

Side-Scrolling Base Defense Game Design

By Tasrif Ibn Mizan

First release: 24/05/2023

Last Update: 29/06/2023

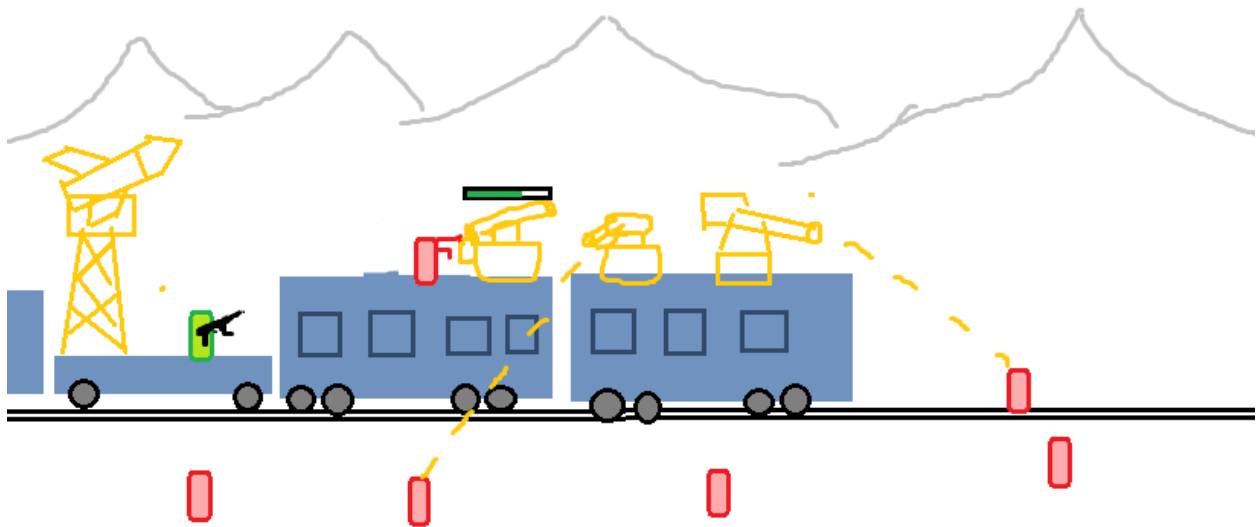
Table of Contents

| | |
|--|--|
| Chapter 1: Structure of Prototype | |
| Introduction and settings | |
| Game Mechanics | |
| Design Concept QnA | |
| Hypothetical gameplay walkthrough | |
| Asset Conjugation | |
| Feedback and Changelogs | |
| Chapter 2: Game Project (New strategy Update) | |
| Turrets | |
| Hostiles | |
| Playable Characters | |
| Train Body | |
| Game Lobby and UI | |
| Chapter 3: Miscellaneous | |
| Assigned Team | |
| Achievements | |
| Risks | |
| Conclusion | |

Chapter 1: Structure of Prototype

Introduction and settings

The prototype is a preliminary model that demonstrates the basic gameplay mechanics, core features, and overall vision of the game. Creating a prototype aims to test and validate game ideas, assess feasibility, and gather feedback from stakeholders, such as developers, artists, or potential players.



In the picture above, you can see a Train running on its track. The yellow things represent defensive turrets, rocket launchers, etc. The green column represents the player with a gun. Red columns represent Hostiles.

Train: The train is a platform for the player's base defense strategy. The train is the stationary platform for the player.

Player: The player can walk by the train and battle there, but the player will not be able to get down from the train. The player can move Right and Left on both sides, and the Player can Jump.

Turrets: Turrets will have health. Turrets will not only protect trains but also clear up the area, which is one of the core objectives.

Weapon: The player will be equipped with a ranged weapon: It can be a gun.

Hostile Entities: Hostile entities are to be killed by the player. The entities may jump on the train, damaging the player and destroying turrets.

World Settings

The World setting and the backstory are not important for a prototype. I will say, it will go post-apocalyptic setting. A post-apocalyptic human civilization depends on trains for transportation and protection as the train is a powerful vehicle. To maintain secure travel between cities, a “Battle Train” operates the job. It defends and clears a railway route as a player faces combat at different stages in the game.

Game Mechanics

Game mechanics refer to the rules, systems, and interactions that govern gameplay in a video game. They encompass the core actions, behaviors, and challenges players engage with while playing. Mechanics determine how players navigate the game world, solve problems, interact with characters or objects, and achieve goals. They form the foundation of a game's design and significantly impact the overall player experience.

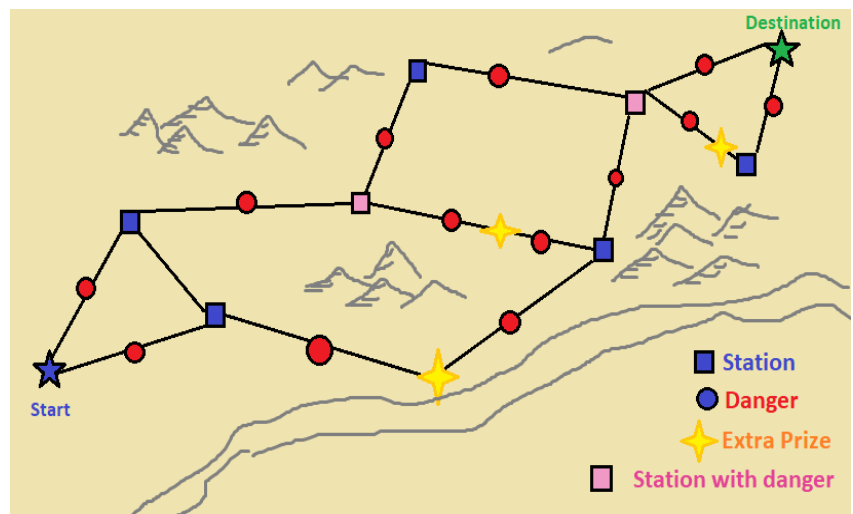
Player's Campaign

The player will play in a “Campaign Tree” flow, where the player will choose a path and move forward.

Station: The station is the game's Level and strategy point. From the stations, you can choose the path. Usually, a station is a safe zone where there is no combat. Also, some stations can be hazardous.

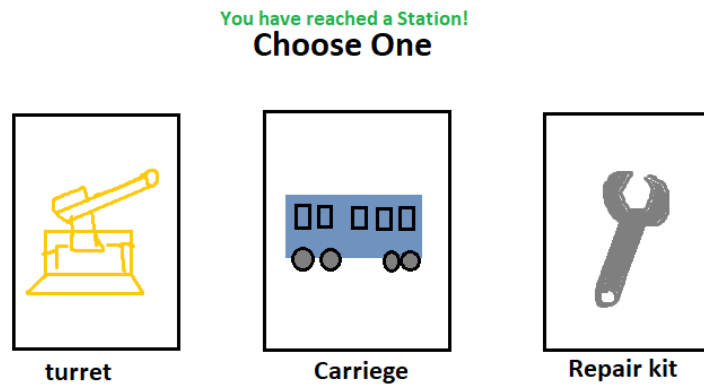
Danger Points: The hazardous situation on the railway route, where the combat will occur. The whole campaign will be over if the player fails any Danger zone.

Extra Prizes: Choosing an Extra prize path may give play additional advantages. Also, the path will be more difficult.



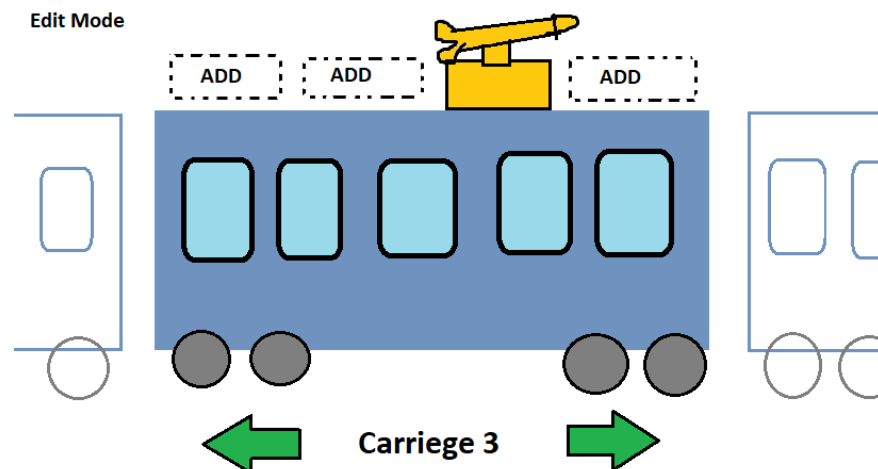
Level Up

As the player reaches each station, the layer gains level up. Players can choose a level-up reward. The rewards will be random.



Edit Mode

The player can edit the train layout and Weapon Strategy in Edit mode Only. The Edit mode can be accessed in stations only. The Edit mode will be Like this.



Design Concept QnA

1. Is the train moving in a massive 2d side-scrolling world?

No, the train is a stationary Platform, just like an Island or home. The camera movement, parallax background, and foreground will move and create such an animation that the player will feel the motion of the train. The player can walk inside the train.

2. Is the world procedural?

No. The world is not procedural. There is no physical world. Everything you see is the same scene, with different background environments. The campaigns are not either procedural. But there will be many random things. Like the level-up rewards, the danger zone types, etc.

3. How will be the combat actions?

The train will have less speed in danger zones, where the combat will occur. The armed system of the train will work automatically. It will defend hostile hordes; while some hostiles will try to climb up the train, some will jump down to the train from a high building. The Player will fight with those climbing hostiles as well as all kinds of enemies.

4. Is this any sandbox Building system?

No. This is not any sandbox-building system. It is like a vehicle assembly system. The Player does not need to build any train carriage. The Player will add different carriages to their train.

5. What are the action and strategy opportunities for the player?

There are such strategies that make every gameplay Unique and enjoyable. The player will choose their Train-arms from various options and set up those. The player gets different rewards. The player chooses a different path. All this creates replayability and possibilities. The action combat will differ in each level, as the chances of hostile climbing and attacking are random.

6. Do the player have inventory, gear slots, and character choices?

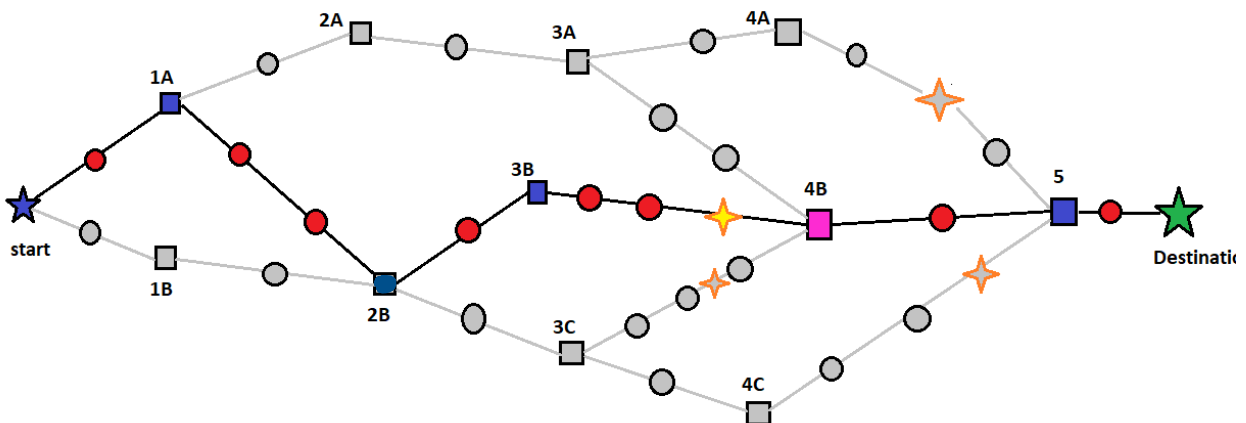
No, the player won't have any classic inventory. The player does not carry anything except the gun. There are no player gear slots for now. The main inventory will be available in the edit mode.

Hypothetical gameplay walkthrough

Let us dive into a hypothetical walkthrough of this design so you can clearly understand gameplay mechanics. You start the game. You are at the starting station. You choose a starting equipment from 3 random items. Now you are ready to take a tour.

You have to choose a path.

Both paths have danger zone. Both danger zone has different buffs. One has increased enemy health, and the other has increased enemy climb chance.



You choose the "increased enemy climb chance" path (1A).

You see your train moving, and shortly after, it slows down. The danger zone is nearby. You see hostile creatures; the farther your train moves, the more creatures increase. Your train turret is automatically shooting them. Some of the hostile creatures are climbing up your running train. You defend with your gun. Finally, you have successfully cleared the zone. Your train speeds up and moves forward automatically.

You reach station-1A.

You find rewards: A tesla canon, 2 level-up kits, and a machinegun turret

You choose the Tesla canon

You go edit mode and place the tesla canon on the engine carriage. The description shows that the Tesla cannon can deal chain damage among hostiles.

Now there are 2 paths to move—the path towards 2A and 2B. The danger zone in the 2A path has a buff- “Enemies get a hp shield if they don’t take damage for 4 seconds”. There are 2 danger zones in the 2B path; the buffs are increased speed and fire immunity. You do not have a fire weapon. So this enemy buff has nothing to deal with you. And also, you want to stay in the 3B-4B route so that you can get a special reward.

So, you wisely move on the 2B path.

You have combat twice. Your Tesla canon is broken. It won’t work until you fix it. It requires a Repair kit to fix it.

you reach the station 2B

you find rewards: 2 level-up kits, 1 Repair kit, Shockwave generator

you learn that the shockwave generator can release a powerful shockwave that deals some damage and pushes back all enemies. You want to take it. But you wisely choose a repair kit to fix the tesla canon.

You move on the 2B path. It’s the only path to move now.

I hope you can now imagine the core gameplay loop. There is no time for writing the full hypothetical story. So let us move to the next topic.

Asset Conjugation

After testing the prototype, we will work on assets, including mobs, backgrounds, trains, items, and UI design. The prototype can be made with different colored 2D shapes, as I showed at the beginning of the document. We also can provide rough sketch placeholder assets if the developer needs them.

Feedback and Changelogs from Chapter 1:

1. Stationary train with moving Background system is no more. Now train will move in a physical world, the level design will follow segment Assembly system.
2. We made lore and art style.
3. The player will be melee.
4. All path maps are premade.
5. From the lobby player will build train , which is base and prebuilt strategy.

Chapter 2: Game Project (New Strategy Update)

In this new design update, I will be introduced some player personalization strategy features that extend the gameplay hours and gameplay possibilities. I represent 4 Classes of interactive bodies here;

Class:1 - Turret (upgradable by player)

- Power
- Fire Rate
- Utility
- HP

Class:2 - Player (Not upgradable)

- Movement Speed
- Hp
- Weapon + ability

Class:3 - Hostiles (Upgradable by game)

- HP
- Speed
- Climb rate
- Damage
- Utility class

Class:4 - Train Body (Not Upgradable)

- Hp
- Workability

Turrets

Before I talk about turrets categories , lets see the universal element powers of the game. I feature 6 types of element power and their reactions.

Universal Elements:

- Normal (Gunpowder): Normal physical damage
- Plasma : Deals chain damages
- Flame : Deals Burning Damage
- Toxin : Deals Damage over time
- Liquid nitrogen : Deals damage, Slows and freezes
- Void : Crowd control , Pulls or knockbacks

Lists:

Normal (Gunpowder):

1. Turret Name: Vanguard Blaster (Rapid Bullet Fire)

Description: This reliable turret is equipped with a rapid-firing gunpowder mechanism. It unleashes a barrage of high-velocity bullets, dealing consistent physical damage to enemy units. With its precise targeting system, it ensures a reliable defense against a wide range of threats.

2. Turret Name: Bulletstorm Sentinel (Bullet Rain, Delay shot)

Description: The Bulletstorm Sentinel is a heavy-duty turret that rains down a storm of bullets upon its targets. Its advanced technology allows it to unleash devastating volleys, shredding through enemy defenses with its relentless firepower. Enemies will think twice before approaching this formidable turret.

Plasma:

1. Turret Name: Ionizer Disruptor (Chain Damage , delay shot)

Description: The Ionizer Disruptor is a plasma-based turret that emits powerful ion projectile, capable of chaining damage to multiple enemies. Its specialized targeting system allows it to quickly identify and lock onto nearby foes, releasing electrifying pulses that jump from one target to another, wreaking havoc on enemy formations.

2. Turret Name: Plasma Annihilator (explosion , Heavy shot , more delay)

Description: The Plasma Annihilator is a cutting-edge turret that harnesses the power of plasma technology to obliterate its enemies. It charges up massive plasma orbs and launches them at high velocity, causing devastating explosions upon impact. The resulting chain reactions engulf nearby foes, leaving behind a path of destruction.

Flame:

1. Turret Name: Inferno Igniter (Rapid Fire, Area burning damage)

Description: The Inferno Igniter is a fearsome flame turret that spews forth scorching fireballs, engulfing enemies in intense flames. Its advanced combustion system ensures a steady stream of fiery projectiles, which not only deal burning damage but also spread fire to nearby area, leaving them in a blazing inferno.

2. Turret Name: Pyroclasmic Incinerator (Flame thrower , Delay Reload)

Description: The Pyroclasmic Incinerator is a highly specialized flame turret designed to turn the battlefield into a raging inferno. It unleashes torrents of superheated flames that scorch everything in their path, leaving enemies burnt to a crisp. This turret's devastating fire-based attacks ensure that adversaries are left smoldering in their wake.

Toxin:

1. Turret Name: Venomous Infector (large area damage , delay)

Description: The Venomous Infector is a toxic turret that releases clouds of noxious gas, poisoning enemies and dealing damage over time. Its advanced toxin dispersal system ensures a wide coverage area, making it an effective crowd-control tool that steadily weakens foes and prevents them from advancing.

2. Turret Name: Biohazard Spewer (Liquid thrower , Area damage)

Description: The Biohazard Spewer is a menacing turret that sprays a deadly concoction of corrosive chemicals. Its acidic projectiles not only deal immediate damage but also inflict lingering toxins on enemies, causing their health to deteriorate over time. This turret's potent toxins ensure that adversaries regret crossing its path.

Liquid Nitrogen:

1. Turret Name: Cryo Frostbite (Rapid fire , single target , Slows enemy)

Description: The Cryo Frostbite turret is a freezing powerhouse that harnesses the power of liquid nitrogen. It fires icy projectiles that not only deal damage but also slow down enemy movement .

2. Turret Name: Frost Immobilizer (frost wave , Crowd Control , Heavy Delay)

Description: The Frost Immobilizer is an imposing turret that generates a bone-chilling blizzard wave around itself. It projects icy gusts that freeze enemies in their tracks, while also dealing a small amount of damage.

Void:

1.Turret Name: Singularity Graviton (Single target ,levitates target , creates fall damage)

Description: The Singularity Graviton turret harnesses the power of the Void to manipulate gravitational forces. It creates a localized singularity that exerts a powerful gravitational levitation on target enemy, rendering them unable to move or attack.

2.Turret Name: Void Disruptor (Large area Impact , knockback , slight damage , high delay)

Description: The Void Disruptor is a formidable turret that emits concentrated bursts of pure Void energy. Its shots carry immense force, knocking back enemies upon impact and disrupting their movements.

Playable Characters

Character 1:

Name: Blade Runner

Weapon + Ability: Dual Energy Blades + toxic cloud Dash

Blade Runner wields two energy blades that can slice through alien invaders with ease. His ability, toxic cloud Dash, allows him to quickly dash forward, leaving behind a toxic cloud that deals damage over time.

Movement Speed: Fast

HP: Moderate

Short Lore: Blade Runner was a renowned swordmaster before the alien invasion. When the invaders attacked, he modified his blades with bioweapon technology, enhancing their cutting power. Now, he fights on the battle-train, using his speed and precision to protect humanity.

Character 2:

Name: Hammer

Weapon + Ability: Powered Hammer + Shockwave Slam

Hammer carries a massive powered hammer capable of delivering devastating blows. His ability, Shockwave Slam, allows him to slam the hammer into the ground, creating a plasma shockwave that damages and stuns nearby enemies.

Movement Speed: Slow

HP: High

Short Lore: Hammer was once a construction worker in a tesla machinery factory, but when the aliens invaded, he repurposed his trusty hammer as a weapon of resistance. With his immense strength, he smashes through the alien hordes, defending the battle-train with unwavering determination.

Character 3:

Name: Phoenix

Weapon + Ability: Flaming Gauntlets + Fire Nova

Phoenix wears gauntlets that ignite in flames, allowing her to deliver fiery punches. Her ability, Fire Nova, unleashes a burst of flames around her, burning nearby enemies and providing temporary protection from projectiles.

Movement Speed: Average

HP: Moderate

Short Lore: Before the invasion, Phoenix was a talented MMA fighter. After the aliens arrived, she discovered her gauntlets could channel her inner fire, granting her incredible strength. With her fiery punches and defensive fire shield, she fights on the battle-train, determined to push back the invaders.

Character 4:

Name: Slicer

Weapon + Ability: Energy Whip + Grapple Hook

Slicer wields a flexible energy whip that can slice through enemies from a distance. His ability, Grapple Hook, allows him to latch onto objects or enemies, pulling himself towards them quickly.

Movement Speed: Fast

HP: Low

Short Lore: Slicer was an acrobat in a traveling circus before the alien invasion. He repurposed his acrobatic skills to wield the energy whip, becoming a nimble and elusive combatant. With his whip and grapple hook, he swings across the train roofs, striking down enemies with precision.

Character 5:

Name: Shieldmaiden

Weapon + Ability: Energy Shield + Defensive Stance

Shieldmaiden carries an nitrogen energy shield that can deflect enemy projectiles and protect herself . Her ability, Defensive Stance, allows her to increase her defensive capabilities, reducing damage taken and freezing nearby enemies.

Movement Speed: Average

HP: High

Short Lore: Shieldmaiden was a trained soldier in the pre-invasion military. When the aliens attacked, she found herself drawn to the battle-train, using her tactical skills to protect the vulnerable areas. With her energy shield, she creates a shield wall, protecting her comrades and repelling enemy attacks.

Character 6:

Name: Void Scientist

Weapon + Ability: Fists + void Charge

Void Scientist wears gauntlets that emit void energy, allowing him to deliver gravitational punches. His ability, enables him to cast a gravitational punch forward, knockbacking enemies in his front direction and damaging them momentarily.

Movement Speed: Fast

HP: Moderate

Short Lore Void Scientist was a skilled physics scientist before the invasion, and he modified his gauntlets to harness the power of antimatter and gravitational force. Now, he uses his gravitational punches to fight off the alien invaders on the train roofs, swiftly moving between enemies and knockbacking them into submission.

Hostiles

There are 3 main enemy unit types. Melee unit , Ranged unit and Air unit. Here are 6 monsters, every 2 from each types.

Melee Units:

Monster Name: Carnostris Brutalis

Attack Type: Melee

Health: Moderate

Attack Ability: High damage

Favorite Target: Turrets

Climb Rate: high

Monster Name: Serraptor Ferox

Attack Type: Melee

Health: Low

Attack Ability: Rapid attacks, lower damage

Favorite Target: Train Body and player

Climb Rate: low

Monster Name: Chitinoraptor Apex

Attack Type: Melee

Health: High

Attack Ability: Slows down target fire rate and deals heavy damage

Favorite Target: Turret

Climb Rate: Moderate

Ranged Units:

Monster Name: Slimesus Verax

Attack Type: Ranged

Health: Low

Attack Ability: Launches slime balls in quick succession , stuns turret for a short delay

Favorite Target: Any

Climb Rate: null

Monster Name: Venomshooter Toxica

Attack Type: Ranged

Health: Moderate

Attack Ability: Shoots poisonous projectiles, causing damage to player over time

Favorite Target: Player

Climb Rate: null

Monster Name: Shockshard Voltus

Attack Type: Ranged

Health: Moderate

Attack Ability: Thunderbolt (Fires electric bolts, chance to stun)

Favorite Target:

Climb Rate:

Air Units:

Monster Name: Skyraker Aeroflyer

Attack Type: Airborne

Health: Low

Attack Ability: Quick dive attacks

Favorite Target: Turret and Body

Climb Rate: null

Monster Name: Stormwing Tempestus

Attack Type: Air Landing melee

Health: Moderate

Attack Ability: spawn as flying unit and then land on train roof

Favorite Target: Turret and Player

Climb Rate: High

Monster Name: Zuggbeast Xeron

Attack Type: Air Ranged

Health: High

Attack Ability: Sprays acidic substance, damaging over time

Favorite Target: Train Body

Climb Rate: null

Train Body (Locomotive and Carriage)

(This section is under construction)

Assigned Team for the Project

Game Designer: Tasrif

Programmer: Apon

Artist: Tasrif, Saiyara

Music Artist: Rhythm

Sound Designer: Rhythm

UI and UX Designer: Tasrif

(Note: The game design and the document are not completed yet. It will get updated through development.)