Project:	Transcend Taxis (TT)
Team No.:	Team 7
Class:	CSE 3310; Fall 2024
Module:	Test Plan
Deliverable:	Test Plan Document

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Revision History

Version number	*Date*	*Originator*	*Reason for change*	*High-level description of changes*
1.0	11/14/2024	Team 7	Initial draft	

TABLE OF CONTENTS

1. Introduction and Plan of Approach

Our team has been tasked to develop a taxi driving game. As a driver, your goal is to pick up passengers and bring them to their destination. You will also have to contend against the greatest enemy of all drivers: pedestrians and other drivers. You will have to do your best to avoid these obstacles to bring your passengers to their destination. The obstacles don't just include other people. In one moment, you may be struggling to avoid sliding in icy conditions, and in the next, you could have to avoid flying debris from a volcano. Both environmental conditions and disasters will affect the difficulty in your task as a taxi driver. You will be competing against time in delivering your passengers and achieving the highest score. Your goal is to transport the passengers in a timely manner while also doing their best to satisfy the various temperaments. After time is up, if your score is high enough, then you win.

Components in Test Plan:

1. AI
    a. Assumptions:
        i. AI pathing is implemented throughout the map.
    b. Subcomponents
        i. Cars
        ii. Pedestrians
        iii. Passengers
2. Main Map
    a. Assumptions:
        i. Game Pieces are implemented with collisions.
3. Game Set-up
    a. Assumptions:
        i. Menu functionality is implemented.
    b. Main Menu
        i. Introduction
        ii. Settings and configurations
        iii. Menu Options
4. Environmental Conditions
    a. Assumptions:
        i. Friction/Drift is implemented such that the environmental conditions affect these elements.
    b. Subcomponents:
        i. Sunny
        ii. Snowstorm
        iii. Volcano
        iv. Thunderstorm
5. Game Pieces
    a. Models
        i. Buildings
        ii. Pedestrians
        iii. Taxi
        iv. Vehicles

6. Scoring
    a. Assumptions:
        i. Collisions can be detected.
        ii. Passenger type is determined.
7. Evaluate Winner
    a. Assumptions:
        i. Scoring is implemented.
8. Music and sound effects
    a. Assumptions:
        i. Music and sound are sourced.
9. Player movement
    a. Assumptions:
        i. Collisions can be detected
        ii. Movement is physics based

2. Test Cases: “AI FUNCTIONALITY”

Project Name: Transcend Taxis
Test Case Name: AI FUNCTIONALITY
Test Case Id: CSE3310/Fall 2024/Team7/AI-NAME-HERE

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	Begin a new round from the main menu by pressing the start button.	- Cars and pedestrians should have already spawned and begun moving on their path in the correct areas. Passengers should appear in intervals along with a notification to the player.	
TC2	Drive into another car.	The following events should occur: - Crash animation with sound effects. - The hit car is removed from the map. - Point deduction. Generate a new car (not within player view).	
TC3	Drive into a pedestrian.	The following events should occur: - Crash animation with sound effects. - The hit pedestrian is removed from the map. - Point deduction. Generate a new pedestrian (not	

		within player view).	
TC4	Find a passenger and pick them up.	The passenger (same base model as pedestrians) should appear along the side of the road, approach the car, and “enter” (model disappears). The player should then receive the destination instructions.	
TC5	Find a passenger and pass them by.	The passengers should remain in the same location and be available to pick up for a limited amount of time. When that time is up, the passenger model will disappear, and the player no longer has the option to pick them up.	

3. Test Cases: “MAIN MAP”

Project Name: Transcend Taxis
Test Case Name: MAIN MAP
Test Case Id: CSE3310/Fall2024/Team7/Main-Map

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	Load the map and check if all buildings appear with solid structures.	All buildings should load correctly, appear solid, and prevent the player’s car or NPCs from passing through	
TC2	Verify that all map elements, including buildings, roads, sidewalks, flora, and road signs load in.	All elements should load and display at their designated locations with correct placement and visibility	
TC3	Ensure that coloring, lighting, and shadowing effects for buildings and flora throughout the map are as specified.	Colors should match intended design with shadows and lighting that are consistent with the time and direction that the elements are facing.	
TC4	Verify that each building is properly scaled with slight variations as specified.	Buildings should vary slightly in size relative to each other, but they should be able to fit within the blocks laid out.	
TC5	Ensure that road signs and flora appear correctly scaled relative to the other map elements	Road signs and flora should be proportionate to pedestrians, give or take, to make the scaling of the map more realistic.	
TC6	Check if any and all map elements such as buildings, flora, and road signs have corrected spacing.	Each map element should be positioned correctly with clear boundaries/spacing so that elements do not overlap and there is no awkward spacing where there shouldn’t be.	

4. Test Cases: “GAME SET-UP”

Project Name: Transcend Taxis
Test Case Name: GAME SET-UP
Test Case Id: CSE3310/Fall2024/Team7/Game-Setup

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	Press the “Start” button from the main menu.	The game should begin, and the initial game screen should transition into the main map with minimal delay, if any.	
TC2	Press the “Settings” button from the main menu.	The settings menu should be displayed on the screen, showing control customization and volume options.	
TC3	Adjust the volume slider in the settings menu.	The volume level should change in real time, increasing when dragged to the right and decreasing when dragged to the left. The setting should be saved when exiting the menu.	
TC4	Change control settings in the settings menu, such as turn sensitivity and button layout.	Control setting should update real time, and changes should remain once the player exits the settings menu.	
TC5	Return to the main menu from the settings and verify that the settings saved.	All modified settings should remain and should be visible when opening the settings menu again or after finishing a game round.	
TC6	Check that all modified settings save correctly after closing and reopening the app.	Modified settings should remain in between play sessions and maintain user preferences.	
TC7	Check that when the “pause” button is pressed during gameplay, the game	Gameplay should not continue when paused, and the “Quit” and “Settings” should be properly	

	stops and the “Quit” and “Settings” options are displayed.	displayed.	
TC8	Ensure that the “Quit” and “Settings” options have their proper functionalities.	Pressing quit should exit the game and bring the player back to the main menu, and pressing settings should bring up the settings menu.	

5. Test Cases: “ENVIRONMENTAL CONDITIONS”

Project Name: Transcend Taxis
Test Case Name: Environmental Conditions
Test Case Id: CSE3310/Fall 2024/Team7/Environmental-Conditions

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	Play the game several times.	The game should start out with the environmental condition set to sunny. A random environmental condition should occur in each game. And each condition should show up at least once.	
TC2	Play the game with the environmental condition set to volcano.	Lava should be flowing on the map after an eruption is displayed.	
TC3	Play the game with the environmental condition set to thunderstorm.	The lighting of the map should get darker and there should be thunder noises with lightning and rain being displayed.	
TC4	Play the game with the environmental condition set to snowstorm.	Snowflakes should be falling from the sky and everything should slowly get covered in white.	
TC5	Play the game with the environmental condition set to sunny.	No changes should be made to the map (no additional obstacles for the player).	

6. Test Cases: “GAME PIECES”

Project Name: Transcend Taxis
Test Case Name: Game Pieces
Test Case Id: CSE3310/Fall 2024/Team7/Game-Pieces

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	Test that all buildings load in with correct design elements such as windows, doors, and wall textures	Building should be stationary with similar structural design, varying only in color and height/size.	
TC2	Test that pedestrian NPCs appear with randomized hair/hair color and clothing colors and move dynamically on their specified paths.	Pedestrians should load with color variations and walk their specified paths to act as dynamic obstacles in-game.	
TC3	Test that collisions with pedestrian NPC’s trigger the correct response and displays the animation and plays the sound effect for the hit NPC	The collision should cause the player to receive a reaction, the type being dependent on the passenger. The NPC displays a hit animation and plays a sound effect to indicate impact.	
TC4	Ensure that the taxi model loads in correctly and is functional as the player’s vehicle.	The taxi should load in with correct coloring and build, and the player should be able to control its movement throughout the map.	
TC5	Test that other vehicles spawn to act as dynamic obstacles with randomized colors and are one of the two specified models.	Vehicles should either be a truck or a car and should vary in color. Collisions should elicit the proper reaction depending on the passenger the player is driving.	
TC6	Check that all vehicles are correctly scaled in accordance with other map elements.	Vehicle models should appear proportionate to the buildings and pedestrians to create a more	

		realistic environment.	
TC7	Check that, if collisions occur, the correct penalties and/or rewards are issued depending on the type of passenger.	As a result of a collision, a penalty should be issued if the passenger does not like these actions, and a reward should be issued if the passenger does like them (up to a certain extent).	

7. Test Cases: “SCORING”

Project Name: Transcend Taxis
Test Case Name: Scoring
Test Case Id: CSE3310/Fall 2024/Team7/Scoring

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	Pick up a (normal) passenger and deliver them to their destination. Note that the passenger type will be displayed on the screen.	Score should be increased. Use this score as the baseline for the other tests. Note: The score is still dependent on time and a collision counts.	
TC2	Pick up a hurried passenger and deliver them to their destination in less than 1 minute. Note that the passenger type will be displayed on the screen.	Score should be higher than the baseline score. Any collisions made should weigh less on the score.	
TC3	Pick up a hurried passenger and deliver them after 2 minutes. Note that the passenger type will be displayed on the screen.	Score should be lower than the baseline score.	
TC4	Pick up a cautious passenger and deliver them without crashing. Note that the passenger type will be displayed on the screen.	Score should be higher than the baseline score.	
TC5	Pick up a cautious passenger and deliver them	Score should be lower than the	

	while crashing into at least 5 objects. Note that the passenger type will be displayed on the screen.	baseline score.	
TC6	Pick up a cautious passenger and deliver them while crashing into at least 10 objects. Note that the passenger type will be displayed on the screen.	Score should be lower than score from TC5.	

8. Test Cases: “EVALUATE WINNER”

Project Name: Transcend Taxis
Test Case Name: Evaluate Winner
Test Case Id: CSE3310/Fall 2024/Team7/Evaluate-Winner

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	Don’t drive at all and wait for the timer to end.	Player receives a “Fail” /“Game over” screen.	
TC2	Drive around but don’t pick up any passengers and don’t cause any crashes.	Player receives a “Fail” /“Game over” screen.	
TC3	Drive and keep causing crashes until the timer ends.	Player receives a “Fail” /“Game over” screen.	
TC4	Pick up a passenger but don’t drop them off (maybe drive around or cause crashes or just don’t drive at all).	Player receives a “Fail” /“Game over” screen.	
TC5	Pick up passengers, don’t crash, and perform well overall.	Player receives a “Pass”/“You won” screen.	

9. Test Cases: “MUSIC AND SOUND EFFECTS”

Project Name: Transcend Taxis
Test Case Name: Music and Sound Effects
Test Case Id: CSE3310/Fall 2024/Team7/Music-and-Sound

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	During the start or when the taxi is not moving, press and hold a location away from the taxi.	The taxi should make an engine sound effect to indicate its acceleration	
TC2	While taxi is moving, remove input from the screen.	The taxi should make a screeching sound, indicating the use of a break.	
TC3	While the taxi is moving at a max speed, perform a sharp turn by swiping quickly in a perpendicular direction or inputting a turn at a sharp angle.	The taxi should make a very heavy screeching sound (drift sounds).	
TC4	While driving, crash the taxi at max speed into a building.	The taxi should make a crashing sound effect (loudest possible collision sound).	
TC5	While driving, crash the taxi at a half the max speed into a building.	The taxi should make a crashing sound effect that is less severe than that of TC4 dependent on speed.	
TC6	While driving, hit a pedestrian.	The taxi should make a crashing sound effect that will mostly be less severe than that of TC5 dependent on speed.	
TC7	When in game, listen to music.	Music should be heard in game.	
TC8	In the main menu, click any button.	A button sound effect should be played.	

10. Test Cases: “PLAYER MOVEMENT”

Project Name: Transcend Taxis
Test Case Name: Player Movement
Test Case Id: CSE3310/Fall 2024/Team7/Player-Controller

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	During the start or when the taxi is not moving, press and hold a location away from the taxi.	The taxi should turn if necessary and move towards the point where input is detected.	
TC2	While taxi is moving, remove input from the screen.	Removing the input activates the handbrake. A drift state will occur, such that there will be drift lines and possibly smoke. The car is not fully expected to stop but it can occur especially when turning. The car should not speed up during this.	
TC3	While the taxi is moving at a max speed (can be judged based on speed displayed on screen), perform a turn and release input.	The taxi should turn towards the direction of movement, begin to drift, and eventually stop until further there is further input.	
TC4	While driving at max speed, the taxi crashed into a building.	The taxi’s collision counter displayed on screen should increment.	
TC5	After crashing into a building, try to make more collisions with the building at a low speed.	The taxi’s collision counter should not be incremented unless the severity of the collision exceeds a certain degree.	

TC6	While driving at max speed, T-bone another car.	The taxi's collision counter displayed on the screen should be incremented	
TC7	While driving at max speed, hit a car while its in motion in the rear.	The collision counter displayed on the screen may be incremented, dependent of the angle of rear collision.	
TC8	While driving at max speed, hit a pedestrian.	The taxi's collision counter displayed on the screen should be incremented.	