DECEMBER 28, 2024

PROJECT CHARTER FOR DARK REFLECTION (FYP)

PROJECT MANAGEMENT

**TEAM MEMBERS**

|  |  |
| --- | --- |
| **NAME** | **ROLL NUMBER** |
| AASIA KHALID | 210266 |
| M. UMAR SAJID | 210269 |

CGD VII

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# GENERAL PROJECT INFORMATION

PROJECT NAME

PROJECT

MANAGER PROJECT SPONSOR

|  |  |  |
| --- | --- | --- |
| Dark Reflection | Aasia Khalid | Air University |

EMAIL PHONE ORGANIZATIONAL UNIT(S)

|  |  |  |
| --- | --- | --- |
| [210266@students.au.edu.pk](mailto:210266@students.au.edu.pk) | +92-  3369266235 | Project Management |

GREEN BELTS ASSIGNED

EXPECTED START DATE

EXPECTED COMPLETION DATE

|  |  |  |
| --- | --- | --- |
| Aasia Khalid (Animation & Art Direction) | 01/06/2024 | 10/10/2024 |

BLACK BELTS ASSIGNED

EXPECTED START DATE

EXPECTED COMPLETION DATE

|  |  |  |
| --- | --- | --- |
| Muhammad Umar Sajid (Unity Development Lead) | 01/09/2024 | 31/01/2025 |

# EXECUTIVE SUMMARY

The **"Dark Reflection"** project is a 2.5D narrative-driven platformer game developed as a final-year project by **Aasia Khalid** and Muhammad Umar Sajid, students at Air University. The game uniquely blends engaging gameplay mechanics with a captivating story that explores themes of identity and inner conflict. By intertwining storytelling with atmospheric exploration and innovative puzzle design, the project aims to address gaps in the gaming market for immersive and meaningful player experiences.

Scheduled for completion by **March 2025**, the project encompasses ten distinct chapters with detailed environments, such as forests, warehouses, and rooftops, coupled with innovative mechanics and high-quality animations. Developed using **Unity and Blender**, the project emphasizes quality through rigorous testing and player feedback sessions.

With a total budget of **Rs 800,000**, the project aims to attract narrative-driven game enthusiasts, delivering an engaging product with the potential for commercial success. Beyond revenue generation, "Dark Reflection" serves as an opportunity for the team to gain hands-on experience, preparing them for professional opportunities in game development and design. The project aspires to launch on **PC,** supported by marketing campaigns to establish its presence in the gaming community.

# PROJECT OVERVIEW

## PROBLEM OR ISSUE

Many platformers’ games struggle to provide a captivating narrative alongside engaging gameplay, often resulting in either shallow storylines or repetitive mechanics. There’s a demand for a game that intertwines storytelling with atmospheric exploration and innovative puzzle design, creating an immersive experience for players.

## PURPOSE OF PROJECT

The purpose of the Dark Reflection project is to develop a unique 2.5D platformer game that effectively combines a deep narrative with engaging gameplay mechanics. The project aims to explore themes of identity and inner conflict through a captivating storyline and immersive environments.

## BUSINESS CASE

The gaming industry has seen a rise in the popularity of narrative-driven games, creating an opportunity for Dark Reflection to fill a niche in the market. By leveraging innovative gameplay mechanics and rich storytelling, the project aims to attract players seeking a thoughtful and immersive gaming experience. The successful launch of Dark Reflection can lead to potential revenue through sales and subsequent expansions or sequels, establishing a franchise.

## GOALS / METRICS

* Completion of Game Development: Complete the development of ten chapters by March, 2025
* Player Engagement: Achieve a minimum player retention rate of 70% during playtesting sessions.
* Quality Assurance: Ensure that 90% of play testers rate the game positively on gameplay mechanics and narrative engagement.
* Performance Metrics: Aim for a minimum frame rate of 30 FPS on targeted hardware during gameplay.

Market Launch: Successfully launch the game on [specify platforms] within [specify timeframe] after project completion.

## EXPECTED DELIVERABLES

* Game Design Document (GDD): A comprehensive document outlining game mechanics, story arcs, character designs, and level layouts.
* Prototype Build: A playable version of the game that includes the first chapter and basic mechanics for testing.
* Final Game Build: The complete game, including all ten chapters, polished graphics, animations, and sound design.
* Marketing Material: Promotional assets such as trailers, screenshots, and a press kit to support the game’s launch.

Post-Launch Support Plan: A strategy for addressing player feedback, bug fixes, and potential updates or expansions.

# PROJECT SCOPE

|  |  |
| --- | --- |
| **WITHIN SCOPE** | * Design and implement gameplay mechanics, including movement, puzzle-solving, and combat systems. * Develop ten distinct chapters with unique environments, such as forests, warehouses, rooftops, and docks. * Create engaging narrative elements, including dialogue and cutscenes that enhance the storyline. * Produce high-quality animations and visual assets using Unity. * Conduct playtesting and feedback sessions to refine gameplay and improve user experience. |
| **OUTSIDE OF SCOPE** | * Development of additional chapters or content beyond the initial ten chapters. * Extensive marketing and promotional activities outside of the game development process. * Creation of a multiplayer mode or online features. * Development of additional platforms (e.g., console or mobile) beyond the initial PC release. * Advanced audio design, such as an orchestral score, that requires hiring external composers. |

# TENTATIVE SCHEDULE

|  |  |  |
| --- | --- | --- |
| **KEY MILESTONE** | **Description** | **Planned Completion Date** |
| Project Initiation | Finalize project charter, scope, and requirements. | 01/06/2024 |
| Concept Design Completion | Finalize story outline, character designs, and art style guide. | 30/06/2024 |
| Level Design Completion | Complete design and layout for all chapters. | 15/09/2024 |
| Prototype Development | Implement core gameplay mechanics and create a playable prototype. | 20/10/2024 |
| Initial Testing | Conduct internal testing for early feedback. | 15/11/2024 |
| Game Alpha Release | Release an alpha version for in-depth testing and feedback. | 01/12/2024 |
| Game Beta Release | Release a beta version with improved mechanics and bug fixes. | 01/01/2025 |
| Marketing Campaign Launch | Begin marketing campaign, including trailers and social media. | 10/01/2025 |
| Final Testing and QA | Complete final bug fixes, polish, and quality assurance checks. | 15/02/2025 |
| Game Launch | Officially release the game on chosen platforms. | 01/03/2025 |
| Post-Launch Support Initiation | Start implementing post-launch updates and support. | 10/03/2025 |

## GANTT CHART

# RESOURCES

|  |  |
| --- | --- |
| **PROJECT TEAM** | Aasia Khalid (210266) – Lead Animator Muhammad Umar Sajid (210269) – Unity Developer |
| **SUPPORT RESOURCES** | * Mentors/Advisors: Guidance from faculty or industry professionals for feedback on game design and development strategies. * Play testers: Recruitment of fellow students or gaming enthusiasts to provide feedback during development phases. * Online Resources: Access to tutorials, forums, and communities related to game development and design. |
| **SPECIAL NEEDS** | * Training: Any team members unfamiliar with certain tools (like Blender or Unity) may need training or access to tutorials. * Collaboration Tools: Utilization of project management tools (e.g., Trello, Slack) to enhance communication and task tracking among team members. * Sound Design Resources: Consideration for hiring or collaborating with sound designers for audio elements if the project scope allows. |

# COSTS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **COST TYPE** | **VENDOR / LABOR NAMES** | **RATE** | **QTY** | **AMOUNT** |
| **Labor** | Animator (Aasia Khalid) | Rs 1,500/hr. | 150 | Rs 225,000 |
| **Labor** | Unity Developer (Muhammad Umar Sajid) | Rs 1,500/hr. | 150 | Rs 225,000 |
| **Software License** | Unity Student License | Rs 0 | 1 | Rs 0 |
| **Supplies** | Graphic Design Software (e.g., Adobe) | Rs 10,000/month | 3  months | Rs 250,000 |
| **Hardware** | High-Performance Computer Rental | Rs 50,000 | 1 | Rs 50,000 |
| **Miscellaneous** | Testing Devices (Smartphone, Tablet) | Rs 25,000 | 1 | Rs 25,000 |
| **Miscellaneous** | Research Papers and Resources | Rs 2,000 | 5 | Rs  10,000 - |
| **Miscellaneous** | Marketing and Presentation Materials | Rs 15,000 | 1 | Rs 15,000 |
| TOTAL COSTS | | | | Rs 800,000 |

# BENEFITS AND CUSTOMERS

|  |  |
| --- | --- |
| **PROCESS OWNER** | Aasia Khalid will serve as the process owner, overseeing the development and ensuring that project objectives are met. Responsibilities will include monitoring progress, managing resources, and facilitating communication among team members. |
| **KEY**  **STAKEHOLDERS** | * Project Team Members: Aasia Khalid and Muhammad Umar Sajid. * Faculty Advisors: Professors or mentors providing guidance and support throughout the development process. * Play testers: Individuals who will provide feedback on gameplay and mechanics, helping to refine the game. * Potential Investors/Publishers: Entities interested in funding or distributing the game upon completion. |
| **FINAL CUSTOMER** | The final customers are players who enjoy narrative-driven platformer games, including casual gamers and enthusiasts looking for immersive storytelling and engaging gameplay. |
| **EXPECTED BENEFITS** | * Enhanced Learning Experience: Team members will gain hands-on experience in game development, enhancing their skills and knowledge. * Market Readiness: The project will prepare the team for future opportunities in the gaming industry, including job prospects and internships. * Player Engagement: By delivering a unique gaming experience, Dark Reflection aims to attract a dedicated player base, potentially leading to future projects or expansions. * Revenue Generation: Successful game sales can provide financial returns and potentially fund future game development initiatives. |

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| **TYPE OF BENEFIT** | **BASIS OF ESTIMATE** | **ESTIMATED BENEFIT AMOUNT** |
| **Increased Player Engagement** | Game design team’s estimates | Rs 1,500,000 |
| **Revenue from Game Sales** | Finance’s projections based on similar titles | Rs 4,200,000 |
| **Cost Savings from In-House Assets** | Art team’s estimates | Rs 900,000 |
| **Higher Brand Visibility** | Marketing team’s estimates | Rs 750,000 |
| **Improved Team Efficiency** | Project management’s estimations | Rs 650,000 |
| **Reduced Development Time** | Management’s strategy projections | Rs 1,000,000 |
| **Future Development Savings** | Estimator’s projections | Rs 1,200,000 |
| TOTAL BENEFIT | | Rs 10,200,000 |

# RISKS, CONSTRAINTS, AND ASSUMPTIONS

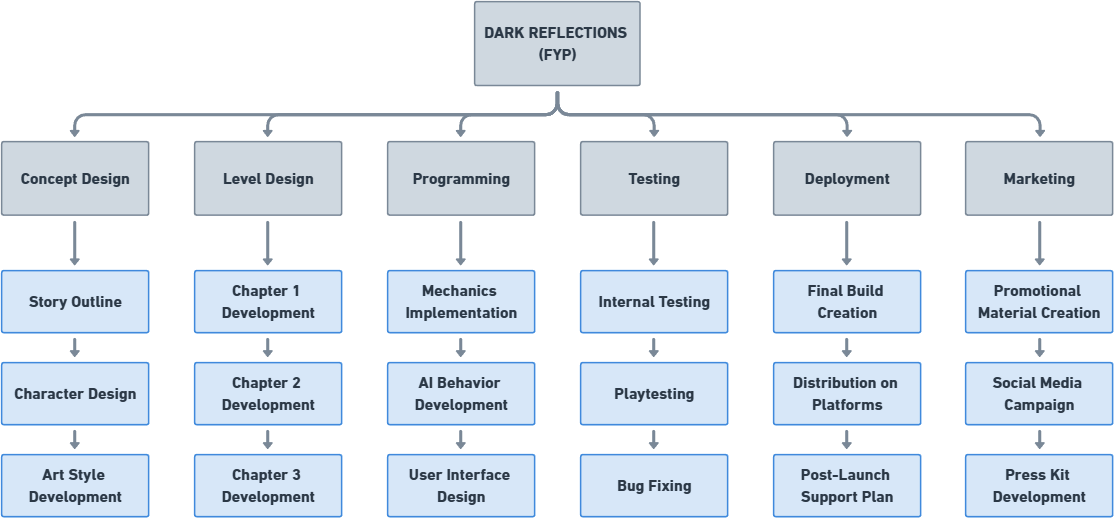
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| **RISKS** | * Technical Challenges: Issues in integrating animations into Unity. * Time Management: Balancing Unity and animation tasks within the project timeline. * Resource Constraints: Limited testing resources could impact quality assurance. |
| **CONSTRAINTS** | * Limited development time of 20 weeks. * Restricted access to high-performance resources. |
| **ASSUMPTIONS** | * The project will utilize Unity for game development and Blender for animations. * Both team members will work in collaboration, focusing on Unity development and animation, respectively. |

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| --- | --- | --- |
| PREPARED BY | TITLE | DATE |
| Aasia Khalid | Senior Project Manager | 10/26/2024 |

# WORK BREAKDOWN STRUCTURE (WBS)

1. GAME DEVELOPMENT

|  |  |
| --- | --- |
| 1.1 Concept Design | 1.1.1 Story Outline |
|  | 1.1.2 Character Design |
|  | 1.1.3 Art Style Development |
| 1.2 Level Design | 1.2.1 Chapter 1 Development (Into the Woods) |
|  | 1.2.2 Chapter 2 Development (The Abandoned Warehouse) |
|  | 1.2.3 Chapter 3 Development (Rooftop Chase) |
| 1.3 Programming | 1.3.1 Gameplay Mechanics Implementation |
|  | 1.3.2 AI Behavior Development |
|  | 1.3.3 User Interface Design |
| 1.4 Testing | 1.4.1 Internal Testing |
|  | 1.4.2 Playtesting |
|  | 1.4.3 Bug Fixing |
| 1.5 Deployment | 1.5.1 Final Build Creation |
|  | 1.5.2 Distribution on Platforms |
|  | 1.5.3 Post-Launch Support Plan |
| 1.6 Marketing | 1.6.1 Promotional Material Creation |
|  | 1.6.2 Social Media Campaign |
|  | 1.6.3 Press Kit Development |



# WORK BREAKDOWN STRUCTURE (WBS) DICTIONARY

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WBS**  **Code** | **Work Package Name** | **Description** | **Deliverables** | **Responsible Party** |
| 1 | Game Development | Complete the development of the game. | Fully Functional Game | Aasia Khalid, Muhammad Umar Sajid |
| 1.1 | Concept Design | Develop the core concept, narrative, and visual style. | Story Outline, Character Design, Art Style Guide | Aasia Khalid |
| 1.1.1 | Story Outline | Create a comprehensive outline of the game’s narrative. | Detailed Story Document | Aasia Khalid |
| 1.1.2 | Character Design | Design main and supporting characters with backstories. | Character Profiles | Aasia Khalid |
| 1.1.3 | Art Style Development | Define the visual style and aesthetic of the game. | Art Style Guide | Aasia Khalid |

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| --- | --- | --- | --- | --- |
| 1.2 | Level Design | Design and implement game levels with puzzles. | Level Design Documents | Muhammad Umar Sajid |
| 1.2.1 | Chapter 1 Development | Create level design and mechanics for Chapter 1. | Playable Chapter 1 | Muhammad Umar Sajid |
| 1.2.2 | Chapter 2 Development | Create level design and mechanics for Chapter 2. | Playable Chapter 2 | Muhammad Umar Sajid |
| 1.2.3 | Chapter 3 Development | Create level design and mechanics for Chapter 3. | Playable Chapter 3 | Muhammad Umar Sajid |
| 1.3 | Programming | Implement game mechanics and systems. | Game Prototype | Muhammad Umar Sajid |
| 1.3.1 | Gameplay Mechanics Implementation | Develop character controls, movement, and interactions. | Functional Game Mechanics | Muhammad Umar Sajid |
| 1.3.2 | AI Behavior Development | Create AI behaviors for enemies and NPCs. | AI Behavior Scripts | Muhammad Umar Sajid |
| 1.3.3 | User Interface Design | Design and implement the game's UI elements. | UI Mockups and Implemented UI | Muhammad Umar Sajid |
| 1.4 | Testing | Conduct thorough testing phases to ensure quality. | Test Reports and Bug Fixes | Aasia Khalid, Muhammad Umar Sajid |
| 1.4.1 | Internal Testing | Test game functionality internally to identify issues. | Internal Test Report | Aasia Khalid |
| 1.4.2 | Playtesting | Organize playtesting sessions with external testers. | Playtesting Feedback | Aasia Khalid |

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| --- | --- | --- | --- | --- |
| 1.4.3 | Bug Fixing | Address and resolve identified bugs and issues. | Bug Fix Log | Aasia Khalid, Muhammad Umar Sajid |
| 1.5 | Deployment | Prepare the game for release and support post-launch. | Game Release Plan | Aasia Khalid, Muhammad Umar Sajid |
| 1.5.1 | Final Build Creation | Compile and finalize the game for distribution. | Final Game Build | Muhammad Umar Sajid |
| 1.5.2 | Distribution on Platforms | Publish the game on selected platforms. | Live Game on Platforms | Muhammad Umar Sajid |
| 1.5.3 | Post-Launch Support Plan | Develop a plan for post- launch support and updates. | Post-Launch Support Strategy | Aasia Khalid |
| 1.6 | Marketing | Develop and execute marketing strategies for the game. | Marketing Materials | Aasia Khalid |
| 1.6.1 | Promotional Material Creation | Create promotional materials for marketing purposes. | Trailers, Screenshots | Aasia Khalid |
| 1.6.1.1 | Game Trailers | Produce engaging trailers showcasing gameplay. | Game Trailers | Aasia Khalid |
| 1.6.1.2 | Screenshots and Art Assets | Capture and prepare visual assets for promotion. | Visual Assets for Marketing | Aasia Khalid |
| 1.6.2 | Social Media Campaign | Plan and execute marketing strategies across social media. | Social Media Content | Aasia Khalid |

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| --- | --- | --- | --- | --- |
| 1.6.2.1 | Content Planning | Create a calendar for social media posts and content. | Content Calendar | Aasia Khalid |
| 1.6.2.2 | Engagement Strategy | Develop strategies to engage the audience. | Engagement Plan | Aasia Khalid |
| 1.6.3 | Press Kit Development | Create materials for media outreach. | Press Kit | Aasia Khalid |
| 1.6.3.1 | Press Release | Draft and distribute a press release for the game. | Press Release Document | Aasia Khalid |
| 1.6.3.2 | Media Contact List | Compile a list of media contacts for outreach. | Media Contact List | Aasia Khalid |

# QUALITY TEST CASES

## QUALITY STANDARDS DEFINED

* Usability: Ensure smooth gameplay without technical interruptions.
* Performance: Maintain stable frame rates and responsive controls.
* Visual Aesthetics: Graphics should remain immersive and cohesive.
* Audio Quality: Audio effects should align with in-game actions and environments.

## KEY DELIVERABLES TO TEST

* Gameplay Mechanics: Test character movement, interactions, and transitions.
* Graphics: Test visual quality and consistency.
* Audio Effects: Test alignment and quality of sound effects.

## TEST CASES

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test Case ID** | **Description** | **Steps** | **Expected Outcome** | **Actual Outcome** | **Status** |
| **QC001** | Verify smooth character movement | 1. Launch the game. 2. Move the character in all directions. 3. Test jumping, climbing, and object interaction. | Character movement is responsive and without glitches. | Character movement is smooth. | Pass |
| **QC002** | Check responsiveness of interaction system | 1. Approach an interactive object. 2. Perform interaction. 3. Repeat with various objects. | Interactions occur seamlessly without delay. | Interactions are responsive. | Pass |
| **QC003** | Test visual quality of animations | 1. Play the demo. 2. Observe character animations during | Animations are smooth, visually appealing, and without distortion. | Animations are consistent. | Pass |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | movement and interaction.  3. Focus on consistency in transitions. |  |  |  |
| **QC004** | Assess loading times for transitions | 1. Trigger transitions between gameplay areas. 2. Measure loading duration | Transitions should take no more than 3 seconds. | Transitions are fast (<2s). | Pass |
| **QC005** | Evaluate audio effects | 1. Play the demo. 2. Listen to background sounds and interactive sound effects. 3. Check alignment with actions/events. | Audio is synchronized with actions but may need improvement for greater impact. | Audio is misaligned. | Fail |

# EVM TEST CASES

## KEY METRICS TO TEST

* Planned Value (PV): Budgeted cost for work scheduled.
* Earned Value (EV): Budgeted cost for work performed.
* Actual Cost (AC): Actual cost incurred for work performed.
* Schedule Variance (SV): SV = EV - PV.
* Cost Variance (CV): CV = EV - AC.
* Schedule Performance Index (SPI): SPI = EV / PV.
* Cost Performance Index (CPI): CPI = EV / AC.

## SCENARIOS TO TEST

* Evaluate budget and schedule adherence during the demo development phase.
* Identify deviations in resource allocation or progress.

## TEST CASES

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test**  **Case ID** | **Description** | **Inputs** | **Expected Outputs** | **Actual Outputs** | **Status** |
| **EVM001** | Analyze cost variance | PV = Rs 450,000 EV = Rs 400,000 AC = Rs 430,000 | CV = EV - AC  CV = Rs 400,000 - Rs 430,000 = Rs -30,000  (Cost overrun). | CV = Rs -30,000  (Cost overrun detected). | Fail |
| **EVM002** | Assess schedule performance | PV = Rs 450,000 EV = Rs 450,000 | SPI = EV / PV  SPI = Rs 450,000 / Rs 450,000 = 1  (On schedule). | SPI = 1  (On schedule). | Pass |
| **EVM003** | Evaluate cost performance index | EV = Rs 400,000 AC = Rs 430,000 | CPI = EV / AC  CPI = Rs 400,000 / Rs 430,000 = 0.93  (Cost efficiency below target but manageable). | CPI = 0.93  (Cost efficiency below target but manageable). | Pass |
| **EVM004** | Calculate overall variance | PV = Rs 800,000 EV = Rs 750,000 AC = Rs 790,000 | SV = EV - PV  SV = Rs 750,000 - Rs 800,000 = Rs -50,000  (Behind schedule). CV = EV - AC = Rs - 40,000  (Cost overrun). | SV = Rs -50,000, CV = Rs -40,000  (Schedule and cost deviations detected). | Fail |

# Evaluation Summary

The test cases for the "Dark Reflection" project highlight its strengths and areas for improvement. Gameplay mechanics, including character movement, interactions, and transitions, performed exceptionally well, ensuring a smooth and immersive player experience. Visual animations were consistent and appealing, and loading times for transitions met efficiency standards.

However, the audio effects require better synchronization with in-game actions to enhance immersion. Addressing this will improve the overall quality of the game.

In terms of project management, budget and schedule adherence show mixed results. While the schedule is on track with a Schedule Performance Index (SPI) of 1, a cost variance of Rs 30,000 and a Cost Performance Index (CPI) of 0.93 indicate slight inefficiencies in cost management. Additionally, schedule variance calculations highlighted minor delays that should be monitored to avoid larger setbacks.

Overall, the project demonstrates strong potential for success, with attention needed on audio refinement and tighter financial control. These adjustments will ensure "Dark Reflection" meets its goals and delivers a high-quality experience to players.