| **CS102** | **Fall 2020/21** | Project Group | 2C |
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| **Criteria** | **TA/Grader** | **Instructor** |
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~ Defender of the Galaxy~

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# **Introduction**

Tower defense games are one of the most popular single player 2D dimension games

in the history of video games. Tower defense games are a type of games where users use their own strategies to establish towers to stop an enemy from invading a base. When enemies could not stop in their ways to reach the base, the player loses. These types of games have been played for over 20 years by people. The first tower defense game was Rampart ( Atari Games, 1990 ) which was founded by developer Paul Preece.[1] In our project we will base the stereotype of these games features as playing style ( relation between enemies, towers and game ), certain path that enemies follow, time etc…

In addition to that, we will specialize our program by adding new features and mechanics to the game such as; specific money and upgrade system, purchasable super attacks, upgradable construction/towers, weapons and also alternative source ( iron ) which could be gained by enemy debris whose function will be leveling towers. Our aim is to create a tower defense game which is clearly distinct from its components and also fun & challenging to play.

# **Details** / Features

## The Base

The base is defined as the territories or possessions which the player must defend against enemy waves.[2] It has a certain amount of health points which will decrease when an enemy unit can successfully pass all the constructions or weapons and achieve the base. If the base’s health point becomes 0, the player loses the game.

## Enemy waves

Enemies will revive from a certain place and they will have to follow a certain road which is surrounded by towers and weapons. As time goes on more enemies will revive more and participate in the game by groups. At the end of the road, there will be the base, before arriving the base enemies have to pass certain barriers by destroying them. Each different enemy unit will have different speed and health points.

## Construction and Weapons

There will be different types of towers/weapons. Some weapons will hold more places than others, therefore it will be the player's choice to combine these different weapons to places as area is sufficient to build them. Weapons will have different attack ranges, damage per strike, fire rate (how much time it takes to reload and fire again ) and prices.[3] Indeed, more powerful weapons have higher prices. In addition to these features, weapons will be able to level up with a source ( iron ) which will be able to be collected from enemy debris by workers.

## Gold System

Gold is the in-game currency which can be used for purchasing several objectives from the in-game market.[4] Players will be able to purchase several types of constructions, weapons, obstructions, or upgrades with this currency during the game. There are different ways to earn gold:

* Killing the units in the enemy waves will give a certain amount of gold.
* Before each round starts, some gold will be given to the player.

## In-Game Market

The player will be able to purchase constructions, weapons and other features from this facility by using their gold and alternative sources. During the game, as the players get more gold, they can use this gold in the market for whatever commodity they want and apply their own strategies with locating the constructions or weapons by this function.

## Gameplay

Players need to protect their bases for a certain time to skip the next level. To protect their bases, they need to come up with accurate responses to enemy waves as; placing towers on the right places, utilizing their barriers, super attacks and upgrades within the best possible outcome according to their current capacities ( amount of gold/iron ) or current positions ( distance of the enemies to the base/ remaining time ). Other than that, they also need to organize their facilities to combine for the best surviving outcome that will ensure to keep enemies away from the base.

## Strategies

The player has to develop his own strategies in order to win the game. Some of the key strategies are:

* **Gold management** [5]: The gold must be wisely spent by the player since it is crucial to selecting suitable constructions to invest in.
* **Construction/weapon locating** [5]: The player will be able to decide where to locate a construction/weapon when it is purchased.
* **Which weapon to choose** [5]: Some Certain types of weapons are more powerful against some certain types of enemy units. So, the player must decide which one is more beneficial for the game at particular times.

## Concept

Defender of the Galaxy is intended to be a space-themed tower defense game in which maps, building/tower entities and enemies will be designed based on that theme. The placeable defense towers, on a regular tower defense game, are going to be designed as space stations whereas enemies will be spaceships since they will constantly move around the map. Additionally, the in-game market will include purchasable powers that are also going to be implemented suitable for the space theme. For instance, a player can buy and use a meteor attack on the enemy once for each level.

## Maps and Levels

Different map designs will be included in the game in order to change the way that the enemy is going to attack and force the player to come up with new strategies. In each of these different maps, the player has to survive a certain amount of enemy waves(levels), which will gradually get more difficult to prevent the enemy from reaching the base tower over time, in the light of passing to the next map. Since the map designs will change as the player progresses through the game, the places in which the defense towers can be put will constantly change and will require more complex strategies to pass further levels.

## Intended Audience

Defender of the Galaxy is going to contain mild violence, as it includes gun-shooting to a limited extent, and content with scenes or sounds that can possibly be frightening to younger children. Thus, the intended audience of this game is going to be everyone who is more than 7 years old, which means that it will be rated as PEGI(Pan European Game Information) 7.

## Comparison with Existing Tower Defense Games

Our game is a tower defense game so it has similarities with other tower defense games. The main goal of the game is defending your base just like other tower defense games and the main aspects are similar. The player is supposed to defend the base against enemies. However our game has new features such as a new currency system called irons. Enemies will sometimes drop irons and the player will be able to pick them. However the player will have workers who pick the irons. By upgrading the workers the player will be able to access iron easily. The player can use iron to upgrade towers, power ups and things like that. We will also add special powers which have special functions like freezing enemies in a certain zone..

# **Summary & Conclusions**

Defender of the Galaxy is a strategy based single player game which allows the player to build his/her own tactics and apply them during the game by locating different weapons in several places, investing their gold in various constructions and fending off the enemy waves each round. It will include many of the basic properties of the classical tower defense games genre , but several enrichments will also be included such as alternative currency types, purchasable special abilities, and weapon upgrade systems.

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