Assignment Report

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Item	Quality	Comments
Overall Design	Excellent	1. After a day of working on the example code I chose to restart the iterative development. The development order is: player, bullets, meteorites + levels, enemy planes, interactions. The code structure and ideas were updated and optimized over the course of the iteration. 2. Overall structure: Package Database: Store the methods associated with the score, including but not limited to storing, reading, updating Package Display: Contains everything that is rendered on the screen and the form in which it is drawn. Including but not limited to menus, main screens, game screens. Package model : the player, meteorite, bullet and enemy aircraft in the model have their own separate methods. The overall interaction (including object-to-object and human-machine interaction) takes place in the SpaceIInvadersGame class. The parameters that change during the interaction are transferred to the GameScreen for presentation on the screen.
Input	Excellent	The Player Listener detects all of the player's in-game keystrokes, including: Accelerate (↑), Turn Left (←), Turn Right (→), Jump (J), Fire (Space), Execute (E after picking up a drop), Time stop(T), Pause (P), and Stop (S). After countless debugs each function is now perfectly executable. The Menu Listener detects all the player's keystrokes in the menu and executes them. At the end of the game, the game detects the text entered by the player in the name box and updates the scoreboard.
Display	Excellent	All required drawable objects are implemented in code by specifying the coordinates that individual pieces should be drawn at. Everything in AboutScreen, GameScreen, MenuScreen, ScoreScreen is included. In addition to the text layout, white triangles indicate players, red triangles are enemy planes, green squares are meteorites of varying sizes, small green squares are bullets and gold squares are drops.
Menu	Excellent	Game contains a main menu, hall of fame display (high scores) and an info screen showing the controls for the game.
High Scores	Excellent	Previous high scores are loaded from a file and any new high scores are saved in the hall of fame. Ps: only exit by press 'x' can saved the name in score.txt
Randomness	Excellent	Asteroids will be randomly generated outside of the 50x50 area in the centre of the screen, with the same type of meteor having the same speed and random direction, when it is hit, the smaller asteroid will rotate 10-40 if it is large and 20-30 if it is small. Enemy planes will appear randomly in the first 1000 frames at the beginning of each level.

Alien Ship	Excellent	Enemy planes will appear randomly in the first 1000 frames at the start of each level. Once they appear, they will move towards the player's location and fire their bullets. If a meteorite is detected within 30 pixels of it, it will stop moving to try to avoid it. When it is hit by a meteorite, the enemy will be destroyed and the meteorite will split.
Bonuses	Excellent	When the player finds that the speed is out of control he can tap (e) to make an emergency stop. When the player shoots down an enemy aircraft, they will have a chance to drop the golden skill (execute shoot), which has a silly name but powerful function. The player will receive 3 special shoots and by pressing (e), a circular cluster of ranged bullets will appear and run through the path. When the player shoots down an enemy aircraft, they will have a chance to drop the golden skill (Time machine), The entire field of meteorites will remain stationary for 200 frames after the T button is pressed and the player will be able to move freely to shoot. At the start of the game and after the player has been hit, the player is given 200 frames of invincibility during which time the player does not take any damage.
Levels	Excellent	There are infinite levels, each with a +1 to the number of meteorites. But when the levels are too high like 1000 or 10000, the computer may suffer =.=

Written at the end：

The writing process and the outcome of this assignment will stay with me for the rest of my life. This project is the first program with practicality that I have completed independently in my life. It was also an arduous self-learning process.

I spent two full days using the API and CSDN to figure out all the structures in the example and what each line of code did.

I then spent another day defining the general structure of my code and iterating through the development process.

After that I completed the player, bullets, meteor + levels, interactions, enemy planes, etc. in turn.

And during this process I mastered and familiarized myself with the idea of debugging java code (my debug time kept getting shorter throughout the process, the program was like a child to me, and I understood each part more as I wrote it, which is probably why my debug time was shorter).

I feel a greater sense of achievement than ever before when each generation of the game runs successfully and gets the results I want.

After completing the project, I shared and learned from others, giving them pointers and suggestions, and the whole process is engraved in my mind.

The code for this game is something I will keep forever and it is the first step I have taken.

Thanks for this chance,

Melbourne