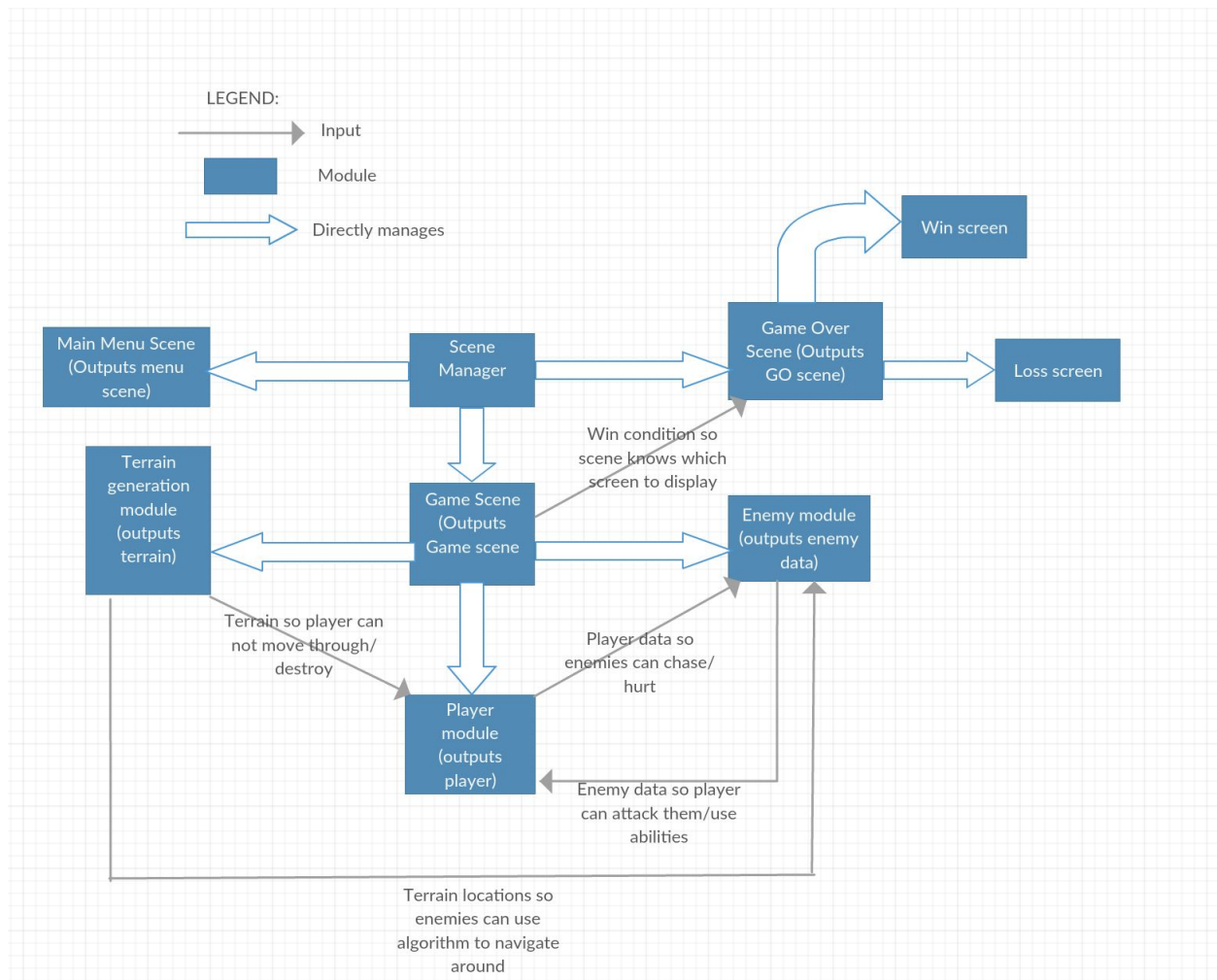# CS408: Incremental and Regression Testing

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1.1

1.2
We choose to use the bottom-up testing method because each team member developed some specific functions related to the game. Test conditions are easier to create for each of us since we are testing a unit that we are responsible for. In addition, test results are easier to observe in this way.

2. Incremental and Regression Testing

Module	Main Menu Scene

Incremental Testing

Defect No.	Description	Severity	How To Correct
1	Application should not crash when clicking on play.	1	Create the menu screen separately from the game screen.
2	After lose game screen returns to menu the play button would crash the game.	1	Reset all of the variables so the game will reset itself properly

Regression Testing

Defect No.	Description	Severity	How To Correct
1	Fixing application crash caused game to display to not be functional.	1	Rearrange files and how scenes get called
2	Resetting the variables would sometimes cause the enemies to not properly move.	2	Changed how the variables would be reset.

Module	Scene Manager

Incremental Testing

Defect No.	Description	Severity	How To Correct
1	When initially moving code from one file into separate files for scene managing game wouldn't correctly load.	1	Changed how files were imported.

Regression Testing

Defect No.	Description	Severity	How To Correct
1	After clicking on play button the game would crash initially.	1	By changing the way variables were declared.

Module	Win Screen

Incremental Testing

Defect No.	Description	Severity	How To Correct
1	Game would get frozen when retry button was selected	1	Reset all of the variables involved in the game so that the game state is started over again.

Regression Testing

Defect No.	Description	Severity	How To Correct
1	Fixing the frozen game when	2	Changed the way the

	resetting the variables would cause enemy movement to be wrong.		variables were declared so they could be reset properly.

Module	Game Over Screen

Incremental Testing

Defect No.	Description	Severity	How To Correct
1	When enemies touched the player the loss screen would not properly display.	2	Changed how the hit boxes of players and enemies interacted with each other.

Regression Testing

Defect No.	Description	Severity	How To Correct
1	When fixing how the player's and enemies interacted with each other it changed how they interacted with the environment	2	Changed the way the hitboxes of the environment worked to be the same as players and enemies.

Module	Loss Screen

Incremental Testing

Defect No.	Description	Severity	How To Correct

1	Game would get frozen when retry button was selected	1	Reset all of the variables involved in the game so that the game state is started over again.

Regression Testing

Defect No.	Description	Severity	How To Correct
1	Fixing the frozen game when resetting the variables would cause enemy movement to be wrong.	2	Changed the way the variables were declared so they could be reset properly.

Module	Game Scene

Incremental Testing

Defect No.	Description	Severity	How To Correct
1	Dropped items are too big and resize method doesn't adjust the collision size	3	Modify sprites to correct size
2	Player can't pick up dropped items because of the collision	2	Change the detecting mechanism from collision to overlapping
3	Item doesn't disappear after the overlapping between player and the item	2	Deconstruct the item object after the overlap

Regression Testing

Defect No.	Description	Severity	How To Correct
1	Different items should give player different attributes	2	Give each item an unique id

Module	Terrain Generation Module

Incremental Testing

Defect No.	Description	Severity	How To Correct
1	Enemies did not know where terrain was when terrain was implemented	2	Pass the terrainMatrix (containing terrain coordinates) to enemy module.
2	Player was able to move through terrain (unintended)	2	Add a collision function with wall/player was missing a callback function

Regression Testing

Defect No.	Description	Severity	How To Correct
1	When linked with the Graphics module, terrain loaded on an incorrect grid.	2	Change variables when initializing terrain in graphics
2	Enemies get stuck on terrain when moving	2	Alter the movement algorithm of enemies in the enemy module

Module	Player Module

Incremental Testing

Defect No.	Description	Severity	How To Correct
	Player instantly detonates mine when it should have time to arm	2	Switch mineActive incrementer outside of the cooldown conditional
	Player moves to last clicked spot instantly after teleporting	3	Set player movement speed to zero so that he will be still after teleporting
	Player triple teleport R ability would not reset cooldown if recast a fourth time	2	Reset a variable called numCharges back to zero once it hits 3 charges used

Regression Testing

Defect No.	Description	Severity	How To Correct
	Fixing player teleportation cooldown problem caused cooldown to always be zero	2	Create separate conditional statements for each variable
	Fixing player moving to last clicked spot instantly after teleporting problem caused player to teleport on next click rather than slowly moving	3	Set new player position to teleported location for movement
	fixing player instantly detonating mine problem cause mine to never go off	2	Add conditional to make players mine wait in a separate

				statement before arming

Module	Enemy Module

Incremental Testing

Defect No.	Description	Severity	How To Correct
1	Enemy did not properly follow player when given player input	2	Correct A* searching algorithm
2	Enemy did not attack player when near	2	Adjust collision radius for enemy and player
3	Enemies sometimes went off screen attempting to follow the player	2	Adjust game border size in the game module

Regression Testing

Defect No.	Description	Severity	How To Correct
1	Enemy animation should play when moving in the graphics module	3	Add animation function in enemy movement function in the graphics module