for most tasks, being just meetings, or creating documents. Building the system contains the longest tasks, as they are building the whole systems, and programming is the most time-consuming part of system development, so most of the budgeted time is allocated towards designing the system.

Work Breakdown Structure – Iteration No.1 of Rewards Database Subsystem				
Task ID	**Task Description**	**Effort**	**Predecessor**	**Resources**
1	Project Planning			
2	Meeting with Clients	3 Hours	--	Project Manager
3	Document System Requirements	1 Hour	2	Project Manager
4	Project Team Meeting	2 Hours	3	All Team Members
5	Create Work Breakdown Structure	1 Hour	4	Project Manager
6	Create Project Schedule	1 Hour	5	Project Manager
7	Analysis Tasks			
8	Meeting with client discussing complexity of system	3 Hours	6	Project Manager, System Analyst
9	Define and analyse system requirements	2 Hours	8	System Analyst
10	Define Use Cases	1 Hour	9	System Analyst
11	Project Team meeting on Project Scope	1.5 Hours	10	All Team Members
12	Client Approval on Project scope and requirements	1 Hour	11	Project Manager
13	Design Tasks			
14	Design System Components	3 Hours	12	System Developer #1 & #2
15	Design Class Diagrams	5 Hours	14	System Analyst
16	Design Database Schema	5 Hours	14	System Developer #1
17	Design storyboards and wireframes	5 Hours	14	System Developer #2
18	Project Team overview and discussion meeting	1.5 Hours	15,16, 17	All Team members
19	Meeting with Client	2 Hours	18	Project Manager
20	Build Tasks			
21	Create customer account subsystem	15 Hours	19	System Developer #1
22	Create reward gain/loss subsystem	15 Hours	19	System Developer #2
23	Create rewards Database	7 Hours	21,22	System Developer #1 & #2
24	Create integration of UI into database	5 Hours	23	System Developer #1 & #2

25	Testing			
26	Perform Developer Tests	3 Hours	24	System Developer #1 & #2
27	Perform Subsystem Tests	4 Hours	26	System Analyst
28	Discuss subsystem with Client	2 Hours	27	Project Manager
29	Perform Client User tests	3 Hours	28	Project Manager, System Developer #1
30	Document Test Results	2 Hours	29	Project Manager, System Developer #1

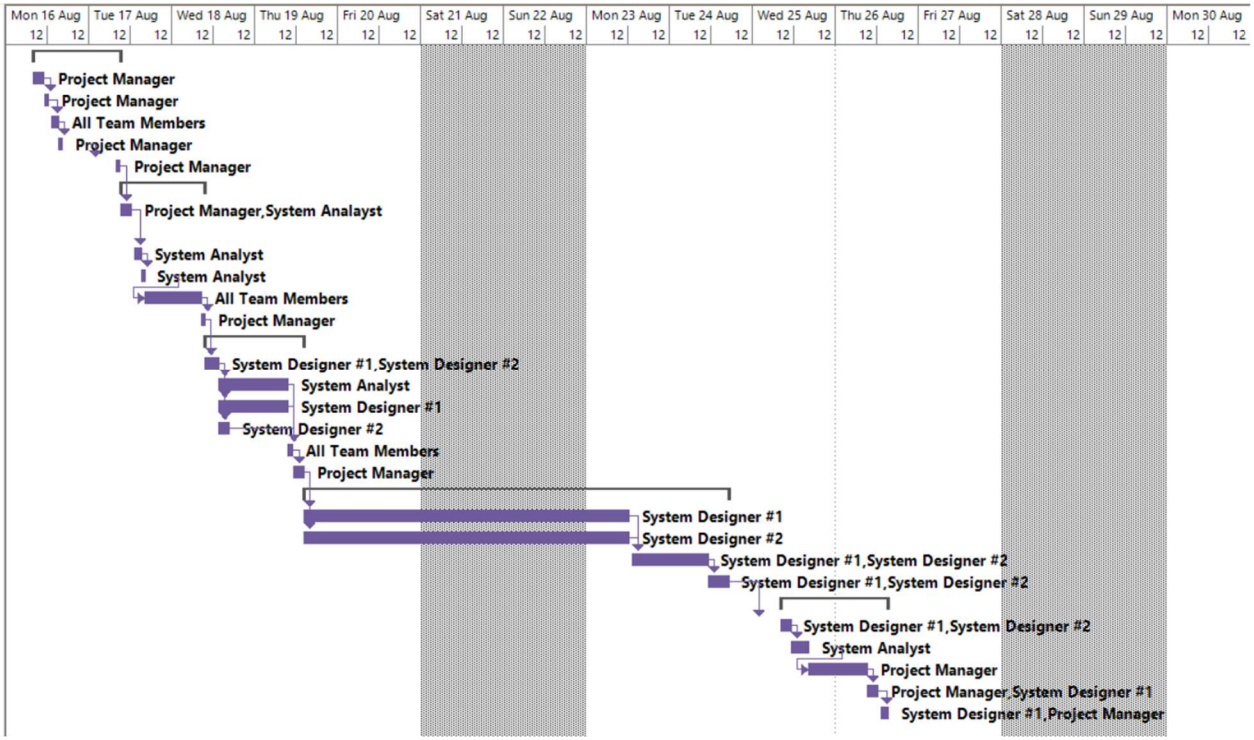
Table 5a – Work Breakdown Structure

(Note. The Task headings (e.g., Project Planning), within the table, are numbered in order, as within the Gantt Chart, they could not be separate, so it was done to match the Gantt Chart and lessen confusion)

5b Gantt Chart

The produced Gantt chart based on the preceding Work Breakdown Structure is shown below. The graphic displays the task name, the amount of time it will take to perform the task, the task start date, the task completion dates, and predecessors. The project timeline is represented by the other portion of the Gantt chart, which is a chart with horizontal bars. Each job is represented by a bar on the chart, which is graphically shown on a horizontal timeline. The time spent on each job is represented by the length of each task bar.

	Task Name	Duration	Start	Finish	Predecessors
1	**Project Planning**	**9 hrs**	**Mon 16/08/21 8:00 AM**	**Tue 17/08/21 9:00 AM**	
2	Meeting with Clients	3 hrs	Mon 16/08/21 8:00 AM	Mon 16/08/21 11:00 AM	
3	Document System Requirements	1 hr	Mon 16/08/21 11:00 AM	Mon 16/08/21 12:00 PM	2
4	Project Team Meeting	2 hrs	Mon 16/08/21 1:00 PM	Mon 16/08/21 3:00 PM	3
5	Create Work Breakdown Structure	1 hr	Mon 16/08/21 3:00 PM	Mon 16/08/21 4:00 PM	4
6	Create Project Schedule	1 hr	Tue 17/08/21 8:00 AM	Tue 17/08/21 9:00 AM	5
7	**Analysis Task**	**8.5 hrs**	**Tue 17/08/21 9:00 AM**	**Wed 18/08/21 9:30 AM**	
8	Meeting with client discussing complexity of system	3 hrs	Tue 17/08/21 9:00 AM	Tue 17/08/21 12:00 PM	6
9	Define and analyse system requirements	2 hrs	Tue 17/08/21 1:00 PM	Tue 17/08/21 3:00 PM	8
10	Define Use Cases	1 hr	Tue 17/08/21 3:00 PM	Tue 17/08/21 4:00 PM	9
11	Project Team meeting on Project Scope	1.5 hrs	Tue 17/08/21 4:00 PM	Wed 18/08/21 8:30 AM	10
12	Client Approval on Project scope and requirements	1 hr	Wed 18/08/21 8:30 AM	Wed 18/08/21 9:30 AM	11
13	**Design Class**	**11.5 hrs**	**Wed 18/08/21 9:30 AM**	**Thu 19/08/21 2:00 PM**	
14	Design System Components	3 hrs	Wed 18/08/21 9:30 AM	Wed 18/08/21 1:30 PM	12
15	Design Class Diagrams	5 hrs	Wed 18/08/21 1:30 PM	Thu 19/08/21 9:30 AM	14
16	Design Database Schema	5 hrs	Wed 18/08/21 1:30 PM	Thu 19/08/21 9:30 AM	14
17	Design storyboards and wireframes	3 hrs	Wed 18/08/21 1:30 PM	Wed 18/08/21 4:30 PM	14
18	Project Team overview and discussion meeting	1.5 hrs	Thu 19/08/21 9:30 AM	Thu 19/08/21 11:00 AM	15,16,17
19	Meeting with Client	2 hrs	Thu 19/08/21 11:00 AM	Thu 19/08/21 2:00 PM	18
20	**Build Tasks**	**27 hrs**	**Thu 19/08/21 2:00 PM**	**Tue 24/08/21 5:00 PM**	
21	Create customer account subsystem	15 hrs	Thu 19/08/21 2:00 PM	Mon 23/08/21 12:00 PM	19
22	Create reward gain/loss subsystem	15 hrs	Thu 19/08/21 2:00 PM	Mon 23/08/21 12:00 PM	19
23	Create rewards Database	7 hrs	Mon 23/08/21 1:00 PM	Tue 24/08/21 11:00 AM	21,22
24	Create integration of UI into database	5 hrs	Tue 24/08/21 11:00 AM	Tue 24/08/21 5:00 PM	23
25	**Tetsing**	**14 hrs**	**Wed 25/08/21 8:00 AM**	**Thu 26/08/21 3:00 PM**	
26	Perform Developer Tests	3 hrs	Wed 25/08/21 8:00 AM	Wed 25/08/21 11:00 AM	24
27	Perform Subsystem Tests	4 hrs	Wed 25/08/21 11:00 AM	Wed 25/08/21 4:00 PM	26
28	Discuss subsystem with Client	2 hrs	Wed 25/08/21 4:00 PM	Thu 26/08/21 9:00 AM	27
29	Perform Client User tests	3 hrs	Thu 26/08/21 9:00 AM	Thu 26/08/21 12:00 PM	28
30	Document Test Results	2 hrs	Thu 26/08/21 1:00 PM	Thu 26/08/21 3:00 PM	29



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