**CS230 A1 - CRC Cards - Group 20**

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| ***Cell (Abstract)*** | |
| **Responsibilities** | **Collaborations** |
| Lets player do an action. (Empty) Draws itself. (Empty) |  |

**Class Description:** *Cell* objects will make up the map for the Level object. It is abstract and has two empty responsibilities that will have to be filled by its subclasses to make sure Level’s map will function correctly. Assume all subclasses of *Cell* can draw themselves.

**Sub Classes**: Wall, Floor, Goal, *Hazard*, *Door*, Teleporter.

**Authors:** Nihal Goindi (976005), Mariya Ahmed (990306), Tim Roger (977422).

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| **Wall** | |
| **Responsibilities** | **Collaborations** |
| Stops player’s character from moving onto it.  Draws itself. |  |

**Class Description:** Wall is a type of cell that will stop the player from moving the character onto it if they try to.

**Super Class:** *Cell*.

**Authors:** Nihal Goindi (976005), Mariya Ahmed (990306), Tim Roger (977422).

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| **Floor** | |
| **Responsibilities** | **Collaborations** |
| Knows what collectable is on it, if there is one.  Has reference to Character.  Gives player’s character the collectable, if there is one.  Can check if there is a collectable present on it.  Draws itself. | *Collectable*  Character |

**Class Description:** Floor is a type of cell that can hold a collectable and will give it to the player’s character if they move onto it. If there is no collectable, nothing will be given.

**Super Class:** *Cell*.

**Authors:** Nihal Goindi (976005), Mariya Ahmed (990306), Tim Roger (977422).

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| **Goal** | |
| **Responsibilities** | **Collaborations** |
| Makes player win level.  Draws itself. |  |

**Class Description:** Goal is a type of cell which will make the player win if their character is moved onto it.

**Super Class:** *Cell*.

**Authors:** Nihal Goindi (976005), Mariya Ahmed (990306), Tim Roger (977422).

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| ***Hazard (Abstract)*** | |
| **Responsibilities** | **Collaborations** |
| Knows which collectable type they require. (Empty)  Will kill the player’s character if they do not have the needed collectable.(Empty)  Draws itself. (Empty) | Character  *Collectable* |

**Class Description:** Hazard is an abstract subclass of cell which will have its own subclasses implementing different hazards on the level map. The different hazards’ required collectables will be decided inside their own properties.

**Super Class:** *Cell*.

**Sub Classes**: Acid, Wires.

**Authors:** Nihal Goindi (976005), Mariya Ahmed (990306), Tim Roger (977422).

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| **Acid** | |
| **Responsibilities** | **Collaborations** |
| Kills player’s character if they don’t have the Hazmat Suit.  Draws itself. | Character  HazmatSuit |

**Class Description:** Acid is a type of cell that will kill the player’s character if they do not possess Hazmat Suit as a collectable when they move onto it.

**Super Class:** *Hazard*.

**Authors:** Nihal Goindi (976005), Mariya Ahmed (990306), Tim Roger (977422).

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| **Wires** | |
| **Responsibilities** | **Collaborations** |
| Kills player’s character if they don’t have Rubber Boots.  Draws itself. | Character  RubberBoots |

**Class Description:** Wires is a type of cell that will kill the player’s character if they do not possess Rubber Boots as a collectable when they move onto it.

**Super Class:** *Hazard*.

**Authors:** Nihal Goindi (976005), Mariya Ahmed (990306), Tim Roger (977422).

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| ***Door (Abstract)*** | |
| **Responsibilities** | **Collaborations** |
| Knows if open or not.  Opens if possible. (Empty)  Draws itself. (Empty) |  |

**Class Description:** Door is an abstract type of cell that is either open or closed. It has two empty responsibilities about opening if possible and drawing itself. This is to make sure any subclass does this so that everything functions correctly when a player moves onto it.

**Super Class:** *Cell*.

**Sub Classes**: Coloured Door, Powered Door.

**Authors:** Nihal Goindi (976005), Mariya Ahmed (990306), Tim Roger (977422).

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| **Coloured Door** | |
| **Responsibilities** | **Collaborations** |
| Knows its matching Key Card.  Opens if player’s character has its matching Key Card.  Draws itself. | KeyCard  Character |

**Class Description:** Coloured door is a type of door which is part of a matching Key Card and door pair. It will open if the player’s character has the correct Key Card in its possession and moves onto it.

**Super Class:** *Door*.

**Authors:** Nihal Goindi (976005), Mariya Ahmed (990306), Tim Roger (977422).

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| **Powered Door** | |
| **Responsibilities** | **Collaborations** |
| Knows how much Energy is needed to open.  Opens if player’s character has enough Energy.  Draws itself. | Character |

**Class Description:** Powered Door is a type of *Door* that will only open if the player’s character has the necessary Energy collected to do so and moves on to it.

**Super Class:** *Door*.

**Authors:** Nihal Goindi (976005), Mariya Ahmed (990306), Tim Roger (977422).

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| **Teleporter** | |
| **Responsibilities** | **Collaborations** |
| Knows its Teleporter counterpart.  Knows its own coordinates.  Has reference to Character.  Teleports player’s character to correct coordinates.  Draws itself. | Teleporter  Character |

**Class Description:** Teleporter is a type of cell that is part of a pair of teleporters. It will use its pair’s coordinates to move the player’s character to the correct cell near its pair when the character is moved onto it.

**Super Class:** *Cell*.

**Authors:** Nihal Goindi (976005), Mariya Ahmed (990306), Tim Roger (977422).

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| **Level** | |
| **Responsibilities** | **Collaborations** |
| Knows the player’s Character.  Knows the map of *Cell* objects.  Knows *Enemy* objects present on level.  Knows the time at which the level begun.  Knows total time spent before last load.  Runs game turns from its current point until the player’s character dies or wins or when the player decides to quit or save and quit.  Sends necessary information to the Leaderboard class to update it if a player wins.  Runs a full turn based on character’s movement.  Remakes itself when character dies or wins.  Creates a list of all the information needed to put itself into a save file.  Draws the UI for the player including everything to do with what's around the character and what collectables they have. | Character  *Cell*  *Enemy*  Leaderboard |

**Class Description:** Level objects hold all the information necessary to run a whole level of the game. The player’s character, the map of cells, and the enemies present. It will run turns until the player’s character wins or dies and will draw the environment around the character after each turn is run.

**Authors:** Nihal Goindi (976005), Mariya Ahmed (990306), Tim Roger (977422).

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| **Character** | |
| **Responsibilities** | **Collaborations** |
| Knows its coordinates.  Knows its collected collectables.  Counts up amount of Energy owned. | *Collectable*  Energy |

**Class Description:** Character objects hold the information for a character. Its coordinates and its collectables. It can also count up the amount of Energy it owns to find out if it can move open a Powered Door.

**Authors:** Nihal Goindi (976005), Mariya Ahmed (990306), Tim Roger (977422).

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| ***Collectable(Abstract)*** |  |
| **Responsibilities** | **Collaborations** |
| Player must collect them.  Draws itself (Empty) | Player  Floor |

**Class Description:** Creates objects which will be collected by a player if the player steps on them. Those collectable objects will be lying on the floor.

**Sub Classes:** Energy, KeyCard, HazmatSuit, RubberBoots

**Authors:** Szymon Grzech (988065) & Jumaira Miller (983101)

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| **Energy** |  |
| **Responsibilities** | **Collaborations** |
| Player must collect a certain amount of them in order to pass through a Powered Door cell.  Draws itself. | Player  Floor  Door |

**Class Description:** A type of collectable which will be collected by the player.

**Super Class:** Collectable

**Authors:** Szymon Grzech (988065) & Jumaira Miller (983101)

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| **KeyCard** |  |
| **Responsibilities** | **Collaborations** |
| Can be collected by the player.  Player must have a corresponding colour of the key to the colour of the door in order to walk through it.  Draws itself. | Player  Floor  Door |

**Class Description:** Keys will come in different colours and each colour opens a different door. Player must collect those keys to open doors.

**Super Class:** Collectable

**Authors:** Szymon Grzech (988065) & Jumaira Miller (983101)

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| **HazmatSuit** |  |
| **Responsibilities** | **Collaborations** |
| If collected by the player, the player can now walk over an obstacle  (water / acid) .  Draws itself. | Player  Floor |

**Class Description:** A collectable that will allow the player to walk over a certain obstacle if the player collected it.

**Super Class:** Collectable

**Authors:** Szymon Grzech (988065) & Jumaira Miller (983101)

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| **RubberBoots** |  |
| **Responsibilities** | **Collaborations** |
| If collected by the player, the player can now walk over fire.  Draws itself. | Player  Floor |

**Class Description:** A collectable that will allow the player to walk over a certain obstacle if the player collected it.

**Super Class:** Collectable

**Authors:** Szymon Grzech (988065) & Jumaira Miller (983101)

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| ***Enemy(Abstract)*** |  |
| **Responsibilities** | **Collaborations** |
| A moving enemy that moves whenever the player does, if the enemy touches the player then the player dies.  The enemy will receive all the possible movements by giving it the map of the floor.  Draws itself (Empty) | Floor |

**Class Description:** A moving obstacle that will end the game if it touches the player. Enemy will not be able to pass through any of the obstacles or collectables. Player can move onto enemy; the enemy will kill the player when this happens.

**Sub Classes:** StraightLineEnemy, WallFollowingEnemy

**Authors:** Szymon Grzech (988065) & Jumaira Miller (983101)

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| **StraightLineEnemy** |  |
| **Responsibilities** | **Collaborations** |
| A type of enemy that will only move in a straight line and bounces of the wall if it touches it.  This enemy will take in a string “Horizontal” or “Vertical” to show whether the enemy will move up/down or left/right.  Draws itself. | Cell |

**Class Description:** This enemy will move only in straight line, bouncing back if it hits the wall and killing the player if it touches the player.

**Super Class:** Enemy

**Authors:** Szymon Grzech (988065) & Jumaira Miller (983101)

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| **WallFollowingEnemy** |  |
| **Responsibilities** | **Collaborations** |
| A type of enemy that will follow the wall around the map to its left or right, and bounce back if it hit a dead end.  Draws itself. | Cell |

**Class Description:** This enemy will follow the wall, moving around the map, bouncing back if it hits a dead end and killing the player if it touches the player.

**Super Class:** Enemy

**Authors:** Szymon Grzech (988065) & Jumaira Miller (983101)

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| ***TargetingEnemy(Abstract)*** | |
| **Responsibilities** | **Collaborations** |
| Creates a type of enemy that will take in the character as a parameter to determine their location and then attempt to follow it. | Character  Cell |

**Class Description:** A superclass for the targeting enemies which will determine the players location and the enemy will decide which way to move to get to the character.

**Sub Classes:** DumbTargetingEnemy, SmartTargetingEnemy.

**Authors:** Szymon Grzech (988065) & Jumaira Miller (983101)

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| **DumbTargetingEnemy** |  |
| **Responsibilities** | **Collaborations** |
| A type of enemy that will try to follow the player, but as simply as possible. So, if this enemy hit the wall which the payer is behind, then the enemy will keep on bumping into that wall trying to go through it.  A reference to the character will be passed onto the enemy so the enemy knows where to go.  Draws itself. | Cell  Character |

**Class Description:** This enemy will try to follow the player but will not do a good job at it. If it touches the player, then player dies. If the player is behind a wall, the enemy tries to get to the player by bumping into the wall constantly.

**Super Class:** TargetingEnemy

**Authors:** Szymon Grzech (988065) & Jumaira Miller (983101)

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| **SmartTargetingEnemy** |  |
| **Responsibilities** | **Collaborations** |
| A type of enemy that will follow the player well and find a way around the walls if the player is behind the wall.  A reference to the character will be passed onto the enemy so the enemy knows where to go.  Draws itself. | Cell  Character |

**Class Description:** This type of enemy will be smart and will walk around the walls following the player. This enemy will not be able to pass through obstacles. If it touches the player, then the player will die.

**Super Class:** TargetingEnemy

**Authors:** Szymon Grzech (988065) & Jumaira Miller (983101)

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| **File Reader** |  |
| **Responsibilities** | **Collaborations** |
| Read Line  Get Cell  Get enemy(ies)  Get collectables | Level |

##### **Class Description:** The file reader will set up the levels to be played. **Authors:** Kelsey Pyne (976805), Joseff Pugh (975656)

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| **Menu** |  |
| **Responsibilities** | **Collaborations** |
| Load the game  Save the game  Message of the day | Level  API for message of the day  User Profile  Leaderboard |

**Class Description:** Menu is a class that loads and saves the game for players to either resume or start a new game.It is also where we intend the message of the day to appear  
**Authors:** Kelsey Pyne (976805), Joseff Pugh (975656)

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| **User Profile** |  |
| **Responsibilities** | **Collaborations** |
| Store Username and Highest level achieved  Select profile  Create profile | Leaderboard |

**Class Description:** User profile will store users information such as their usernames and highest level they have achieved. By storing the information, players would be able to select their existing profile.   
**Authors:** Kelsey Pyne (976805), Joseff Pugh (975656)

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| **Leaderboard** | |
| **Responsibilities** | **Collaborations** |
| Completion time  Display and update leaderboard  To display users information | User Profile |

**Class Description:** Leaderboard will display the users completion time and continue to update as the game goes on.  
**Authors:** Kelsey Pyne (976805), Joseff Pugh (975656)