Settle And Destroy (SAD)

Group 13
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5.5. Detailed Design

5.5.1. Class Village

Fields:

Attribute: team
Type: Team
Usage: Assigns a village name

Attribute: homeArmy
Type: Army
Usage: The stationary army where new built troops are gathered

Methods:

increaseMoney()

Method Name: increaseMoney
Parameters: -
Return Value: -
Description: The method increases the player money production
Data structures: -
Pre-conditions: -
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: The player money amount is increased
Called by: MainWindow.createThread()
Calls: Team.addMoney()

5.5.2. Interface Building

Fields:

Methods:

getVillage()

Method Name: getVillage()
Parameters: -
Return Value: Village
Description: The method returns the village a building belongs to
Data structures: -
Pre-conditions: -
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: The village is returned
Called by: TotalCostPanel.buildItemNumberChanged()
Calls: Team.addMoney()

String getName()

Method Name: getName()
Parameters: -
Return Value: String name
Description: The method returns the building name
Data structures: -
Pre-conditions: -
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: The name of the building is returned
Called by: UpgradeBuildingPanel.buttonUpgradeActionPerformed(), BuildingPanel.update(), BuildingButton()
Calls:

int getLevel()

Method Name: getLevel()
Parameters: -
Return Value: int
Description: The method returns the building level
Data structures: -
Pre-conditions: -
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: The level of the building is returned
Called by: UpgradeBuildingPanel.updateButton(),UpgradeBuildingPanel.buttonUpgradeActionPerformed(),BuildingPanel.update()
Calls: -

isUpgradable()

Method Name: isUpgradable()
Parameters: -
Return Value: boolean
Description: The method checks if the building is upgradable

Data structures: -
Pre-conditions: -
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: A true or false is returned
Called by: BuildingPanel.update()
Calls: -

getUpgradeCost()

Method Name: getUpgradeCost()
Parameters: -
Return Value: int
Description: The method checks the upgrade cost of the building
Data structures: -
Pre-conditions: -
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: The cost of upgrade is returned
Called by: UpgradeBuildingPanel.updateButton()
Calls: -

getUpgradeTime()

Method Name: getUpgradeTime()
Parameters: -
Return Value: int
Description: The method checks the upgrade time of the building
Data structures: -
Pre-conditions: -
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: The time of upgrade is returned
Called by: UpgradeBuildingPanel.buttonUpgradeActionPerformed()
Calls: -

getBuildableItems()

Method Name: getBuildableItems()
Parameters: -
Return Value: BuildableItem[]
Description: The returns all buildable buildings for a specified village
Data structures: -
Pre-conditions: -
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: The buildable buildings are returned
Called by: BuildingPanel.update()
Calls: -

5.5.3. Class Team

Fields

Attribute: name
Type: String

Usage: Every team has a unique name to separate them from each other.

Attribute: money
Type: int
Usage: This is used to keep track of a teams money they can spend.

Attribute: color
Type: Color
Usage: Every team has a unique team color to separate them from other teams.

Attribute moneyListeners
Type: List<MoneyListener> - List of moneyListeners

Methods:

Method: addMoney(int money)
Parameters: money – how much you should add to the team money.
Return Value: -
Description: This method is used to add money to the team. The amount of money added is told by the parameter.
Data structures: -
Pre-condition: A team has gain money in some way and need to add it to there team money.
Validity Checks, Errors, and other Anomalous Situations: -
Post-condition: The teams money has change.
Called by: Village.increadeMoney()
Calls: -

5.5.4. Class Army

Field:

Attribute: unitA
Type: int
Usage: Is used to know how many troops of the type unitA this army consist of.

Attribute: unitB
Type: int
Usage: Is used to know how many troops of the type unitB this army consist of.

Attribute: unitC
Type: int
Usage: Is used to know how many troops of the type unitB this army consist of.

Attribute: speed
Type: float
Usage: Is used to know the speed of the army, the speed is equal to the slowest troop in the army.

Method:

Method: getSpeed()
Parameters: -.

Return Value: int speedValue
Description: This method is used to get the speed of the army
Data structures: -
Pre-condition: The army consists of at least 1 unit of any kind.
Validity Checks, Errors, and other Anomalous Situations: -
Post-condition: The team has the speed of the slowest unit in the army.
Called by: Pathfinder.findPath()
Calls: -

Method: setSpeed(int unitA, int unitB, int unitC)
Parameters: unitA – how many troops of the unitA
unitB – how many troops of the unitB
unitC – how many troops of the unitC
Return Value: -
Description: This method is used to set the speed of the army.
Pre-condition: The speed of the army is set to the slowest unit in this army.
Called by: Building.trainTroops(), Map.formMergeArmy
Calls: Army.addArmy(int unitA, int unitB, int UnitC)

5.5.5. Interface BuildableItem

Methods:

getRequiredLevel()

Method Name: getRequiredLevel
Parameters: -
Return Value: int - The minimum level of a building required to build this item
Description: Returns the required minimum level
Data structures: -
Pre-conditions: -
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: The required level is returned
Called by: BuildingPanel.update
Calls: -

getName()

Method Name: getName
Parameters: -
Return Value: String - The name of the item
Description: Returns the name of the item
Data structures: -
Pre-conditions: -
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: The name is returned
Called by: BuildingPanel.update, BuildItemPanel constructor
Calls: -

getCost()

Method Name: getCost
Parameters: -
Return Value: int - The cost to build this item
Description: Returns the cost
Data structures: -
Pre-conditions: -
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: The cost is returned
Called by: TotalCostPanel.getTotalCost, BuildItemPanel.updateCost
Calls: -

getBuildTime ()

Method Name: getBuildTime
Parameters: -
Return Value: int - The time it takes to build on of this item
Description: Returns the build time
Data structures: -
Pre-conditions: -
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: The cost build time is returned
Called by: -
Calls: -

5.5.6. Class Map

Fields

Attribute: grid
Type: Cell[][]
Usage: All map cells are stored in this cell-matrix.

Attribute: randomizer
Type: Random
Usage: Machine for producing random seeds for the map creation process. This is needed to make each game map unique.

Methods:

Method: generateRivers()
Parameters: -
Return Value: -
Description: Generates and randomizes amount of rivers that should exist on the map. Also randomizes how long each river should be.
Data structures: -
Pre-conditions: A game is launched and a map is needed.
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: A map with a cell matrix full of different cells is created.
Called by: Game.generateMap()
Calls: createRiver(int n)

Method: createRiver(int riverSize)
Parameters: riverSize – specifies how many cells this river should be
Return Value: -
Description: Randomizes rivers positioning and generates the related cells in the cell matrix.
Data structures: -
Pre-conditions: Rivers are being created.
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: A river is created.
Called by: generateRivers()
Calls: -

Method: generateRocks()
Parameters: -
Return Value: -
Description: Generates and randomizes amount of rocks/mountains that should exist on the map. Also randomizes how big each rock should be.
Data structures: -
Pre-conditions: A game is launched and a map is needed. Rivers are created.
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: A map with a cell matrix full of different cells is created.
Called by: Game.generateMap()
Calls: createRock(int n)

Method: createRock(int rockSize)
Parameters: rockSize – specifies how many cells this rock should be
Return Value: -
Description: Randomizes rock positioning and generates the related cells in the cell matrix.
Data structures: -
Pre-conditions: Rocks are being created.
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: A rock is created.
Called by: generateRocks()
Calls: -

Method: generatePlains()
Parameters: -
Return Value: -
Description: Generates and creates plains cells in the empty cells of the cell-matrix.
Pre-conditions: A game is launched and a map is needed. Rivers and rocks are created.
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: A map with a cell matrix full of different cells is created.
Called by: Game.generateMap()
Calls: -

5.5.7. Class Combat Calculator

Methods:

Method: calculateCombat(Army armyB, Army armyC)
Parameters: armyB – An army
armyC – An army of another player
Return Value: Army winningArmy
Description: Calculates who is the combat's winning army, dependant on army factors, troops relations and some random factors.
Pre-conditions: Two different player's armies meet at the same map cell.
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: One army has been eliminated,
Called by: Cell.calculateCombat(Army armyB, Army armyC)
Calls: -

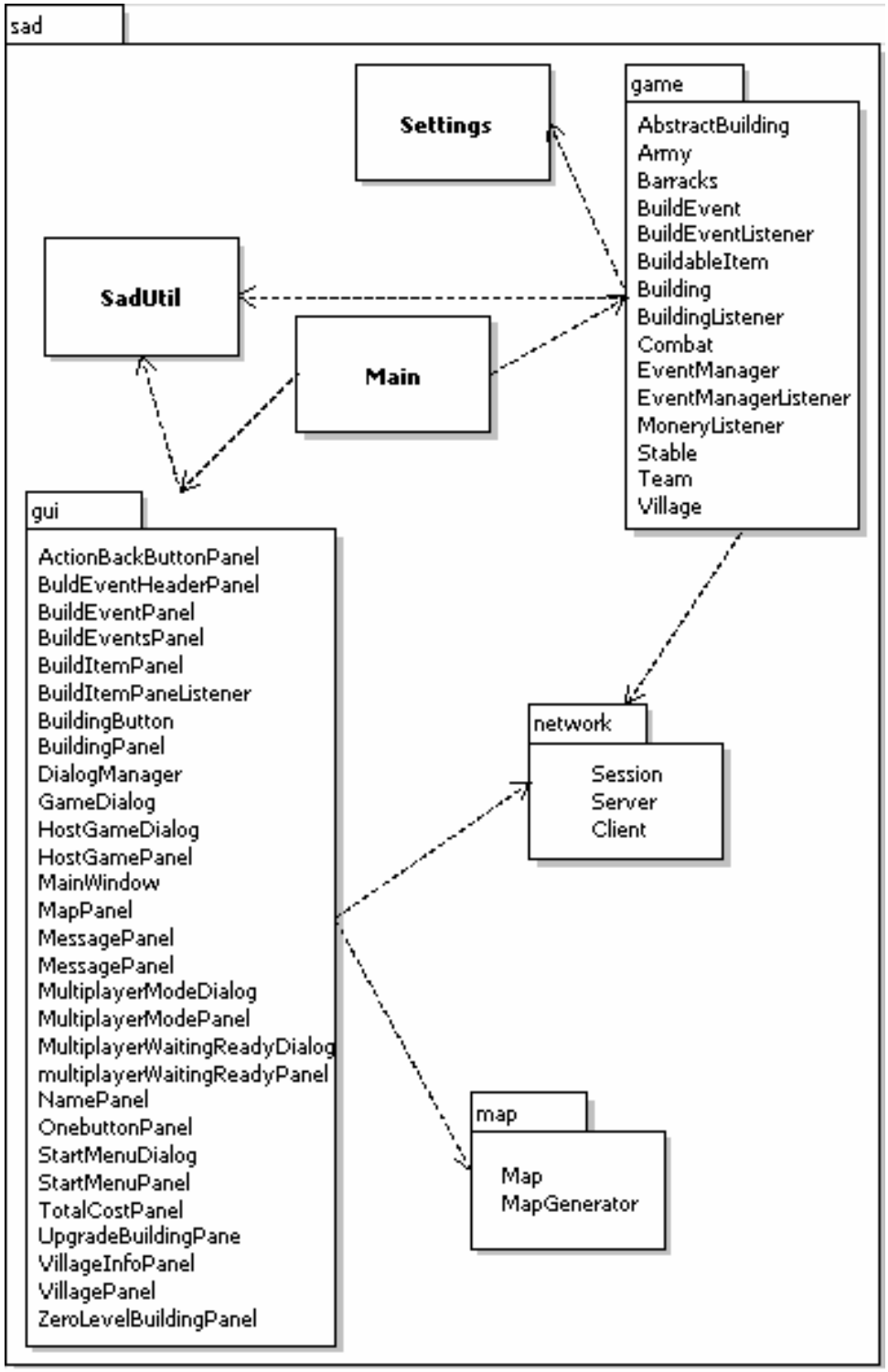
5.5.8. Interface Race

Methods:

String getName()

Method Name: getName()
Parameters: -
Return Value: The name of the race
Description: The method returns the name of the race
Data structures: -
Pre-conditions: -
Validity Checks, Errors, and other Anomalous Situations: -
Post-conditions: The name of the race is returned
Called by: BuildingPanel update
Calls: -

5.6. Package Diagram



Figur 1. Package Diagram