CRC Cards

The CRC cards were originally done on paper during the design process but have been transferred on to Google Docs for clarity.

User Interface

GUI

Coordinator, controller, interfacer

Responsible for rendering the map of the game Enables player to create move or destroy Buildings (interact with CampusMap)

Provides a place for OnScreenDisplay to be rendered on and for Popups to be displayed on

Sound

OnScreenDisplay

CampusMap

Popup

PauseMenu

Coordinator, controller

Uses Popup to display the pause screen Provides a welcome message at the start of the game

Provides options to adjust sound volume Communicates with Sound to adjust volume Pauses the game when it is active by communicating with GameTimer

Sound

GameTimer

Popup

Sound

Service provider, information holder

Knows the sound effects and game music Plays the relevant sound effect when prompted Plays the game music throughout the game Controls the volume of sounds and adjusts this when prompted

GHI

OnScreenDisplay

Popup

PauseScreen

OnScreenDisplay

Coordinator, controller, interfacer

Overlays the main game and provides options for the user to interact with

Knows and displays current budget, time and satisfaction value

Knows and displays the buildings that are available to buy as well as their prices

GameTimer

StudentSatisfaction

Budget

Building

PauseMenu

Sound

Popup

Service provider

Displays information on the screen when prompted Provides win/lose information at the end of the game

GUI

EventManager

Sound

ControlGuide

StudentSatisfaction

ControlGuide

Information holder, service provider, coordinator

Knows tutorial information
Displays tutorial information on screen
when prompted by using Popup

GUI

Popup

GameTimer

Game Logic

<u>Map</u>

CampusMap

Structurer, controller, interfacer, information holder

Knows the size of the game map
Knows what Buildings, MapObstacles and
PlacementRestrictionCells exist
Prevents collisions between different
PlacementRestrictionCells on the map
Permits the placement of new buildings

MapObstacle Building PlacementRestrictionCell StudentSatisfaction

MapObstacle

Information holder, structurer

Represents an immovable obstacle on the map (i.e., a road)

Knows its corresponding PlacementRestrictionCell

PlacementRestrictionCell CampusMap

Building

Information holder, structurer, service provider

Knows the type of building it represents (accommodation, education, catering or recreation) Knows its purchase cost and running costs Knows and calculates its satisfaction rating Knows its corresponding PlacementRestrictionCell

PlacementRestrictionCell CampusMap StudentSatisfaction Budget

PlacementRestrictionCell

Information holder

Knows the Building or MapObstacle it belongs to Represents a region of the map that a Building or MapObstacle takes up

Building MapObstacle CampusMap

Game metrics

StudentSatisfaction

Information holder, controller, coordinator

Knows the overall satisfaction level
Calculates the overall satisfaction level
Knows the satisfaction threshold for winning
Determines whether the player has won at the end of
the game
Changes when prompted by EventManager

Building EventManager OnScreenDisplay CampusMap Popup

Budget

Information holder, controller, coordinator

Knows and controls the budget of the player Responsible for determining whether the player can afford to purchase new buildings Changes when prompted by EventManager

Building EventManager OnScreenDisplay

Timer and event control

GameTimer

Controller, information holder

Knows and controls the in-game time Responsible for ending the game after five minutes Responsible for sending alerts to

Responsible for sending alerts to EventManager to trigger in-game Events Knows when the game is paused

OnScreenDisplay EventManager PauseScreen

EventManager

Coordinator, controller, interfacer

Receives alerts from GameTimer to trigger an Event Knows all possible Events Decides what Event should occur and enacts the effects of that Event

Popup GameTimer StudentSatisfaction Budget

Event

Information holder

Knows the description of an event Knows the effects of an event on Budget and

StudentSatisfaction EventManager