

Tower Defense Game

SOEN 6441 – Build 1

Team 8

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Agenda

- Architecture
- Demonstration
- Members' division of labor

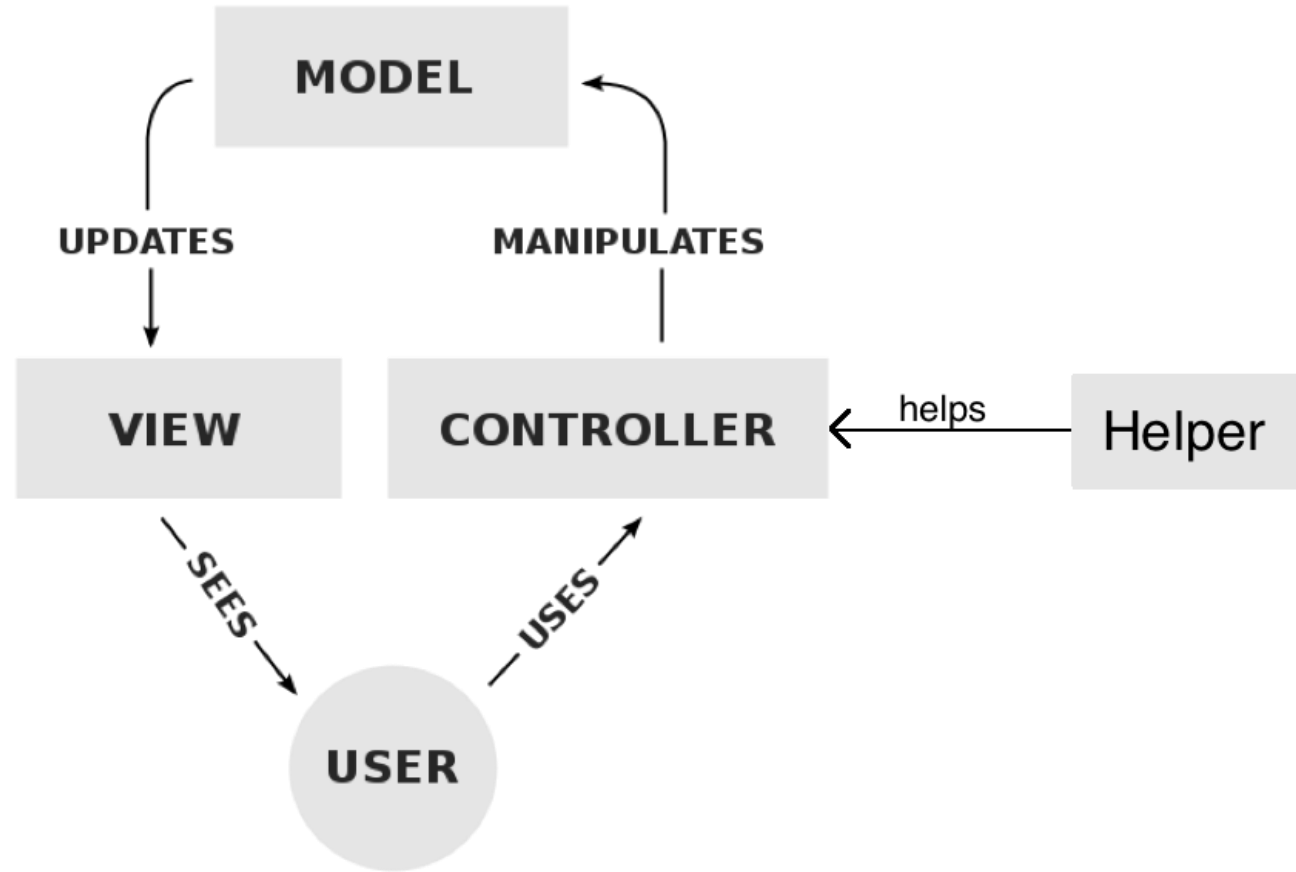
Architecture

The architectural set-up that the game implements is the Model-View-Controller structure.

In our case, we have one Model-View-Controller for the map editor, and one for the game.

We add a “Helper” component to the controller, so it is better represented by the phrase Model-View-Controller-Helper.

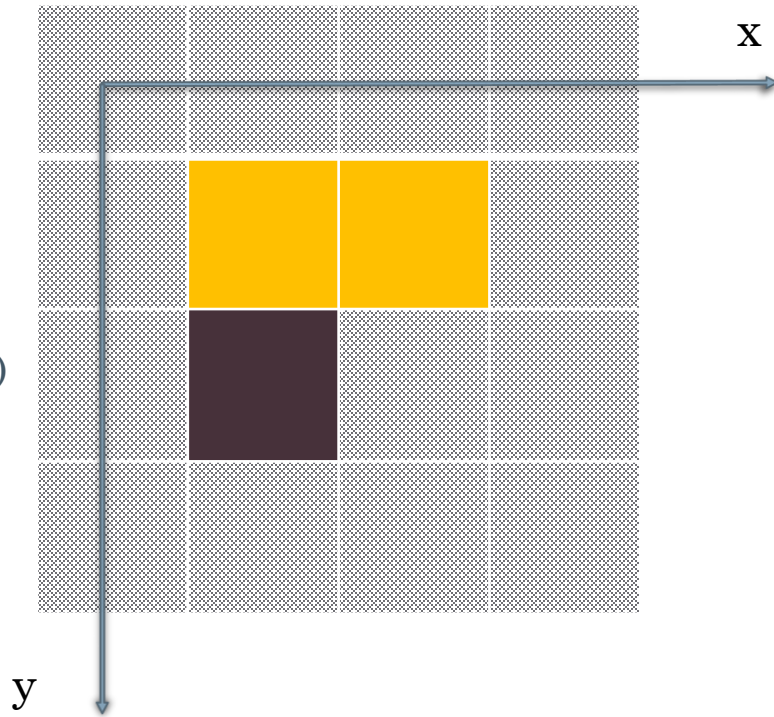
Architecture



Model Layer

Core Classes for Entities and Logic

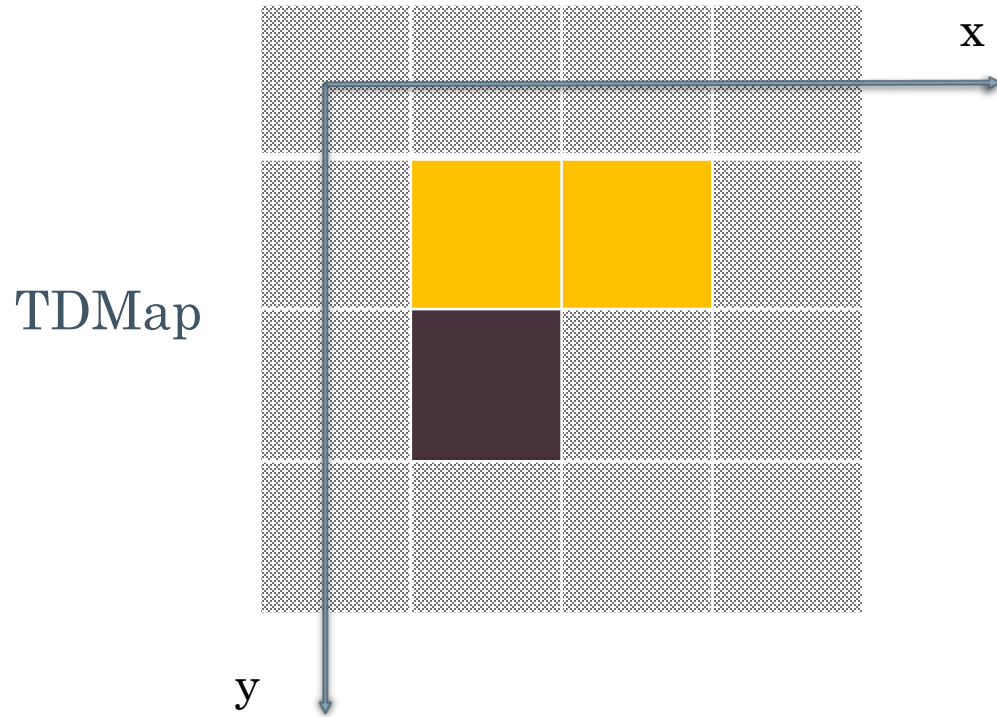
TDMap:
initializeGrid()



- MapTile: Tile value of each tile
 - PATH
 - TOWER
- Point:
 - x: int
 - y: int

Model Layer

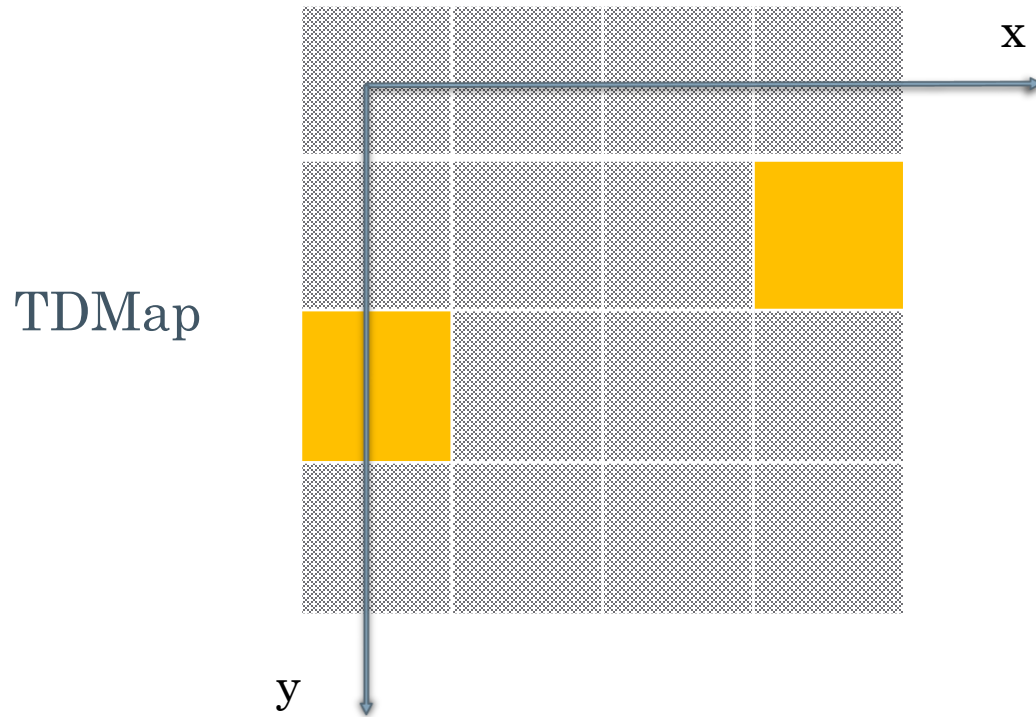
Core Classes for Entities and Logic



- Position: Point(x, y)
- Tile value : MapTile
 - set
 - get

Model Layer

Saving & Loading a Map



startPoint: Point

endPoint: Point

verifyMap():

- Judge that whether the map has the start and end point.
- Applying a BREADTH-FIRST search algorithm from the starting cell and then checking if the ending cell has been explored or not.

validateMap():

validators:

- MapEditorController(when saving)
- TDMap(when loading)

View Layer

Parallel from Swing

- **Customer View:** GameApplicationFrame, GameConctrolPanel, MapEditorApplicationFrame, MapControlPanel, MenuApplicationFrame
- **Parallel:** BoxLayout, View, Label, Button, TextField
- **Swing:** JFrame, JPanel, JLabel, JButton, JTextField

View Layer

Core Classes for Displaying

- xxxApplicationFrame:

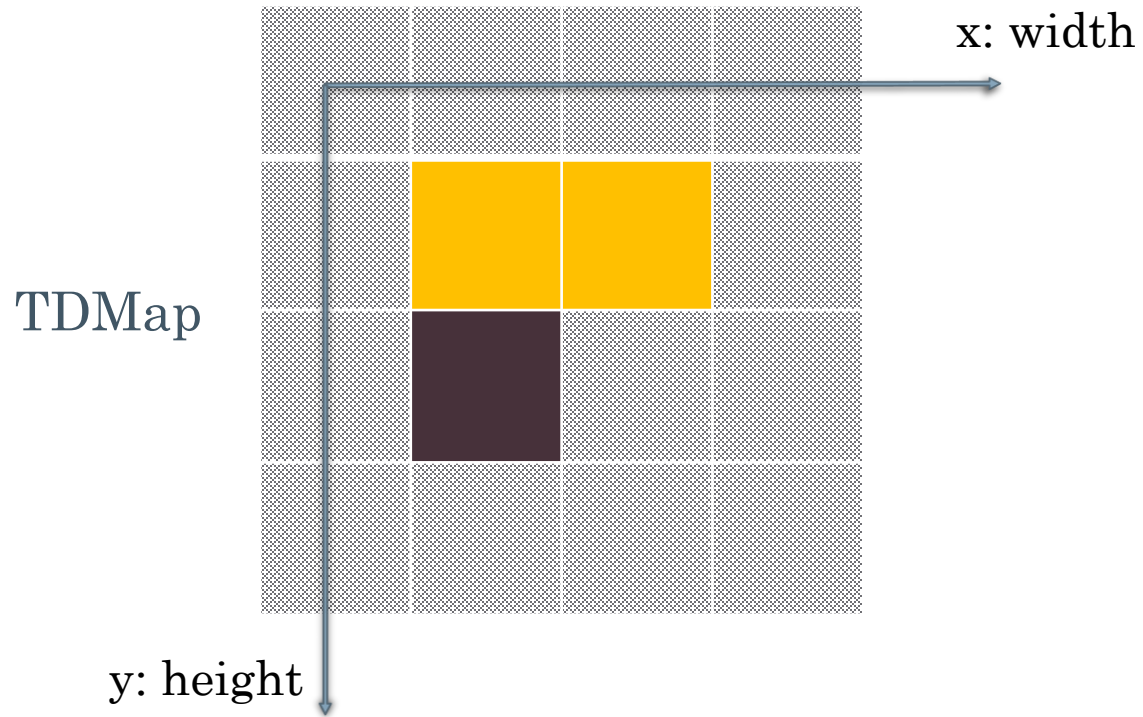
init() : set the Frame properties, get the control and map or game panels

- xxxControlPanel:

role as a controller assemble views

View Layer

Core Classes for Displaying a Map



`gridTile[][]:`

- gridWidth: double

- gridHeight: double

`toggleGrid():` toggle the grid to different type

- PATH

- TOWER

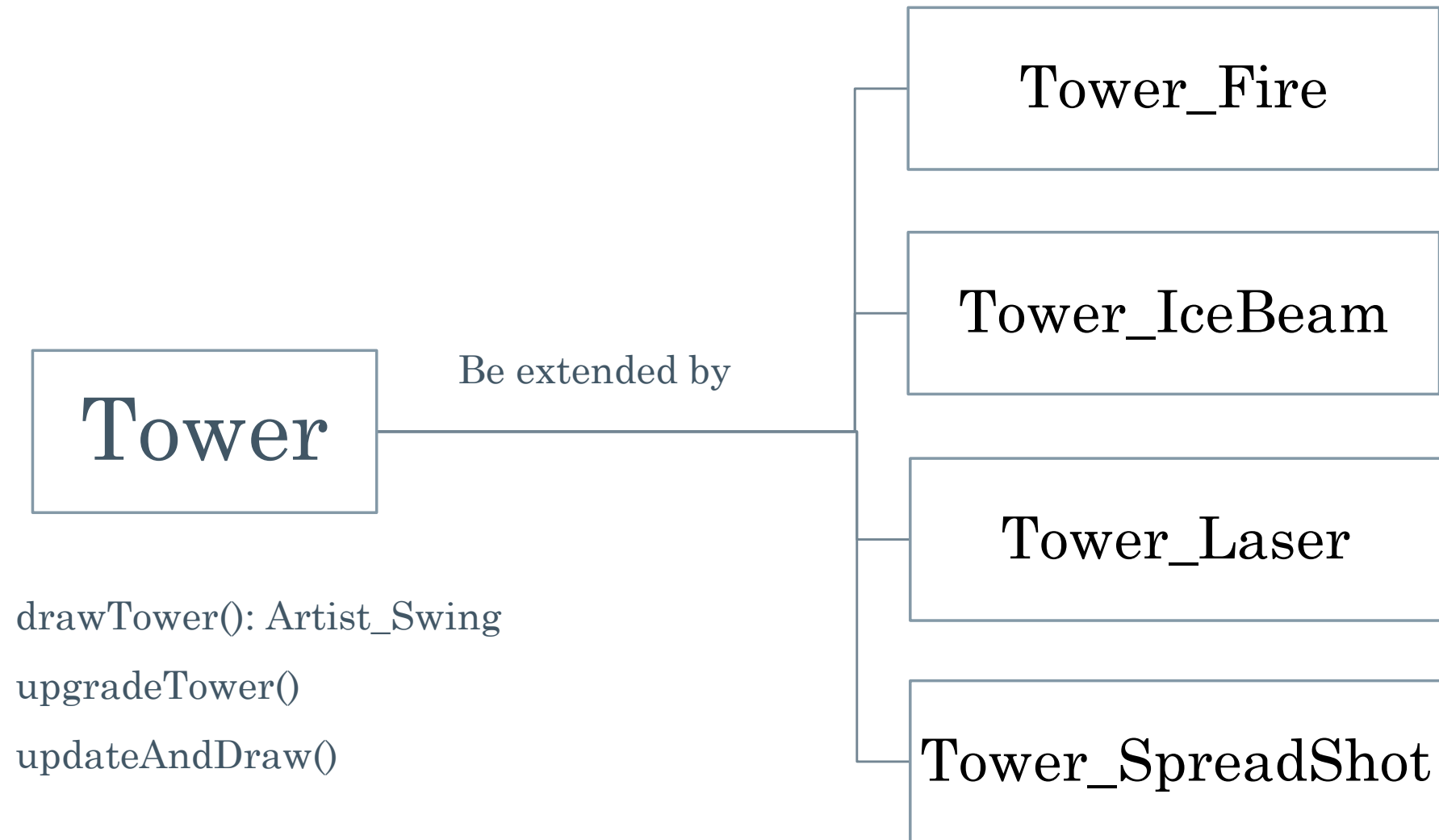
- SCENERY

`Artist_Swing:` Helpers

- draw map (PATH and SCENERY)

- draw Tower

Other Tower management



Demonstration

Required:

- GitHub
- Documentation
- Test Cases / Suites
- Code Standard

Members' division of labor

Meng Yao

Architecture Design

Controller

Hao Zhang

Models

Xingjian Zhang

Views

Zhoujian Lan

Helpers