

# Department of Computer Science and Engineering, University of Dhaka.



## Project Report

### Fundamentals of Programming Lab

Project Name: Townsville

Course Code - ( CSE-1211 )

Team Name: B09

Md. Emon Khan-30

Mahmudul Hasan-60

Submitted to:

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## **Introduction:**

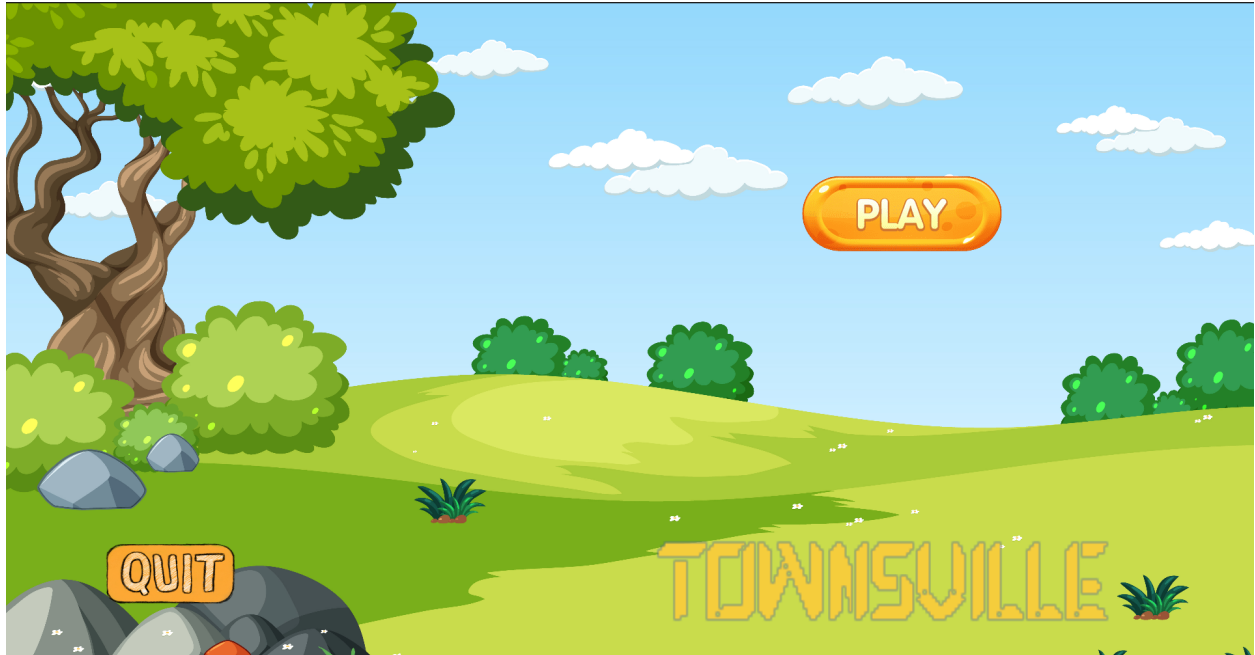
This game is about running a town facing loads of problems. The player has to maintain the town's economy while evading robbers and bandit attacks. He/She has to keep an eye on the town resource levels. If they are not enough to keep the town balanced, it'll collapse.

## **Objective:**

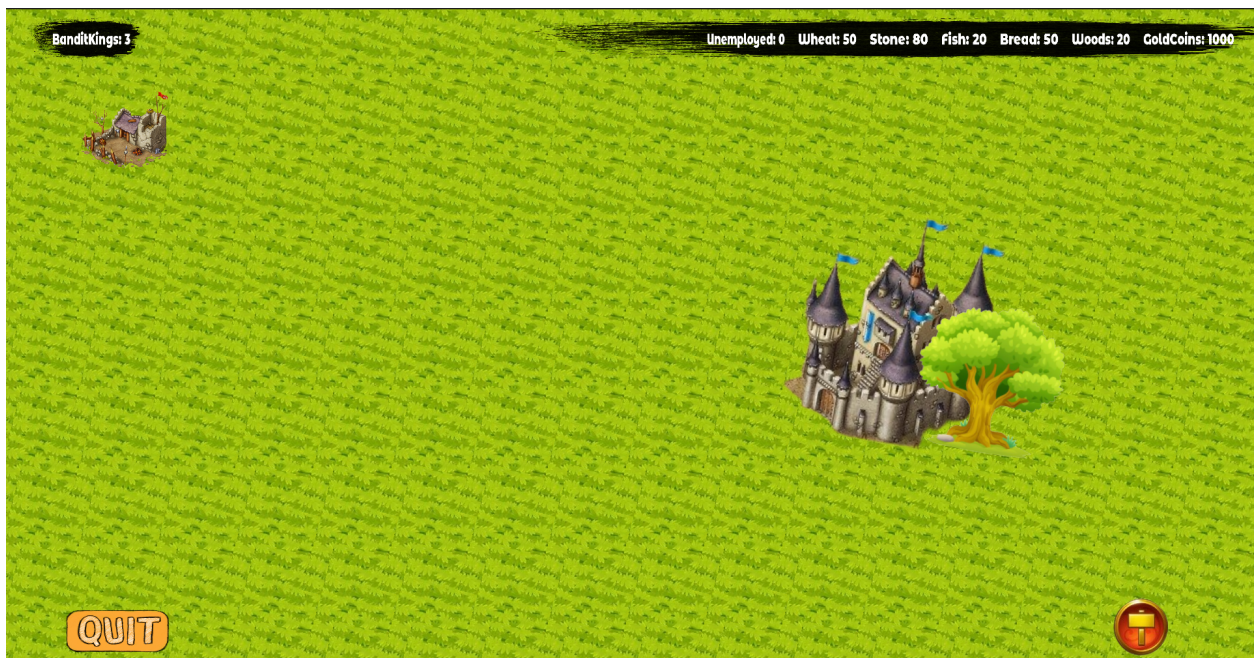
Taking the town to a level where it's absolutely stable, and can sustain deadly bandit attacks.

## **Project features:**

The game starts with a main menu as shown below. The player can enter the game by clicking the 'PLAY' button, or quit the game by clicking the 'QUIT' button.



Inside the game, there will already be some resources given, and a castle and a tree will be shown. There will also be a small bandit camp. The 'QUIT' button will take the player back to the main menu.



The hammerlike build option pops up a build menu where the player will find the buildings. Each building has different functionalities.



There's a notification shade, where different notifications will be shown.



Bandits will attack production buildings. There can be a maximum of five bandits on the attack. It'll depend on the total resource of the game at that time.



The user has to have made some guard towers each of which has two guards who repel the bandits in their range.





## Project Module:

Our code is divided into many header files and their respective cpp files. Different objects and functionalities are defined in each header file.

### Files:

**main.cpp:** This file handles the game states and the main features of the game, such as, dimensions, resources, loading media etc.

**Media and Render files:** We defined different functionalities for loading textures, audio, and fonts in the files, texture.h, music.h and their respective cpp files, texture.cpp, music.cpp. The gFunctions.cpp loads the whole game window and other media.

**mainmenu.cpp:** This file handles the main menu, from where the user starts the game.

**math.cpp:** We added this file to calculate some of the main calculations needed in the game.

**game.cpp:** This file is where the in-game functionalities are defined in a systematic way. This file uses all the other objects defined in other files.

**The other files:** We included different files such as build.cpp, buildmenu.cpp, notificate.cpp etc for in-game UI, and files such as buildings.cpp, worksmen.cpp, bandit.cpp etc for different objects or characters used in the game.

## Team member responsibilities:

Md. Emon Khan - 30

- Game UI:
  1. Main Menu
  2. Music
  3. Top Resource bar
- Gameplay
  1. Occupied space
  2. Math and calculations

Mahmudul Hasan - 60

- Game UI:
  4. Build Menu
  5. Font
  6. Notification Shade
- Gameplay
  3. Movement and encounter
  4. Resource Dependency

## Limitations:

Scoring is not relevant to this game. So could have used file system to save the whole game data for future uses but this would required advanced data management system which we are not capable of using so we omitted the file system part.

## Conclusions:

Our expectations were not much as we have not prior experience in this area. But we tried to make a pretty complex game with too many features.

Implementing some of the functionalities were really challenging which gave us satisfaction to an extent.

## Future Plan:

The game will be extended to a level where there are more production buildings. It will have an ending part, where the player has to defeat three bandit kings to finally exterminate bandit attacks. We'll add more dynamics to the graphics: actual working people. We'll also add the important saved game option.

## References:

### Music

- [https://townsmen.fandom.com/wiki/Townsmen\\_Wiki](https://townsmen.fandom.com/wiki/Townsmen_Wiki)
- <https://www.google.com/imghp?hl=EN>

### Music and Sound:

- <https://pixabay.com/sound-effects>
- <https://www.youtube.com/>

### Fonts:

- <https://www.dafont.com/>