DDWC 3723 SOFTWARE DEVELOPMENT

SOFTWARE DEVELOPMENT PLANNING (SDP) REPORT

CALTACTOE APP DEVELOPMENT

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PROGRAMME	DIPLOMA IN COMPUTER SCIENCE (DDWD)
SEMESTER	V

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PROPOSAL REPORT

SECTION A: STUDENT INFORMATION

- Team Member Name: Ashif Abdul Malik bin Kamarudin
- Year/Course: 2024 (DDWD)

SECTION B: PROJECT DETAIL

1.   Lecturer

Our lecturer, Madam Husna Ibrahim lectured us about introductory and overview of application development for first three weeks. The lessons include 3 parts or topics which teach us project planning (software development methodology; SCRUM, software documentation, software technology, finding real problem and proposal preparation), Agile methods and practices, and others. Next, when our Sprint 1 begin, Madam Husna will overview and guide us until the final Sprint 3 Review Meeting.

2.   Project Title

Our project title is CalTacToe Mobile App Development. CalTacToe, a blend of "calculator" and "tic-tac-toe." It's straightforward and indicates the dual functionality of our app. Also, to make the app memorable, catchy and simple.

3.   Problem Background and Proposed Solution

In this digitalized era, people are more preferred to use mobile apps than websites. It is because the mobile users are far greater than desktop users. Mobile apps not only more personalized and optimized than websites, but they are also more engaging between users, platform-specific, rich in features, and have offline access once installed.

Recently we got a customer; Mr Mohd Faiz Bin Mohd Subri who is in need of simple calculator mobile app to perform arithmetic including percentage but with a twist, it will have additional fun factor which is Tic Tac Toe, embedded to it.

We have list down all of our customer requirements during our Google Meet interview. The user stories that are now in our product backlog are as below:

1. As a user, I also want to perform complex arithmetic operations like percentage besides the basic one (addition, subtraction, multiplication, and division) using the calculator.
2. As a user, I want to see the result of my calculations displayed clearly on the screen.
3. As a user, I want to be able to clear the current calculation and start a new one.
4. As a user, I want to be able to exit out of the calculator with off button.
5. As a player, I want to play tic-tac-toe against another player.
6. As a player, I want the game board to be displayed clearly, showing the current state of the game.
7. As a player, I want to be notified when the game ends (win, lose, or draw).
8. As a user, I want buttons or controls that are easy to understand and interact with.
9. As a user, I want to provide feedback or report issues related to the app.
10. As a user, I want my app to have a standout icon.

From the user's story we simplified them as simple task name and decide their priority (high or low), sprint placement (whether in Sprint 1, 2 or 3), status (to-do, ongoing, done) and the person in charge for each task.

TASK NAME	PRIORITY	SPRINT #	STATUS	PROGRAMMER IN CHARGE
ADD ARITHMETIC OPERATIONS (CALCULATOR)	HIGH	1	TO DO	ASHIF ABDUL MALIK BIN KAMARUDIN
SHOW CLEAR RESULT (CALCULATOR)	HIGH	1	TO DO	ASHIF ABDUL MALIK BIN KAMARUDIN
ADD CLEAR BUTTON (CALCULATOR)	HIGH	1	TO DO	ASHIF ABDUL MALIK BIN KAMARUDIN
ADD OFF BUTTON (CALCULATOR)	HIGH	1	TO DO	ASHIF ABDUL MALIK BIN KAMARUDIN
ADD SECOND PLAYER (TIC TAC TOE)	HIGH	2	TO DO	ASHIF ABDUL MALIK BIN KAMARUDIN
DISPLAY GAME BOARD (TIC TAC TOE)	HIGH	2	TO DO	ASHIF ABDUL MALIK BIN KAMARUDIN
NOTIFY GAME RESULT (TIC TAC TOE)	HIGH	2	TO DO	ASHIF ABDUL MALIK BIN KAMARUDIN
OPTIMIZE BUTTONS AND CONTROLS (ALL)	LOW	3	TO DO	ASHIF ABDUL MALIK BIN KAMARUDIN

ADD CUSTOMER SUPPORT BUTTON (ALL)	LOW	3	TO DO	ASHIF ABDUL MALIK BIN KAMARUDIN
ADD ICON (ALL)	LOW	3	TO DO	ASHIF ABDUL MALIK BIN KAMARUDIN

4. Project Aim

We aim to finish our project on time and follow our planning accordingly and swimmingly. We also aim to delivered fully functioning with highest possible quality product to our client.

5. Objectives

- Create more optimized app on performance aspect for faster loading time and smoother interactions to ensure customers' satisfactory and encourage their revisability.
- Taking advantage over mobile apps that are omnipresence because of their accessibility at everywhere and anytime unlike desktop apps.
- Making app for our customer to provide dedicated platform for their own brand; CalTacToe!
- A self-made app enables us to create custom interactions based on our customer's requirements/goals like the customer service button to straightaway contact the developer.
- allows us to tailor features specifically and specially to our customers' needs.

6. Scopes

As far as we know, the project management scope means the features and functions of a product or the extent of work required to complete a project. The scope keeps us stay in the roadmap, create effective Stakeholder Management, budgeting and scheduling and preventing scope creep. So, for our project, the detailed project scope statement is as written below:

- Timeline: 11 weeks (4 weeks for Sprint 1 and 2, and 3 weeks for final Sprint)
- Budget: none
- Assigned Tasks: assigned fairly for each of our member consist of leader, programmer and documenter.
- Project Stakeholder(s): Mohd Faiz bin Mohd Subri (Product Owner)
- Workflow Strategies: using SCRUM practices

7. **Project Requirement**

- **Methodology**

For this collaborative and complex project that to be expected finish in a short time (10 weeks), we use SCRUM. SCRUM is a flexible way of working in rapidly changing world. In SCRUM, we write plan and do more in short cycle called Sprint. The SCRUM members work as one dedicated team to constantly deliver functioning products each Sprints and receive continuous feedbacks every time from stakeholders. In summary, SCRUM means a framework within which people can address complex adaptive problems, while productively and creatively delivering products of the highest possible value.

- **Software**

(a)   For Project Management, we use Trello and Monday.com. Trello help us to create card based on Trello Manager Task List. With this card, we can add members in charge on each task in this card. We also being able to labels each task with priority: High Priority/ Medium Priority/ Low Priority. Next, we can set due date in each card. Last but not least, we can write checklist in each card, and assign each checklist to members in charge. We use Monday.com because Microsoft charges money for their Microsoft Project which is too much for a mere student. So, we sought for a free alternative. Monday.com is a cloud-based website that empowers users to create, plan, organize, and managing projects of varying sizes. With it, we make a Work Breakdown Structure, Gantt Chart, Timeline and even Kanban. Unlike Microsoft Project, Monday.com is online, so it has auto cloud save, online and embedded with easy-to-use automations and real-time notifications, so that we can stay informed and drive our project easier.

For Documentation, we use Microsoft Word to document all our project progresses and writing proposal reports.

For making blueprint, we use NinjaMock to mockup the design before we start the actual coding to clearly visualize the outcome for our app.

Lastly, for Development, since we aim to create a mobile app powered by Android operating system, we use Android Studio. Almost all apps use Android instead of iOS so we want to play a safe game by choosing Android. Android studio is the official Integrated Development Environment (IDE) for Android app development. It provides a powerful set of tools for developer to create high-quality applications specifically for the Android platform. Most importantly, it uses our most favourite programming language which is Java.

- **Hardware**

For both Documentation and Development (including coding) process we use our old reliable and resilience yellow laptop.

- Device specifications:

  Device name   :LAPTOP-IE0EHT2T

  Processor   :AMD Athlon 300U with Radeon Vega Mobile Gfx 2.40 GHz

  Installed RAM :4.00 GB (3.44 GB usable)

  Device ID   :2670E6D7-F7D4-46D0-996F-287FD959FE25

  Product ID   :00327-30838-86670-AAOEM

  System type   :64-bit operating system, x64-based processor

  Pen and touch :No pen or touch input is available for this display

- Windows specifications:
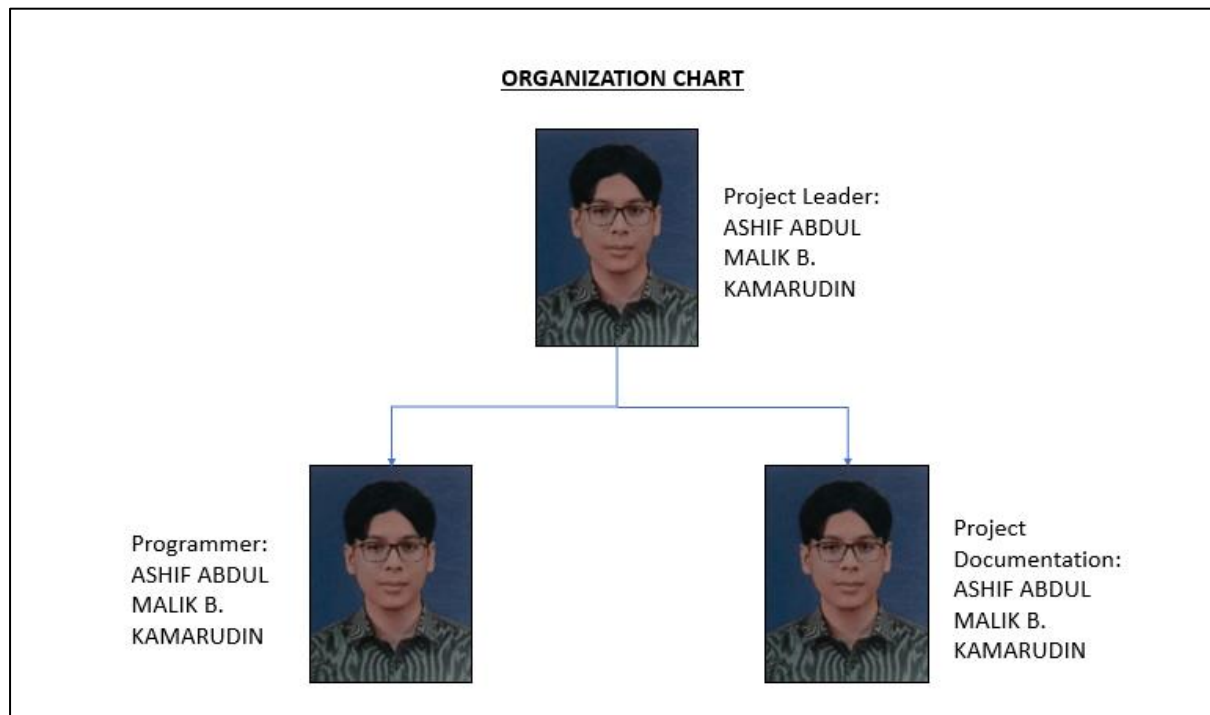
  Edition Windows 11 Home Single Language

  Version   :22H2

  Installed on   :1/2/2023

  OS build   :22621.2715

  Experience   :Windows Feature Experience Pack 1000.22677.1000.0
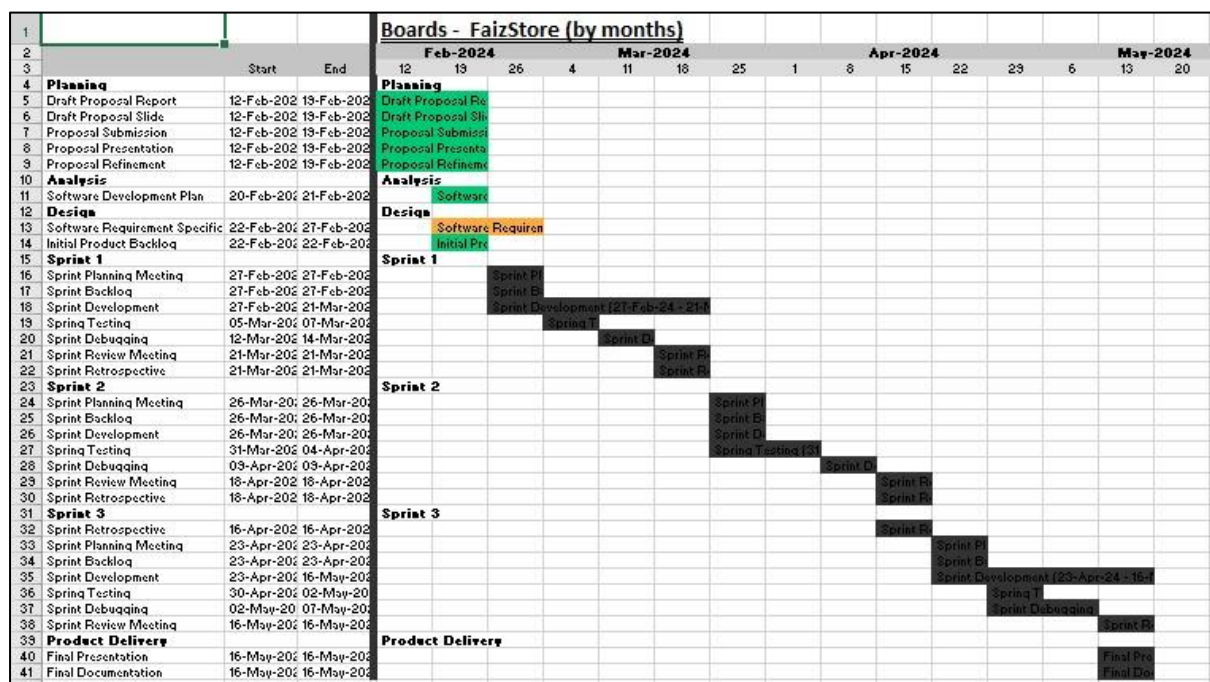
- Support:

  Manufacturer :Acer

8.   Project Planning

- **Organization Chart**

Gantt charts are useful because they organize essential project tasks and timing data in one place in a visual manner. Below is the Gantt Chart (right) together with Work Breakdown Structure (left) I made using Monday.com but converted it into Excel:

9. Risk Management

Risk management in software development is vital for project success. Risk is defined as uncertainty of events and conditions that might affect a project's objectives or goals. In software development, it impacts project schedule, budget, and most importantly, the product quality. Example of common risks including technical risks (related to processes, integration, design and security) and organizational risks (related to requirements, constraints, external dependencies, and stakeholder management).

So, to overcome this risk, we will begin to plan how we will manage risks throughout the entire project sprints. Firstly first, we have to list of all the possible risks that can be thrown in our project at any time. After that, we will classify and assess them based on severity/impact and the likelihood of them to happen. After the that identification, categorization and analysis process done, we will develop action plans for mitigating listed risks. Lastly, we have to make sure that we will continuously monitor these risks and adjust strategies if need in the entire project lifecycle.

- List of Risks:

ID	RISK NAME	DESCRIPTION	NOTE	SEVERITY	PROB-ABILITY
1	**Inaccurate Estimation**	Means poorly estimated project timelines or costs can lead to delays and budget overruns.	This risk is manageable because we use Monday.com that manage our tasks automatically and reminds us daily and we use zero budget.	LOW	25%
2	**Scope Variations**	Changing requirements can impact project scope and cause scope creep.	It is unlikely to happen because we and customer carefully and finalized the requirements.	LOW	25%

3	**User Engagement**	Lack of user involvement can result in misaligned features.	Our customer is fully engaged in this product. development	LOW	25%
4	**Stakeholder Expectation**	Unmet expectations can lead to dissatisfaction.	It is still early in Sprint 1 so the risk is uncertain.	UNKNOWN	50%
5	**Poor Code Quality**	Quality issues affect product stability and maintainability.	We use the easiest programming language at least for us, Java that if we ever have problems, we can refer to the Java supportive community online.	LOW	25%
6	**Productivity**	Team productivity challenges can hinder progress.	Me, myself and I know each other for a long time and can easily overcome our weaknesses.	LOW	25%
7	**Human Resources**	Staffing issues, turnover, or skill gaps can disrupt development.	Staffing issues (individual) is somewhat manageable but in skill issues, mobile programming is new to us and using Android Studio sometime can be challenging.	HIGH	75%

- Action Plan:
  - Involve our customer early in the project and continuously.
  - Regularly assess risks and update mitigation plans.
  - Foster open communication within team (during retrospective session/event)
  - Learn from past experiences/mistakes and adapt (after retrospective).