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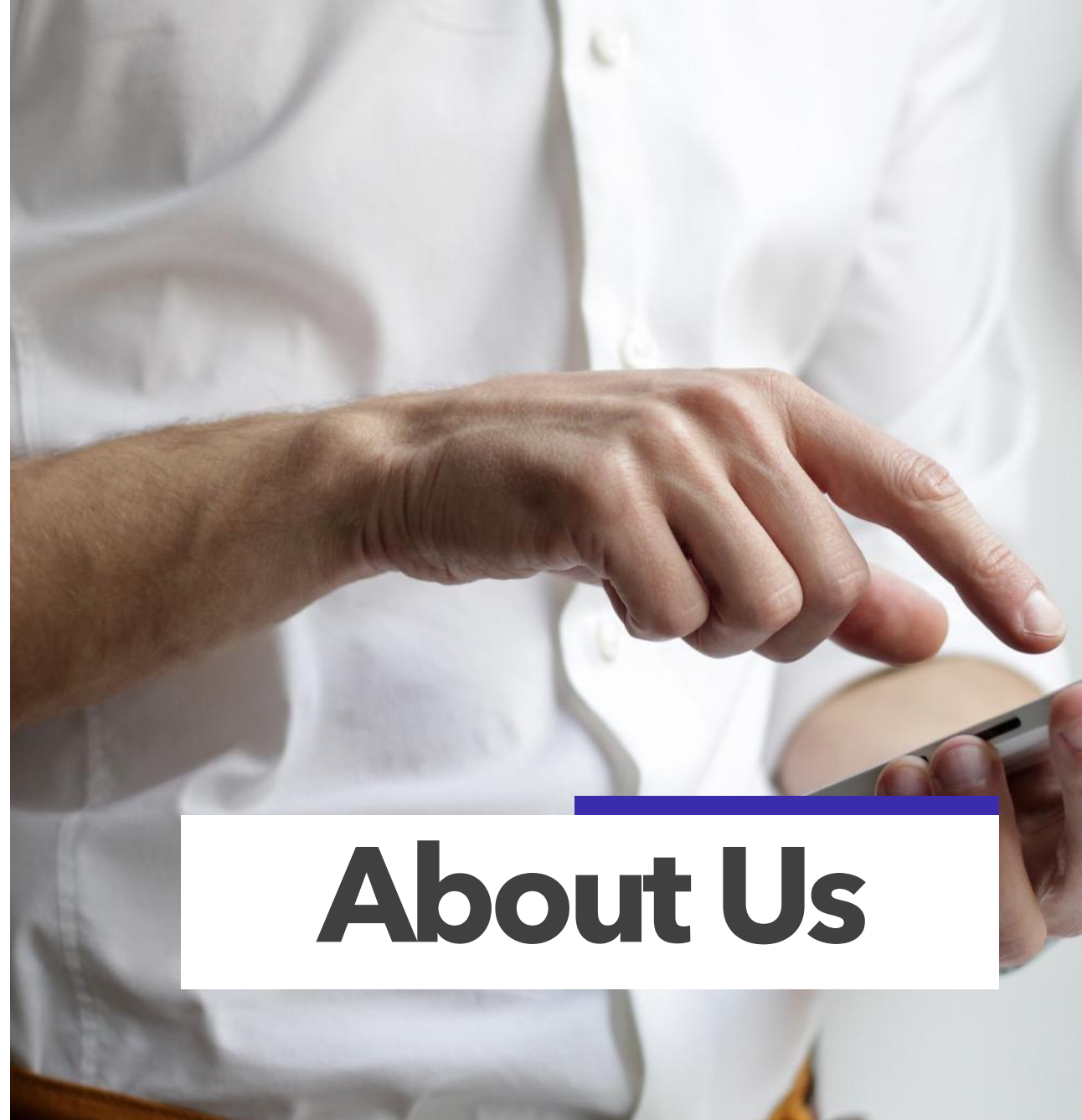
SNAKE GAME PROJECT

At IU, June 08th 2020, Semester 2 (2019 – 2020)

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About Us
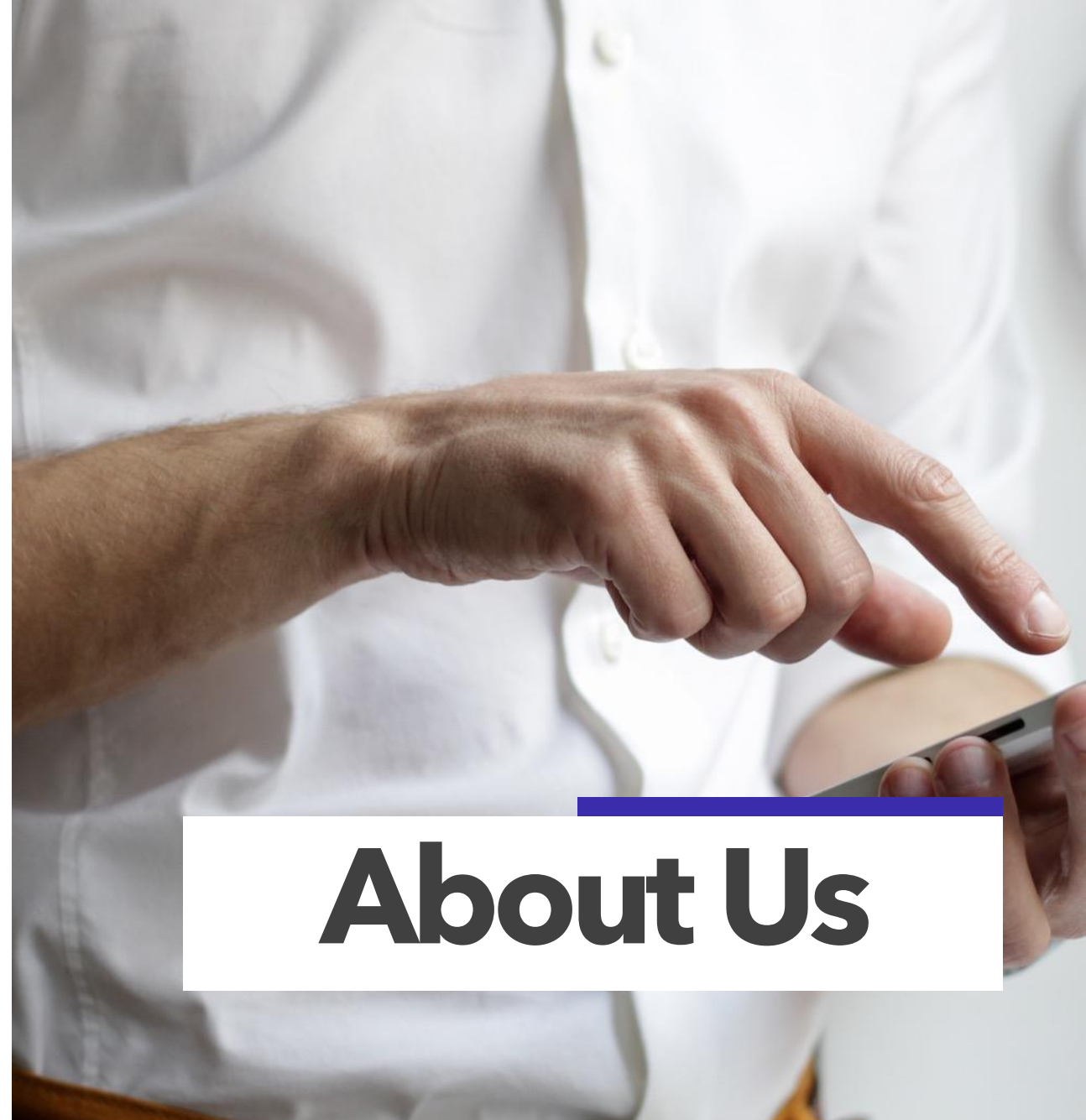
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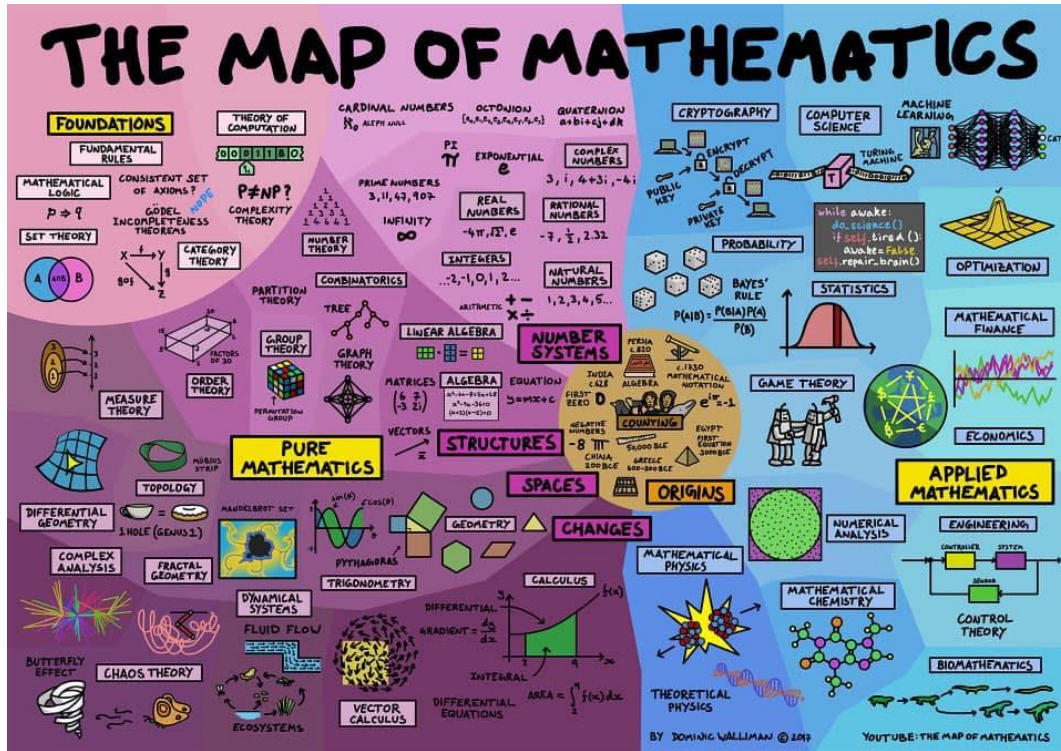
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SNAKE GAME

How to play

Player #1: Use Arrows to control.
Player #2: W(Up), S(Down), A(Left), D(Right).

Esc: Return to GUI - R: Replay
G + A: Game Paused - G + L: Game Played
M + A: Music Paused - M + L: Music Played
S + E = Single Easy Mode; D + E = Double Easy Mode;
S + H = Single Hard Mode; D + H = Double Hard Mode;
S + B = Single Brutal Mode; D + B = Double Brutal Mode;

ATTENTION

This is not

Normal SNAKE GAME

ATTENTION

This is not

Normal SNAKE GAME

ATTENTION

This is called
"NHÂN PHẨM" GAME

ATTENTION

This is called
"NHÂN PHẨM" GAME

WHERE YOU NEED

- Higher level of "nhân phẩm" than League of Legends – Teamfight Tactics

- Powerful – jet engine eye vision to see hidden obstacles

- Prediction skills with high IQ level to predict whether obstacles snaps into your stupid face.

- Ultra reflection speed to dodge every obstacles, especially in "Deadly" Bonus Time
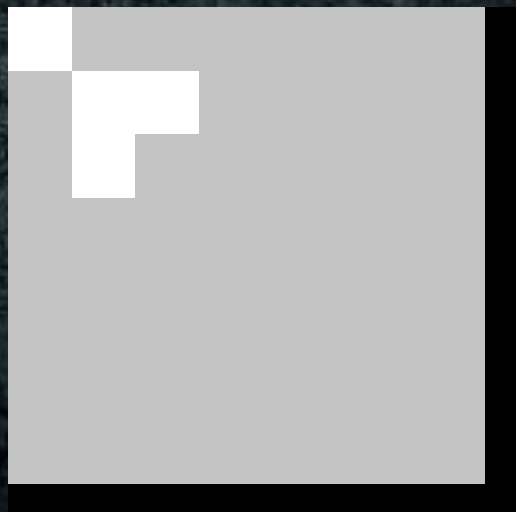
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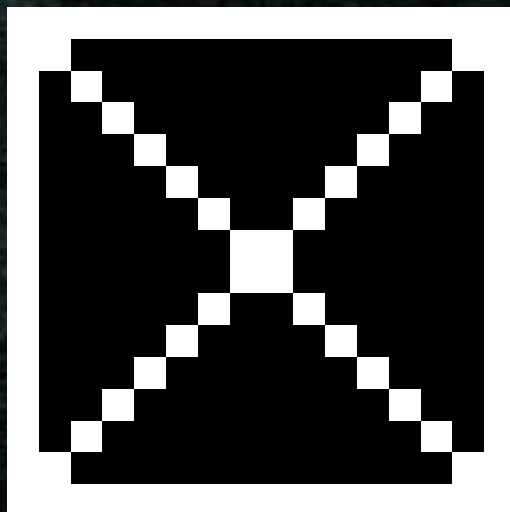
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SFML Library

https://www.sfml-dev.org/index.php

- Multi-media, multi-platform, and multi-language.
- Tutorial: included in GitHub with the name: Snake-Game-at-IU (public) – Full instruction to install the game

Food

- Three types of Fruit with random generator:
1. Apple: 2 points
2. Melon: 5 points
3. Strawberry: 10 points

ADDITIONAL FEATURES

Music

- Six (06) suitable music included

- Can choose to **pause or** **replay** that music again without causing troubles

- Restart function: Reset the game and randomize music

Game Status

- Immediate troubles from players. How to solve?

- Pause, Replay, Restart, Mode Changing, and Exit button

Score Database

- Programmers wants players to achieve some extent of satisfaction through score comparison.

- No score is stored because player will continue playing over and over which decrease the working efficiency and attention, causing insomnia and headache if scores are stored

Game Mode (Part 01)

- Six (06) different Game Mode: Single Easy, Single Hard, Single Brutal, Double Easy, Double Hard, Double Brutal (changeable).

- Differentiating by "Delay" variable, Game Rules, and Obstacles

Game Mode (Part 02) – Delay variable

- Delay variable determines the speed of snake.

- Easy: $Delay = 0.15(1 - 05\%)^{int\frac{Time}{30}}$

- Hard: $Delay = 0.10(1 - 10\%)^{int\frac{Time}{30}}$

Game Mode (Part 02) – Delay variable

⇒ Most will fail after 15 minutes in Easy Mode and 7.5 – 10 minutes in Hard Mode and 5 minutes after 5 minutes in Brutal.

(Human Reaction ranging from 0.1 s <-> 0.3 s)

Time Passed (s)	Delay (s) in Easy Mode	Delay (s) in Hard Mode
0	0.15	0.1
60	0.1353	0.081
240	0.0995	0.0478
300	0.0898	0.0348
450	0.0694	0.0205
600	0.0537	0.0121
900	0.0323	4.239×10^{-3}
1200	0.0193	1.478×10^{-3}
1800	6.91×10^{-3}	1.797×10^{-4}
2400	2.477×10^{-3}	2.185×10^{-5}
3600	3.184×10^{-4}	3.229×10^{-7}

Game Mode (Part 03) – Game Rules

EASY MODE

- Snake can pass wall, bite himself or other Snake

- Low Speed Initial, less Obstacles (still random)

HARD MODE

- Snake cannot pass wall, or bite other Snake

- High Speed Initial, more Obstacles (still random)

Game Mode (Part 04) – Obstacles

EASY MODE

- Durations: 20 seconds

After 35 seconds passed:

ObstacleNumber += 10;

HARD MODE

- Durations: 30 seconds

After 45 seconds passed:

ObstacleNumber += 30;

Game Mode (Part 05) - Brutal Mode

- **Obstacles**: Some obstacles can be repeated so the factual number of obstacles is smaller than the theoretical one. (Duration: 45s)

$$Obstacles = 10(1 + 75\%)^{int\frac{Time}{60}}$$

- **Game Rule**: As same as Hard Mode, but Snake cannot bite himself.

- Speed: $Delay = 0.10(1 - 10\%)^{int\frac{Time}{20}}$

Time Passed (s)	Delay (s) in Brutal Mode	Number of Obstacles (Theoretical)
0	0.1	10
60	0.0729	17
120	0.0531	30
180	0.0387	53
240	0.0282	93
300	0.0205	164
360	0.015	287
420	0.0109	502
480	7.977×10^{-3}	879
540	5.815×10^{-3}	1539
600	4.239×10^{-3}	2639

Game Mode (Part 06) – Bonus Time

- After 75 seconds in silence, there are 150 fruits available on the screen (theoretical) on the screen for 15 seconds before disappearing. However, this bonus time can cause death if players does not pay attention.

Score = Score + 10

Length = Length + 5

Score = Score + 20

Length = Length + 10

Score = Score - 50

Length = Length - 25

Note

- Obstacles can appear randomly without warning to increase the Game Difficulty. But you will only die if you hit the Snake's Head into it. Obstacles will appear again after 15 seconds of disappearing.

- If you are unlucky, "nhân phẩm kém, thích cà khịa", the Obstacle will appear right on the Food's place, so you will have to wait.

There is one cheat code to pass two annoying situations if you are the one with "nhân phẩm kém, thích cà khịa"

Recommendations

In order to achieve highest level of satisfaction:

- A personal computer (PC) or laptop is a must.

- You must have the ability of <u>counting time, guessing Obstacles, and tricking partners</u> (you have to be smart if you played in Double Mode)

- You have to be <u>patient</u> at <u>all time</u>.

- You must have <u>high luck</u>. Do not overuse your lucky point overwhelmed.

- You have already known the rules <u>thoughtfully</u>.

- <u>Note</u>: You have to experience Easy Mode at the first trial (Three to five times for sure) before trying at Hard Mode or Brutal Mode. You have to pass at least three to five times with at least five (05) minutes each at Easy Mode before reaching to Hard Mode, and at least three to five times with at least three (03) minutes each at Hard Mode.

CONCLUSION

WORTH-PLAYING GAMES

CITATIONS

1. SFML Library: https://www.sfml-dev.org/index.php
2. Git-Hub Repository: https://github.com/IchiruTake/Snake-Game-at-IU

THANK YOU

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