

Yap Kian San 18001106 Computer Engineering

Yap Kian Shui 18001084 Computer Engineering

OOP Project

Tower Defense Project

Reference:

1. lab tutorial project 'karatheladybug'.
(<https://github.com/arwankhoiruddin/karatheladybug>)
2. Java AWT Tutorial.
(<https://www.youtube.com/watch?v=VuGJ0470mmg&list=PLXpDKtDlsapicH6agKynUCCRBqkbtGG7s>)
3. Java Game Development.
(<https://www.youtube.com/watch?v=hBhAWTSu104&list=PLA331A6709F40B79D>)
4. tower defense tutorial. (<https://www.youtube.com/watch?v=Euiqdd09n68>)
5. for monster finding path (<https://github.com/arwankhoiruddin/brick-path>)
6. 2D Tower Defense Tutorial. (<https://www.youtube.com/watch?v=uwp-xW0kylc>)

What's new in our project:

Added changes

1. The game can count the correct kill amount of monster.
2. The coin increase after killing monster is correct.
3. The monsters can walk correctly according to the layout.
4. The monsters are spawned according to winning condition.
5. Blood effect after killing monster.

How we make the 'Tower defense game'?

First, making the layout in Class Frame by Inheritance.

About the layout

```
class Frame
-The Frame is the container that contain title bar and can have menu bars.
-class Frame extends JFrame

class Screen
    -screen which draw stuff
        -setting graphics(background, images, etc...)
        -draw room,store
    -class Screen extends JPanel
```

- The Panel is the container that doesn't contain title bar and menu bars.
- spawn monster
- shooting
- change level

```
class Room
    -load up all different level we create
    -we grid which made up of rectangle boxes (8 column x 12 rows)
    -road for monsters to walk and the map
```

```
class Block
    -class Block extends Rectangle
    -shooting
```

```
class Value
    -all the values we used for our drawing
```

```
class Store
    -shop for tower
    -draw player health and coin
```

```
class KeyHandel
    -gives us the mouse position
    -class KeyHandel implements MouseMotionListener, MouseListener
```

File Save -mission layout

```
class Save
    -load mission layout file
```

After the layout is done.

Then, we make the class of monsters.

```
class Mob
    -class Mob extends Rectangle
    -spawn monster
    -monster moves
    -walk according to layout
    -monster health
    -health deduction
    -check if monster died
    -delete monster
    -get Coin
```

And Shooting

```
Shoting
    -build tower with mouse
        -tower price
        -shooting range(rectangle)
    -deduct monster's health
    -gain money when kill
```

Proceed to next level

```
check killed monsters with winning condition
    -proceed to next level
    -WIN
```

The Game play screenshots are as follows:



