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| Binary abstract code patterns in cyan and magenta waves |
| IPMA6212  Assignments 2 |
| |  |  |  | | --- | --- | --- | | Matrix ninjas | 4/15/24 | IPMA6212 | |

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# Question 1

Android and iOS.

Q.1.1)

The need for this project arose from the recognition that many people are hesitant to report crimes or safety concerns due to fear of retaliation or a lack of trust in traditional reporting methods. This can be particularly true for victims of sensitive crimes or those who fear repercussions from the perpetrator.

This project specifically addresses the problem of underreported crimes and safety concerns within the community. By developing a mobile application that allows users to report anonymously, we aim to:

* **Increase reporting rates:** People who are hesitant to report through traditional channels may feel more comfortable using an anonymous reporting system. This can provide valuable information to law enforcement and help identify crime trends.
* **Empower victims:** Victims of crime, especially those of sensitive crimes, may feel more comfortable coming forward if they know their identity is protected.
* **Improve community safety:** By encouraging more complete reporting, authorities can better allocate resources and address specific safety concerns within the community.

Q.1.2)

A.) What is the technological trend?

The project focuses on the implementation of **cross-platform mobile application development**. This trend involves building a single application that functions on various mobile operating systems, typically

B.) Benefits for project timeline

Cross-platform development offers advantages in terms of project timelines:

* Reduced development time: A single codebase eliminates the need to build separate apps for each platform, saving significant time and resources.
* Unified codebase: Maintaining one codebase streamlines development and simplifies bug fixes and updates.
* Faster testing and development: Testing and deploying on both platforms becomes quicker due to the unified codebase.

C.) Potential risks

While advantageous, cross-platform development presents potential risks:

* Limited access to native features: Cross-platform apps might not have full access to features available to each native platform, potentially limiting functionality.
* Performance limitations: Cross-platform apps may not perform as well as native apps, leading to slower loading times or a less responsive user experience.
* User experience limitations: Adapting a cross-platform app to different platform UI’s might compromise the user experience compared to a native application.

D.) Benefit for users

Users benefit from cross-platform development in several ways:

* Wider accessibility: The application is accessible to users on both Android and iOS devices, increasing the potential user base.
* Simplified installation: Users only need to download the app once from their respective app stores, regardless of their device’s operating system.
* Consistent user experience: A single codebase ensures a largely consistent core functionality and user experience across both platforms.

Q.1.3)

A project charter typically outlines the project goals, scope, timeline, budget, and resources. The following are deliverables within the project charter:

Functional Requirements Document (FRD)

This document will detail the specific functionalities of the app related to anonymous crime reporting. It should outline features like:

* User registration (optional)
* Crime category selection
* Location reporting (anonymous, potentially using GPS or manual input)
* Incident description (anonymous)

Optional features:

* Anonymous photo or video upload for evidence
* Basic text message alert system for emergencies (if anonymity can be maintained)

Technical Requirements Document (TRD)

This document will specify the technical details needed for the app, focusing on anonymous crime reporting:

* Security: Encryption of reported information and secure data storage
* Backend infrastructure: Secure backend server to store and manage reported data

Optional features:

* Explore integration with existing crime reporting systems or law enforcement databases (while maintaining user anonymity during initial reporting)

Project Timeline

This document will outline key milestones for the project, considering anonymous reporting functionalities:

* Development phases: Break down the development process (design, development, testing, deployment) considering anonymous reporting features.
* Testing: Allocate time for thorough testing to ensure anonymity throughout reporting and data storage.

Budget Breakdown

This document will detail the estimated costs for developing the app, factoring in functionalities for anonymous reporting:

* Development effort: Estimate resources needed to develop anonymous reporting features, including security measures and backend infrastructure.
* Optional features: Factor in additional costs for any optional features related to anonymous reporting, like secure image/video upload.

Resource Allocation Plan

This document will identify team members involved in the project and their roles, ensuring expertise to handle anonymous reporting:

* Development team: Assign developers experienced in secure coding practices to build the anonymous reporting functionalities.
* Optional features: If including features like image/video upload, allocate resources with expertise in secure file handling.
* Security consultant (consider): Review app's architecture and ensure user anonymity throughout the process.

# Question 2

# Question 3

# Question 4

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Description automatically generated

**Activities:**

* Requirement Gathering (1 week)
* High-Level Design (2 weeks)
* Backend Development (4 weeks) - depends on complexity of chosen features
* Security Implementation (2 weeks) - overlaps with Backend Development
* UI/UX Design (2 weeks) - depends on complexity
* App Development (3 weeks) - depends on functionalities and chosen platform
* Unit Testing (2 weeks) - overlaps with App Development
* Integration Testing (1 week) - follows Unit Testing
* Security Testing (1 week) - overlaps with Integration Testing
* User Acceptance Testing (UAT) (1 week) - follows Integration Testing
* Deployment (1 week) - follows successful testing
* User Training (Optional) (1 week) - follows deployment

**Dependencies:**

* High-Level Design guides Backend Development, UI/UX Design, and App Development.
* Backend Development and Security Implementation partially overlap.
* UI/UX Design precedes App Development.
* Unit Testing occurs during App Development.
* Integration Testing follows Unit Testing.
* Security Testing overlaps with Integration Testing.
* UAT follows successful Integration Testing.
* Deployment follows successful testing.
* User Training (optional) follows deployment.

**Monthly Milestones (for 10-month project):**

**Month 1:**

* Requirement Gathering - Initial User Stories Captured (Week 1)

**Month 2:**

* Requirement Gathering - Finalized User Stories and Functional Specifications (Week 2)
* High-Level Design - Core System Architecture Defined (Week 4)

**Month 3:**

* High-Level Design - Detailed System Design Documents Completed (Week 1)
* Backend Development - Core Data Model Established (Week 4)
* Security Implementation - Initial Security Measures Implemented (Week 4)

**Month 4:**

* Backend Development - Core functionalities implemented (Week 1)
* Security Implementation - Security measures integrated with Backend (Week 4)
* UI/UX Design - Initial Wireframes Developed (Week 4)

**Month 5:**

* UI/UX Design - User Interface Mockups Finalized (Week 1)
* App Development - Core functionalities integrated with backend (Week 4)
* Unit Testing - Core functionalities undergoing unit testing (Week 4)

**Month 6:**

* App Development - Additional functionalities developed (Week 1)
* Unit Testing - Continued testing of functionalities (Week 4)
* Integration Testing - Begins integration of all functionalities (Week 4)

**Month 7:**

* Integration Testing - Completion of integration testing (Week 1)
* Security Testing - Security penetration testing initiated (Week 4)
* User Acceptance Testing (UAT) - Initial UAT sessions conducted (Week 4)

**Month 8:**

* UAT - Refinements based on UAT feedback (Week 1)
* Security Testing - Completion of security testing (Week 4)
* Deployment Preparation - App packaging and store submission (Week 4)

**Month 9:**

* Deployment - App launched on designated platforms (Week 1)
* User Training Materials (Optional) - Finalized (Week 4)

**Month 10:**

* Post-Deployment Monitoring - Bug fixes and performance monitoring (Week 1)
* User Training (Optional) - User training sessions conducted (Week 4)

Q.4.2)

Based on the network diagram, completing the project within the 10-month deadline is **unlikely**. Here's why:

1. **Critical Path Crunch:** The critical path (longest sequence of dependent activities) stretches to 16 weeks, exceeding the 10-month limit (roughly 40 weeks). This means any delays in these crucial tasks directly push back the deadline.

**What's the bottleneck?**

* **Dependency Domino Effect:** Certain activities take time and must happen in order. Backend development, for example, needs to be finalized before app development can begin. These dependencies create a chain reaction that slows progress.

**Can we still make it? Potentially. Here are some strategies:**

* **Time Optimization:** Analyse the critical path activities. Can any tasks be streamlined or completed more efficiently? Shaving off even a week per activity can make a difference.
* **Parallelization Power:** Explore opportunities to run non-critical activities alongside critical path ones if dependencies aren't broken. Think multitasking, but project-related!
* **Fast-Tracking (Use with Caution):** As a last resort, we could consider starting specific non-critical activities before their predecessors are finished. However, we should discuss feasibility with our team leader (Mehluli) to avoid disrupting the overall flow.

**Remember:**

* **Teamwork Makes the Dream Work:** Discuss these observations and potential adjustments with Mehluli.
* **Realistic Expectations:** Even with optimizations, the deadline might still be tight.

**Overall:** Meeting the 10-month deadline requires significant effort, potentially involving adjustments to the project schedule and efficient execution.

# Question 5

Group name: Matrix Ninjas

Date: Monday, 15 April 2024

## Peer evaluation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of student being evaluated: Mehluli Booi ST10028039 | Never  0 | Seldom  1/2 | Frequently  1 | Always  2 |
| The student’s personal work | | | | |
| 1. The student contributed good ideas that added value to the project and produced high-quality work. |  |  |  | 2 |
| 1. The student performed their tasks in line with what was expected of them. |  |  |  | 2 |
| 1. The student managed their own time well and met deadlines. |  |  | 1 |  |
| The student’s work as part of a team (When relevant) | | | | |
| 1. The student accepted responsibility for a fair portion of the tasks and was an enthusiastic member of my team. |  |  |  | 2 |
| 1. The student helped others to be successful and worked well with other members of the team. |  |  | 1 |  |
| Weighting | 9/2 | | | |
| Total | 4.5 | | | |
| Comments: | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of student being evaluated: Milani Figlan ST10195500 | Never  0 | Seldom  1/2 | Frequently  1 | Always  2 |
| The student’s personal work | | | | |
| 1. The student contributed good ideas that added value to the project and produced high-quality work. |  |  |  |  |
| 1. The student performed their tasks in line with what was expected of them. |  |  |  |  |
| 1. The student managed their own time well and met deadlines. |  |  |  |  |
| The student’s work as part of a team (When relevant) | | | | |
| 1. The student accepted responsibility for a fair portion of the tasks and was an enthusiastic member of my team. |  |  |  |  |
| 1. The student helped others to be successful and worked well with other members of the team. |  |  |  |  |
| Weighting |  | | | |
| Total |  | | | |
| Comments: | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of student being evaluated: | Never  0 | Seldom  1/2 | Frequently  1 | Always  2 |
| The student’s personal work | | | | |
| 1. The student contributed good ideas that added value to the project and produced high-quality work. |  |  |  |  |
| 1. The student performed their tasks in line with what was expected of them. |  |  |  |  |
| 1. The student managed their own time well and met deadlines. |  |  |  |  |
| The student’s work as part of a team (When relevant) | | | | |
| 1. The student accepted responsibility for a fair portion of the tasks and was an enthusiastic member of my team. |  |  |  |  |
| 1. The student helped others to be successful and worked well with other members of the team. |  |  |  |  |
| Weighting |  |  |  |  |
| Total |  |  |  |  |
| Comments: | | | | |

## Self-evaluation

**Introduction**

This self-reflective report details my experience working on the anonymous crime reporting mobile application project with my group leader, Mehluli. The project provided valuable insights into the mobile app development process, project management techniques, and teamwork. It allowed us to apply theoretical knowledge to a practical scenario while developing valuable skills for future endeavours.

**Skills Learnt**

* **Industry-Specific Practices:**
  + **Project Management:** We utilized project management skills to define the project scope, create a network diagram with milestones, and track progress towards the 10-month deadline.
  + **Mobile App Development (Basic Understanding):** Through research and collaboration with Mehluli, who has experience in app development, we gained an understanding of the key phases involved in mobile app development, from requirement gathering to deployment.
* **Interpersonal Communication Skills:**
  + **Brainstorming & Feedback Sessions:** We held regular brainstorming sessions to generate ideas for app functionalities and user interface design. Additionally, we provided constructive feedback on each other's work, fostering a collaborative environment.
  + **Team Meetings:** Throughout the project, we conducted regular team meetings to discuss progress, address challenges, and ensure alignment on next steps.
* **Management Skills:**
  + **Time Management:** We utilized time management techniques like creating a detailed schedule and assigning tasks with deadlines to ensure we met project milestones within the 10-month timeframe.
  + **Problem-Solving:** Unexpected challenges arose during the project, such as the initial critical path exceeding the deadline. We worked together to identify solutions, such as optimizing activity durations and exploring potential for parallel development where feasible.

**Role in the Team**

* **Contribution to Team Success:** My strengths in research and data analysis were crucial for gathering user requirements, identifying relevant functionalities, and creating a data model for the backend development. Additionally, I actively participated in brainstorming sessions and contributed to discussions during team meetings.
* **Group Dynamic & Contribution:** Mehluli brought his app development expertise to the table, guiding me through the technical aspects. I complemented his technical knowledge with research and communication skills, ensuring clear user-centric design and well-defined project plans.
* **Dealing with Concerns & Conflicts:** Throughout the project, we maintained open communication and addressed concerns promptly. If any disagreements arose during brainstorming sessions, we focused on the project goals and found solutions that combined the best aspects of both perspectives.

**Research, Technology, and Presentation of Information**

* **Scenario:** While defining user functionalities, we needed to research existing crime reporting apps.
* **Information Sources:** We used online resources like app stores, technology review websites, and academic journals to identify trends in crime reporting app functionalities and user experience.
* **Technology Used:** We utilized search engines, online databases, and note-taking applications to organize the research findings.
* **Presentation of Information:** We created a comparative table summarizing the functionalities of existing crime reporting apps, highlighting features relevant to our project. This information was used to inform user stories and app design decisions.

**Personal Strengths & Weaknesses**

* **Strengths:**
  + **Research & Data Analysis:** I excelled at gathering user requirements, identifying relevant data points, and creating a data model for the backend based on user needs.
  + **Communication:** Actively participated in discussions, clearly communicated ideas during brainstorming sessions, and delivered well-organized presentations.
  + **Adaptability:** Effectively adjusted to changing project requirements and unforeseen challenges.
  + **Time Management:** Created a personal schedule aligned with project deadlines and managed tasks efficiently.
  + **Teamwork:** Contributed effectively to team discussions, provided constructive feedback, and supported Mehluli's expertise.
* **Weaknesses:**
  + **Limited Technical Knowledge:** I had no prior experience with mobile app development. While I learned the basics through research and collaboration with Mehluli, I could benefit from further technical training.
  + **Public Speaking:** While comfortable with team presentations, I could improve my public speaking skills to better present in larger group settings.
* **Improvement on Weaknesses:**
  + Enrol in online courses or attend workshops on mobile app development to gain a deeper understanding of the technical aspects.
  + Practice public speaking by participating in mock presentations or volunteering to deliver short presentations in larger group settings.

**Stakeholder Relationship**

* **Positive Aspects:** The partnership with Mehluli worked well due to our open communication, complementary skill sets, and mutual respect for each other's expertise.
* **Areas for Improvement:** I could have taken more initiative in exploring potential technical solutions beyond basic research, leveraging Mehluli's knowledge more effectively.
* **Strengthening the Relationship:** In future projects, I can actively seek opportunities to learn from Mehluli's technical expertise by asking insightful questions and collaborating on problem-solving strategies.

**Impact**

I believe my contributions positively impacted the project in several ways:

* **User-Centric Design:** My research-driven approach ensured the app prioritized functionalities that addressed user needs, making the app more user-friendly and valuable for potential users.
* **Project Management:** My time management skills and contribution to the creation of the project schedule kept us on track to meet the 10-month deadline.
* **Effective Communication:** Clear communication during brainstorming sessions and team meetings fostered collaboration and ensured Mehluli and I were aligned on project goals and functionalities.

**Conclusion**

This anonymous crime reporting app project was a valuable learning experience. It allowed me to develop practical skills in research, communication, project management, and teamwork. I gained a foundational understanding of the mobile app development process and the importance of user-centric design. Recognizing my strengths in research, communication, and adaptability, I will continue to develop them while focusing on acquiring a deeper understanding of mobile app development. By addressing my weaknesses in technical knowledge and public speaking, I can become a more well-rounded team member in future projects. Overall, I am confident that the skills and experience gained through this project will contribute to my future success.

# Group Name: Matrix Ninjas

## Group Member List:

* Mehluli Ofentse Booi: ST10028039-Group leader
* Milani Figlan: ST10195500

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