UNIVERSITI MALAYA

WIF3005 Alternative Assessment

Question 2

LECTURER :

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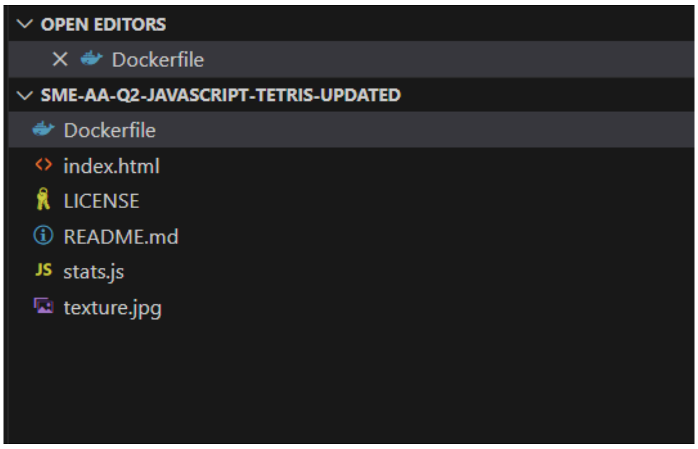
A. Project Selected : Option 2 (sample repository : javascript-tetris)
https://github.com/jakesgordon/javascript-tetris

B. Create a Dockerfile :

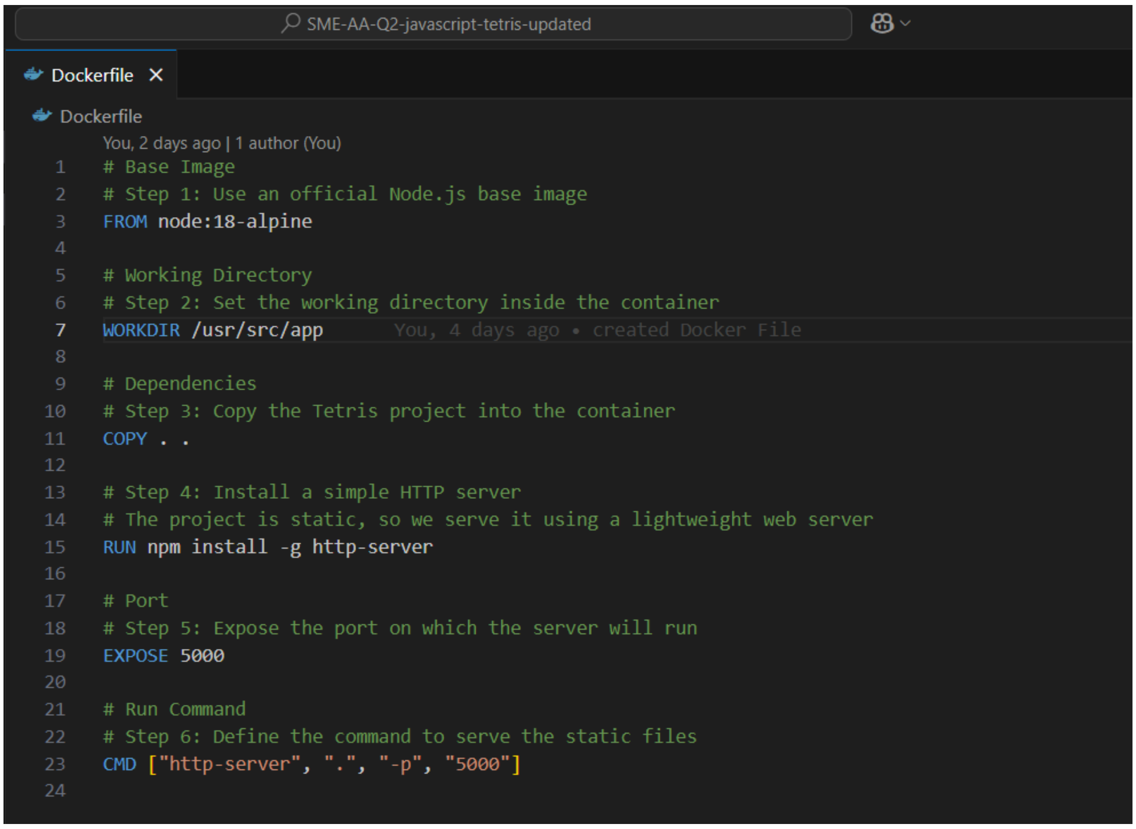
I. Root directory - create Dockerfile



```
OPEN EDITORS
  × Dockerfile
SME-AA-Q2-JAVASCRIPT-TETRIS-UPDATED
  Dockerfile
  index.html
  LICENSE
  README.md
  stats.js
  texture.jpg
```

Figure 1: Screenshot of root directory for creating a Dockerfile

II. Dockerfile include all required (Base image, working directory, dependencies, port, and run command)



SME-AA-Q2-javascript-tetris-updated

Dockerfile

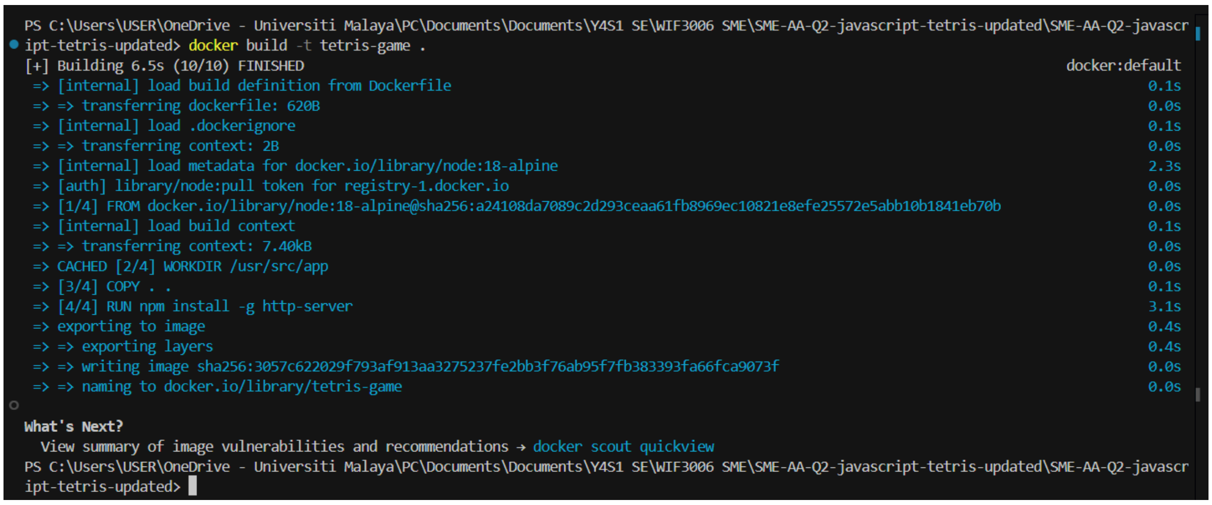
You, 2 days ago | 1 author (You)

```
# Base Image
# Step 1: Use an official Node.js base image
FROM node:18-alpine

# Working Directory
# Step 2: Set the working directory inside the container
WORKDIR /usr/src/app        You, 4 days ago • created Docker File

# Dependencies
# Step 3: Copy the Tetris project into the container
COPY . .

# Step 4: Install a simple HTTP server
# The project is static, so we serve it using a lightweight web server
RUN npm install -g http-server

# Port
# Step 5: Expose the port on which the server will run
EXPOSE 5000

# Run Command
# Step 6: Define the command to serve the static files
CMD ["http-server", ".", "-p", "5000"]
```

Figure 2: Screenshot of Dockerfile created in root directory

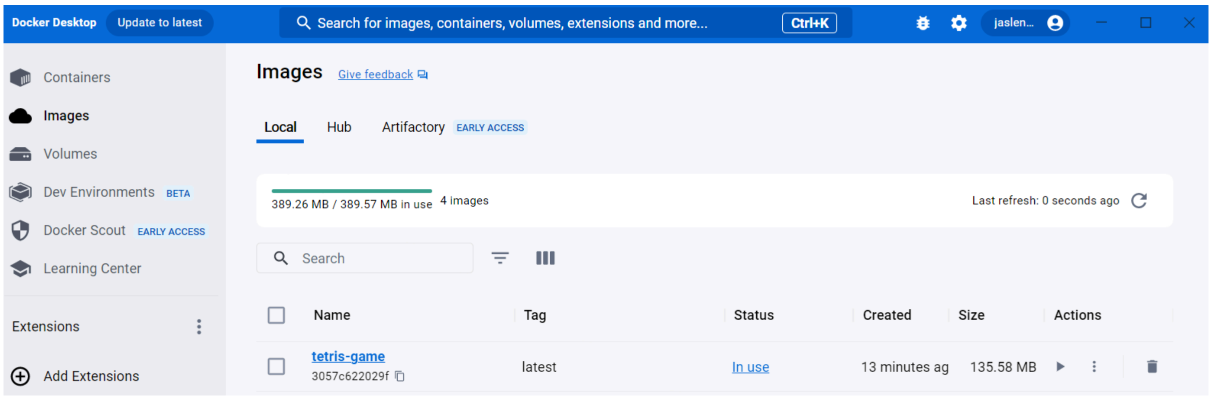
C. Build and test the Docker Image :

I. Build using command in terminal:
docker build -t tetris-game .



```
PS C:\Users\USER\OneDrive - Universiti Malaya\PC\Documents\Documents\Y4S1 SE\WIF3006 SME\SME-AA-Q2-javascript-tetris-updated\SME-AA-Q2-javascr
ipt-tetris-updated> docker build -t tetris-game .
[+] Building 6.5s (10/10) FINISHED                                                                                        docker:default
 => [internal] load build definition from Dockerfile                                                                                0.1s
 => => transferring dockerfile: 620B                                                                                                0.0s
 => [internal] load .dockerignore                                                                                                   0.1s
 => => transferring context: 2B                                                                                                     0.0s
 => [internal] load metadata for docker.io/library/node:18-alpine                                                                   2.3s
 => [auth] library/node:pull token for registry-1.docker.io                                                                         0.0s
 => [1/4] FROM docker.io/library/node:18-alpine@sha256:a24108da7089c2d293ceaa61fb8969ec10821e8efe25572e5abb10b1841eb70b             0.0s
 => [internal] load build context                                                                                                   0.1s
 => => transferring context: 7.40kB                                                                                                 0.0s
 => CACHED [2/4] WORKDIR /usr/src/app                                                                                               0.0s
 => [3/4] COPY . .                                                                                                                  0.1s
 => [4/4] RUN npm install -g http-server                                                                                            3.1s
 => exporting to image                                                                                                              0.4s
 => => exporting layers                                                                                                             0.4s
 => => writing image sha256:3057c622029f793af913aa3275237fe2bb3f76ab95f7fb383393fa66fca9073f                                        0.0s
 => => naming to docker.io/library/tetris-game                                                                                      0.0s

What's Next?
  View summary of image vulnerabilities and recommendations → docker scout quickview
PS C:\Users\USER\OneDrive - Universiti Malaya\PC\Documents\Documents\Y4S1 SE\WIF3006 SME\SME-AA-Q2-javascript-tetris-updated\SME-AA-Q2-javascr
ipt-tetris-updated>
```

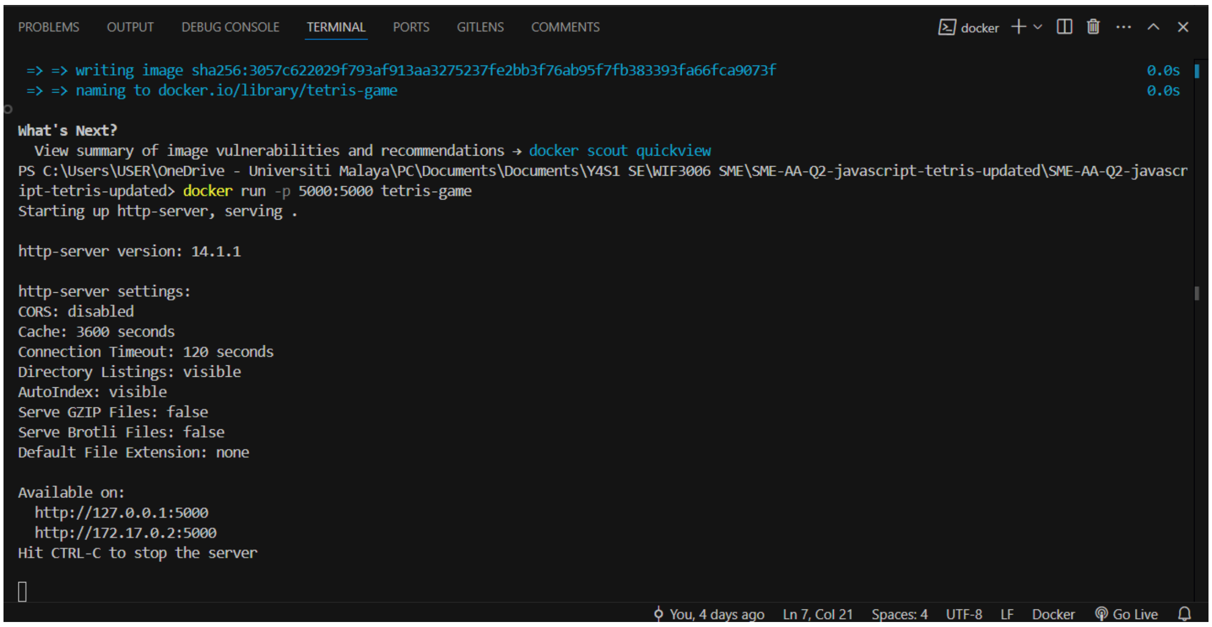
Figure 3: Screenshot of terminal after run build command in the tetris-game project



Name	Tag	Status	Created	Size	Actions
tetris-game 3057c622029f	latest	In use	13 minutes ag	135.58 MB	

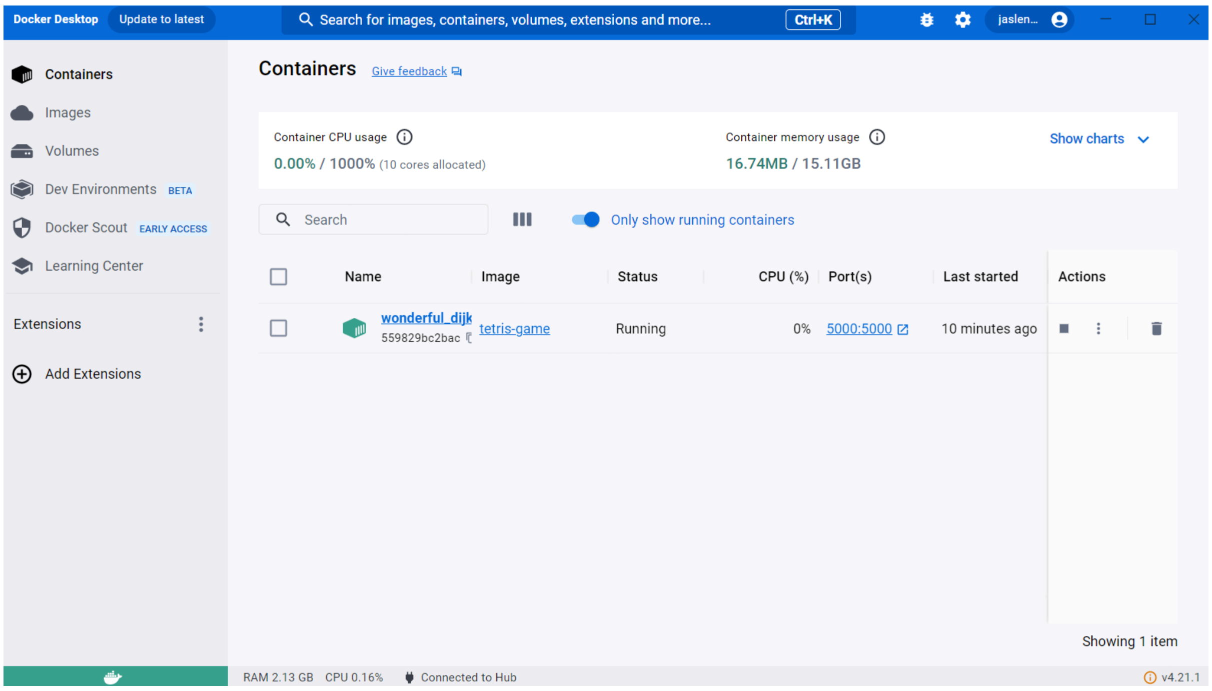
Figure 4: Screenshot of the Docker Desktop that show tetris-game status in use

II. Run Docker container using command in terminal: docker run -p 5000:5000 tetris-game



```
 => => writing image sha256:3057c622029f793af913aa3275237fe2bb3f76ab95f7fb383393fa66fca9073f                              0.0s
 => => naming to docker.io/library/tetris-game                                                                              0.0s

What's Next?
  View summary of image vulnerabilities and recommendations → docker scout quickview
PS C:\Users\USER\OneDrive - Universiti Malaya\PC\Documents\Documents\Y4S1 SE\WIF3006 SME\SME-AA-Q2-javascript-tetris-updated\SME-AA-Q2-javascr
ipt-tetris-updated> docker run -p 5000:5000 tetris-game
Starting up http-server, serving .

http-server version: 14.1.1

http-server settings:
CORS: disabled
Cache: 3600 seconds
Connection Timeout: 120 seconds
Directory Listings: visible
AutoIndex: visible
Serve GZIP Files: false
Serve Brotli Files: false
Default File Extension: none

Available on:
  http://127.0.0.1:5000
  http://172.17.0.2:5000
Hit CTRL-C to stop the server
```

Figure 5: Screenshot of terminal after running run command



Containers

Container CPU usage 0.00% / 1000% (10 cores allocated)

Container memory usage 16.74MB / 15.11GB

Name	Image	Status	CPU (%)	Port(s)	Last started	Actions
wonderful_dijk 559829bc2bac	tetris-game	Running	0%	5000:5000	10 minutes ago	

Showing 1 item

RAM 2.13 GB CPU 0.16% Connected to Hub v4.21.1

Figure 6: Screenshot of tetris-game running in Docker Desktop

III. **Verify the application is accessible in a browser or use curl to test.**
Available on :
http://127.0.0.1:5000/

Link to repository :
https://github.com/Jaslene39/SME-AA-Q2-javascript-tetris-updated

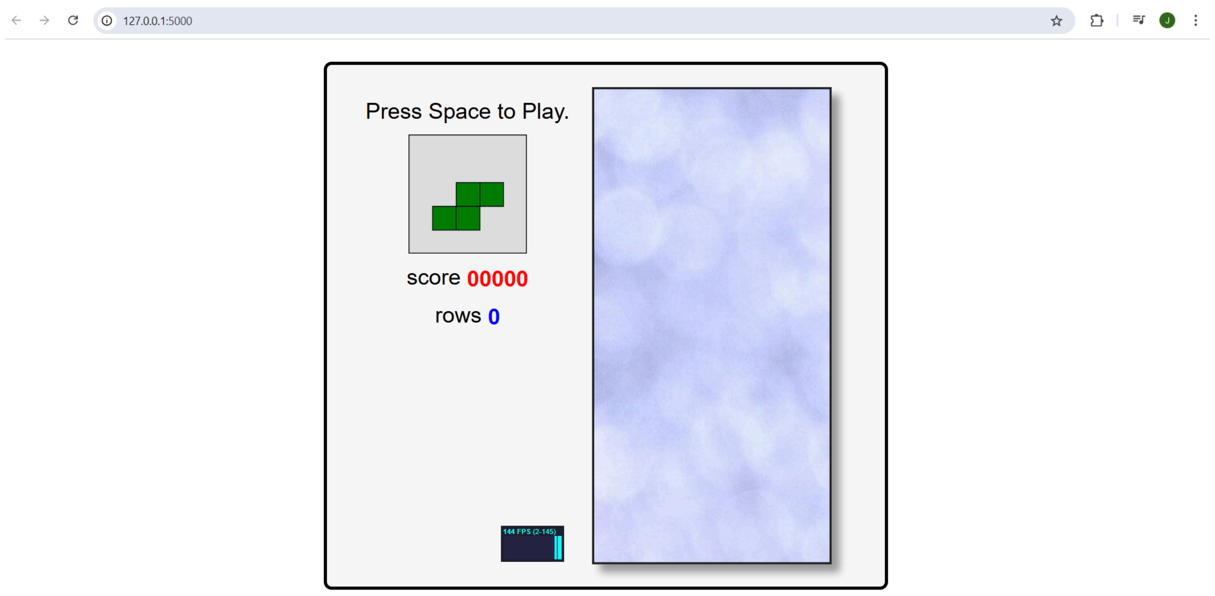


Figure 7: Screenshot of running http://127.0.0.1:5000/ in Google Chrome (Part 1)

Initial State: This is the initial state of the game. When the user presses the SPACE bar, the game transitions to the active state, starting the gameplay.

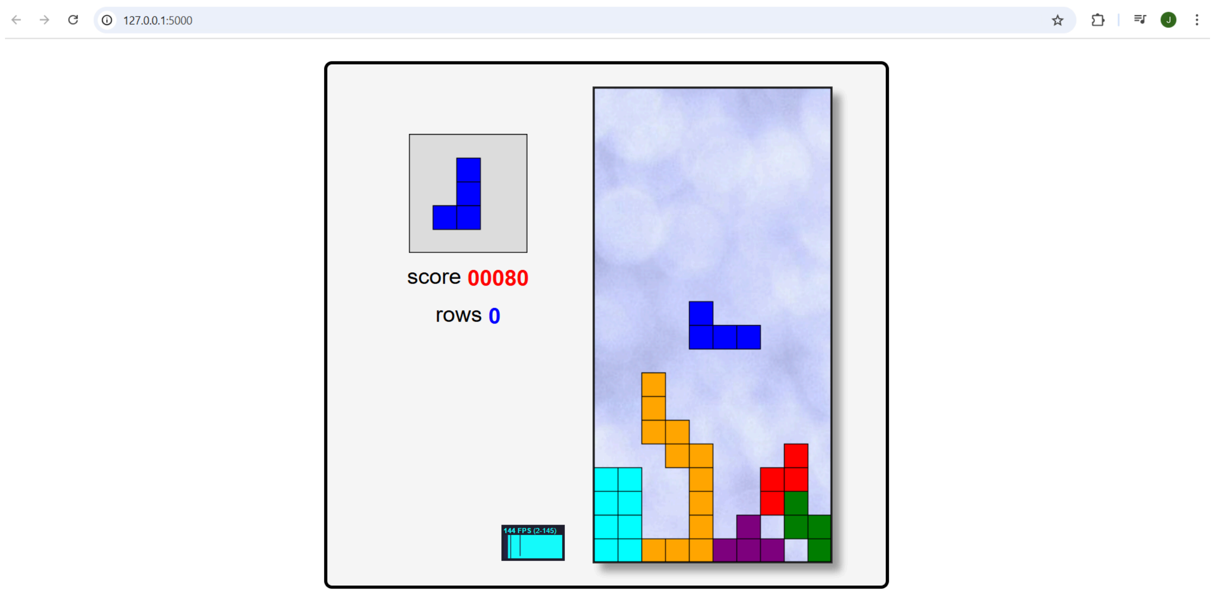


Figure 8: Screenshot of running http://127.0.0.1:5000/ in Google Chrome (Part 2)

Key Interaction: Pressing the UP arrow rotates a piece, while the DOWN, LEFT, and RIGHT arrow keys control movement. Each interaction should be visually represented.

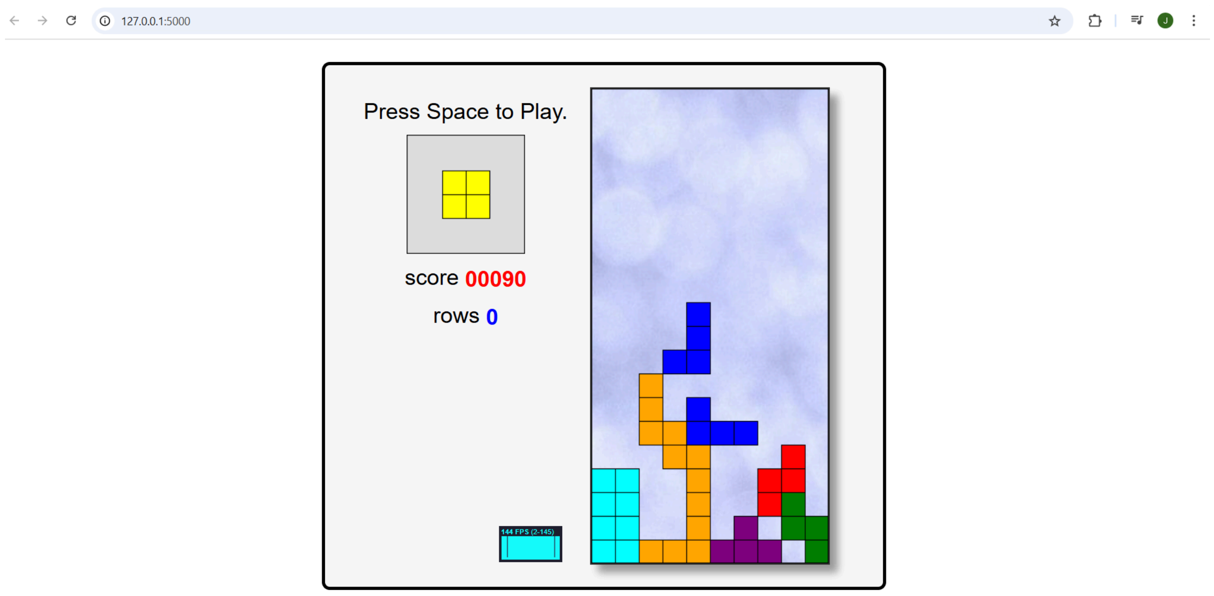


Figure 9: Screenshot of running http://127.0.0.1:5000/ in Google Chrome (Part 3)

Game Over State: When the ESC key is pressed, the lose() function ends the game. Capturing this state highlights the end-to-end interaction flow.