

# Apocalypse Defense

**Group 9:**

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# Functional Requirements

## High priority

User should be able to ...

1. Start the game
  - a. Start a new game
  - b. Resume an interrupted game
  - c. Choose a map
  - d. Change the difficulty of the game
2. Choose options
  - a. Mute sounds
3. Play the game
  - a. Place survivors on map
  - b. Win game
  - c. Lose game
  - d. Pause and resume the game
  - e. Exit the game
  - f. Return to main screen
4. See statistics during gameplay
  - a. See amount of gold
  - b. See which wave of zombies is attacking
  - c. See count of zombies killed
  - d. See HP (hit points) of zombies
  - e. See HP of survivors
5. See statistics after winning or losing
  - a. See result of game (won/lost)
  - b. See count of zombies killed
  - c. See total gold earned
  - d. See count of survivors defeated

## Medium

User should be able to ...

1. Upgrade survivors
2. Sell survivors
3. Earn and view achievements

## Low

User should be able to ...

1. Design a map
  - a. Share his/her map
  - b. Download others' maps
  - c. Play custom maps
2. Choose divergent upgrade paths for survivors
3. Unlock new types of survivors
4. Unlock new upgrades
5. Speed up and resume normal speed of game
6. Control volume of game sounds

# Individual Feedback

## Blair

Commenter	Feedback	Category	Action
Stephanie Fitzgerald	Look at exit button placement; at first glance it is a little confusing.	UI Widgets	Changed this to utilize the hardware Android buttons, rather than a software button.
	I like your screen layouts. They are logical and well thought out.	Compliments	Thanks
	Some of the screen flows could need work. They may be confusing to some and difficult to maneuver	Usability	Made adjustments to the screen flow to make it less confusing (hopefully).
Joshua Austin	Great job on your UI drawings!	Compliments	Thanks
	The main issue was consistency between different screens. The mute button in particular needed to stay in one place and not move.	UI Widgets	Options button now has all sound adjustments and utilizes the hardware Android button.
	The way the weapon upgrades were set up was a bit confusing.	Functionality	Opted to have upgrades be a lower priority, so not tackling this problem now.
Clinton McKay	Keep the button placement consistent	UI Widgets	Utilized more Android hardware button usage and more consistent layout.
	Tiles for maker will get too small on mobile device	Usability	Made larger buttons and adjusted smaller buttons for smaller devices.
	Only show maybe most recent tiles maybe and fewer of them.	Usability	Adjusted size of map and buttons as stated above.

	Maybe put exit button into pause menu to save real estate in game.	UI Widgets	Used Android hardware buttons as well as having a way to get to main menu or exit from options screen.
	Use hardware back button for pause menu	UI Widgets	This has been put into the new design, as well as a single button for pause/resume game on the game UI.
Christopher McCleerey	The large mute button is a good idea but it needs to be further away from the pause button.	UI Widgets	Resolved this with hardware buttons and a single button for pause/resume in the UI.
	Big buttons are a great idea for Android interfaces	UI Widgets / Usability	Implemented larger buttons in the new design.
	The map editor tool icons need to be bigger.	UI Widgets / Usability	Map editor is lower priority requirement, so this is a non-issue currently.
	Choosing to “Buy survivors” in the middle of combat seems like cheating.	Functionality	Noted; this is the main functionality of the game as in all “tower defense” type games, but we excluded the term “buy survivors” and instead just have an icon that contains a survivor that can be dragged onto the map.
	Use the term “Hire Mercenaries” instead of “Buy survivors”.	Cosmetic	Removed the term “buy survivors” and replaced with an icon.

## Nada

Commenter	Feedback	Category	Action
G(6): Fitzgerald, Stephanie	I really like your overall design and layout. Your use of picture icons will allow for easy use with multiple age groups and	General, cosmetic features	I agree with Stephanie’s opinion, but we decided to change the design and

	ability levels.		we took some ideas of my design
	Think about button size in relation to a mobile device. I think currently allocation of size will make the game unplayable in regards to the way the user will need to press the button.	(Usability requirement); changes in UI widgets and controls.	I agree with her opinion about buttons sizes, so we thought carefully and came up with good ideas for buttons sizes and locations that don't annoy the players or interrupt the game.
	I really like how you linked screens as the user moves from the start screen. My favorite example of this was your use of the House as a way to exit to the main menu.	cosmetic features	I appreciate that, but we decided to change some aspects of the design, so we will not use the House as a way to exit to the main menu. We will use the exit button that is already built on the android.
G (1): Austin, Joshua	. Separate the sound and level buttons, as having both interactive and non-interactive buttons (images) may confuse user	(Usability requirement); changes in UI widgets and controls.	I agree with Joshua's opinion, so we decided to separate any buttons that could cause any problem when a player presses on it.
	The simplicity of the design was a good feature.	(Usability requirement);simplicity features	I appreciate his opinion, but we decided to change the design.
	Level design does not need to be part of the main view, as it will be less common. A button in the main menu would work instead.	(Usability requirement);changes to task flow	we decided to put the levels option (difficulty) on the screen that allows users to choose the maps ( as process to start a new game)
G(7) :	Add a maps button to the Game Window	(Usability requirement); changes to task flow; changes in UI widgets and controls.	We decided to make the map choices on a different screen as a process to start a new

			game.
	Separate pause and level buttons and the cash amount label.	(Usability requirement); changes to task flow	we will put the pause to play buttons on the bottom of the game screen. Also, we decided to put the levels option (difficulty) on the screen that allows users to choose the maps (as process to start a new game)
	You may not need the done button in this window. Selection is implied when the player selects a character.	(Usability requirement); changes to task flow; changes in UI widgets and controls.	We decided to delete this screen. We will put the characters selection on the game screen.
	Sound button visible during game play – nice!	(Functional requirement); UI widgets and controls	I agree with this idea, and we still have this option.
	Might be to cluttered on game play screen, move some stuff to pause menu.	(Usability requirement) cosmetic changes	I agree with this idea, and we now working to organize the screen well.
	- Maps screen cramped for showing multiple images and info, might try a scrolling features (individual screen for each map).	(Usability requirement); changes to task flow; changes in UI widgets and controls.	we decided to allow the users to swap to see more maps and their info.
	Can select and highlight characters – nice!	(Usability requirement “fun”); UI widgets and controls.	I agree with this idea because that will make the game interesting.
	Levels are choose-able, play does not have to be linear.	(Usability requirement); changes to task flow; changes in UI widgets and controls.	We decided to put levels choice as a difficulty options which are (easy and hard)
	Buttons are really small and possibly too close for most users to select.	(Usability requirement); changes in UI widgets and controls.	We decided to make the buttons larger than before.

	Main comment – keep in mind limited screen real estate, but good design.	Changes in UI widgets and controls; change to functionality.	I just drew the main functional requirements, but we have more than what we drew and we designed other screens. We will have more detail for project2.
G (5) : Chris,	It would be nice to have some way to scroll through the list of levels.	(Usability requirement) changes to task flow, changes in UI widgets and controls.	We decided to put levels choice as a difficulty options which are (easy and hard)
	Buttons need to be much bigger.	. (Usability requirement) changes to task flow, changes in UI widgets and controls.	in the real time that we will design buttons and screens, we actually will keep in mind the sizes for the small devices (phones); we will test with real users/devices

## Pat

Commenter	Feedback	Category	Action
G5: Chris McCleerey	On the main menu, play and Pause icons were not a good analogy for start game and resume game respectively.	UI widgets	Agree; icons removed and only text used for buttons
	Good map selection and difficulty selections	Compliments	Thanks
	You should provide some in game information for how long waves of enemies last	Functionality	Zombies will advance at a uniform rate, so it will be obvious when the last of the wave has appeared. I think any more information about the wave would take away from the game challenge
	Upgrades shouldn't pause the game unless it is between waves	Usability	Noted; we never planned to have upgrades pause the game



	Pause and then touch on enemy to view info is a good idea	Compliments	Thanks
Stephanie Fitzgerald	Stay with an industry standard to allow for easy game play and to avoid issues with multiple device layouts.	General	Ignore; not specific enough and we are already conforming to style of TD games and android style guidelines
	Remember that many games are played with the device held horizontally rather than vertically.	Usability	Noted; our game will always be presented in landscape mode
	Loved your ideas on how to expand the game and your use of the level scrolling.	Compliments	Thanks
Josh Austin	Great Job on your UI Drawings!	Compliments	Thanks
	The screen layout for choosing a map (cover flow) may not work with buttons and stuff below it on a smaller screen such as a phone, but liked the cover flow style.	Usability	Buttons will be sized to be large enough for a phone
	Suggested possible overlay on top of cover flow to start instead of button below cover flow on smaller screens.	Usability	Agree; will implement
	Possible '?' overlay over icons for towers and such when game is paused so user knows to tap for details about those towers.	Usability	Good suggestion, but low priority; may implement
	Add sound to option menu.	Functionality	Agree; will implement
Clinton McKay	Simplify the main menu by moving the music and sound effects buttons to the options menu.	Usability	Agree
	Use a double tap selection for game object info instead of a single tap. For example the first tap is to select and the second is to get the info.	Usability	Disagree; I feel that double tapping is a bad choice for a small TD game. Better to have pause make an overlay appear for more info.
	The SFX music options button should to be moved.	Cosmetic	Agree; will be in options menu
	Design things to work more in	Usability	Agree; game will only be playable in

	landscape mode.		landscape
	There may be too much on the main screen which will pose as a problem on smaller screens.	Usability	Noted; will test with real users/devices
	Coverflow design element is hard to recreate outside of iOS.	Functionality	Noted; we may use one of android's built-in widgets instead
	Pay attention to button orientation in order to avoid device buttons from conflicting with the screen buttons.	Usability	Agree; redesigned location of on-screen buttons
	Enjoyed how everything was broken out and kept separate.	Compliments	Thanks
	Achievements are nice touch to show user progress and keep interest	Compliments	Thanks

### **Presentation Screenshots:**

1. Start game
2. Choose a map / Choose difficulty
3. Game play screen: drag a survivor
4. Click options
5. Exit the game
6. Resume game
7. Scoreboard
8. Main screen -> Achievements

Here is a walkthrough of a user starting a new game. She opens the application from the android home screen [image], then taps the New Game button [image]. She sets the difficulty to easy by tapping Easy. Then she starts the game with the default map by tapping the map [image]. She dismisses the gameplay information overlay [image] by dragging a survivor onto the map. Zombies begin to walk out on the map and eventually attack and be attacked by the survivor, at which point the hit points for the survivor and the zombie are displayed [image]. She wants to mute the sound, so she taps the android options button, taps the mute icon for both sound types, and hits the android back button (alternatively, she could have touched the OK button) [image].

After some time playing the game, the user is ready to quit. She taps the android back button and is presented with an exit confirmation screen [image]. She chooses to exit and is presented with the android home screen. (Alternatively, she could have tapped the android home button to

immediately return to the android home screen with her game progress saved.)

Later, the user wishes to resume her game. She opens the application again and taps the Resume button. She plays until all of the waves of zombies have been defeated and is presented with a scoreboard [image]. She taps the Main Menu button, swipes the menu bar to the left and taps the Achievements button. After viewing her achievements [image], she taps the android back button, sees the main screen, and taps it again to exit the application.

As the walkthrough shows, all of our high priority functional requirements and \_\_all? \_\_\_\_\_ of our medium priority requirements have been designed (although the user won the game she was playing, a loss would have resulted in the scoreboard screen with the same stats saying, "You Lost"). While the user did not pause and resume the game, the buttons to do so were clearly identifiable.