A
PROJECT REPORT
ON

Python Snake Game

Towards partial fulfillment of the requirement in
2nd Semester IMCA 2021-22

Submitted By:-

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Submitted To:-

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Under the Guidance of:

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Acknowledgement

The success and final outcome of this project required a lot of guidance and assistance from many people and we are extremely privileged to have got this all along the completion of our project. All that we have done is only due to such supervision and assistance and we would not forget to thank them.

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PARUL INSTITUTE OF COMPUTER APPLICATION

CERTIFICATE

This is to certify that that ***Rashika Vidyarthi***, ***Rishabdev Panchal*** *and* ***Swayam Rajora*** the student(s) of Parul Institute of Computer Application, has/have satisfactorily completed the project entitled ***Python Snake Game*** as a part of course curriculum in BCA/B.Sc. IT/IMCA semester-II for the academic year 2021-2022 under guidance of ***Prof. Ravi Nimavat.***

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Quality of work	Grade	Sign of Internal guide
Poor / Average / Good / Excellent	**B /B+ / A / A+**	

Date of submission:

HOD, Principal,

Prof. Hina Chokshi Dr.Priya Swaminarayan

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ABSTRACT

- Snake game is one of the most popular arcade games of all time. In this game, the main objective of the player is to catch the maximum number of fruits without hitting the wall or itself.

- It is one of the best beginner-friendly projects that every novice programmer should take as a challenge.

- The game should be displayed on a window with a fixed size.

- The snake should consist of a head and a body made up of square blocks. The head should move around the screen, and the body should follow behind it.

- The game should end if the snake collides with the walls or with its own body.

CHAPTER I
INTRODUCTION TO PROJECT

- This is a simple python based snake game, which uses the arrow keys button to move the snake and makes the snake help to eat food.
- The more it eats the food the longer it gets.
- The player must avoid hitting the walls/boundries and the snake's own body while manoeuvring .
- The game gets progressively harder as the snake grows longer and moves faster.
- If the snake eats a food, it grows by one unitand the next food piece genetates to a new random position.
- If a snake collapses with itself or any of the border, the game restarts with the same previous snake size.

CHAPTER II
SYSTEM REQUIREMENTS AND SPECIFICATIONS

2.1 Introduction to SRS

2.1.1 What is SRS?

A software requirements specification (SRS) is a description of a software system to be developed. It lays out functional and non-functional requirements, and may include a set of use cases that describe user interactions that the software must provide.

2.1.2 Need of SRS

In order to fully understand one's project, it is very important that they come up with a SRS listing out their requirements, how are they going to meet it and how will they complete the project. It helps the team to save upon their time as they are able to comprehend how are going to go about the project. Doing this also enables the team to find out about the limitations and risks early on.

2.2 Hardware Requirement

Hardware Components	Specification
Processor	Intel i3 or more
RAM	2GB or more
Hard disk	256GB or more
Monitor	15.6 colour monitor or advance
Device	Keyboard, Mouse

2.3 Software requirements

Name of Component	Specification
Operating System	Windows, MacOS, Linux, Ubantu
Software Development Kit	Python 3 or above
Programming Language	Python Programming

2.4 System Users

In this project, there is only one user, the person who runs the code or the player.

2.5 Description of User Role

2.5.1 Player 1

The Main role of the user is to play and enjoy the game and create the highest score possible.

2.6 System Features

2.6.1 Source of Entertainment
2.6.2 Increases concentration
2.6.3 Relaxation/Mind Refreshment
2.6.4 Brings back old nostalgic memories

2.7 Description of Features

2.7.1 Source of Entertainment

The player enjoys the game contributing in more enjoyment in his life

2.7.2 Increases concentration

Has to keep focus and make a good high score.

2.7.3 Relaxation/Mind Refreshment

Mind Refreshment increases in working capacity of human Body & Brain

2.7.4 Brings back old nostalgic memories

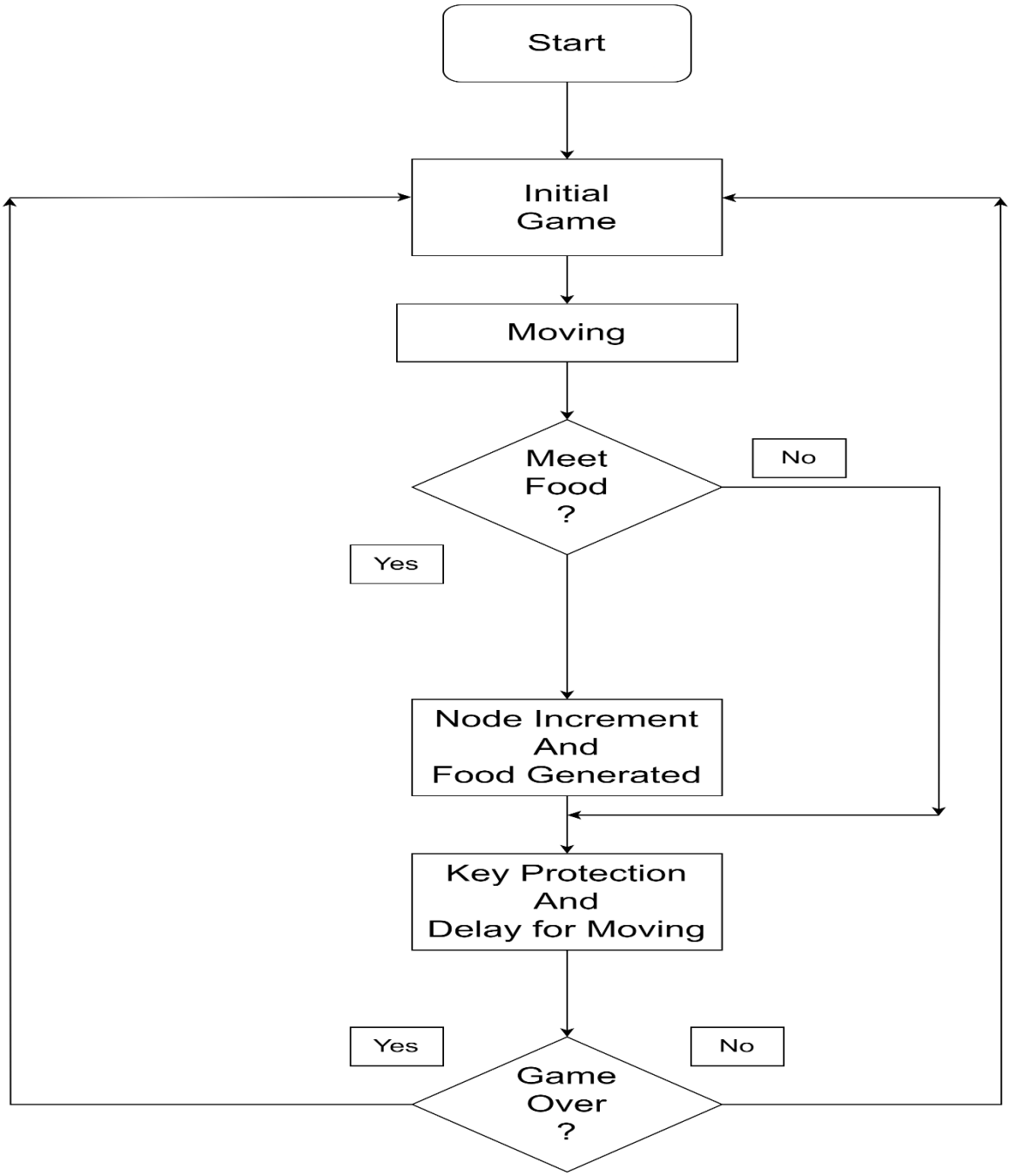
Remembers old memories from his/her childhood

2.8 Timeline Chart

Development phase	*75 Days*						Duration N (days)
	0to10 days	11to20 days	21to30 days	31to40 days	41to50 days	51to75 days	
Requirement Gathering							07
Analysis							09
Design							10
Development Phase 1							13
Development Phase 2							13
Development Phase 3							13
Documentation							10
Total time (Days)							**75**

2.8 Time line chart of Python Snake Game

CHAPTER III
SYSTEM FLOW DIAGRAM



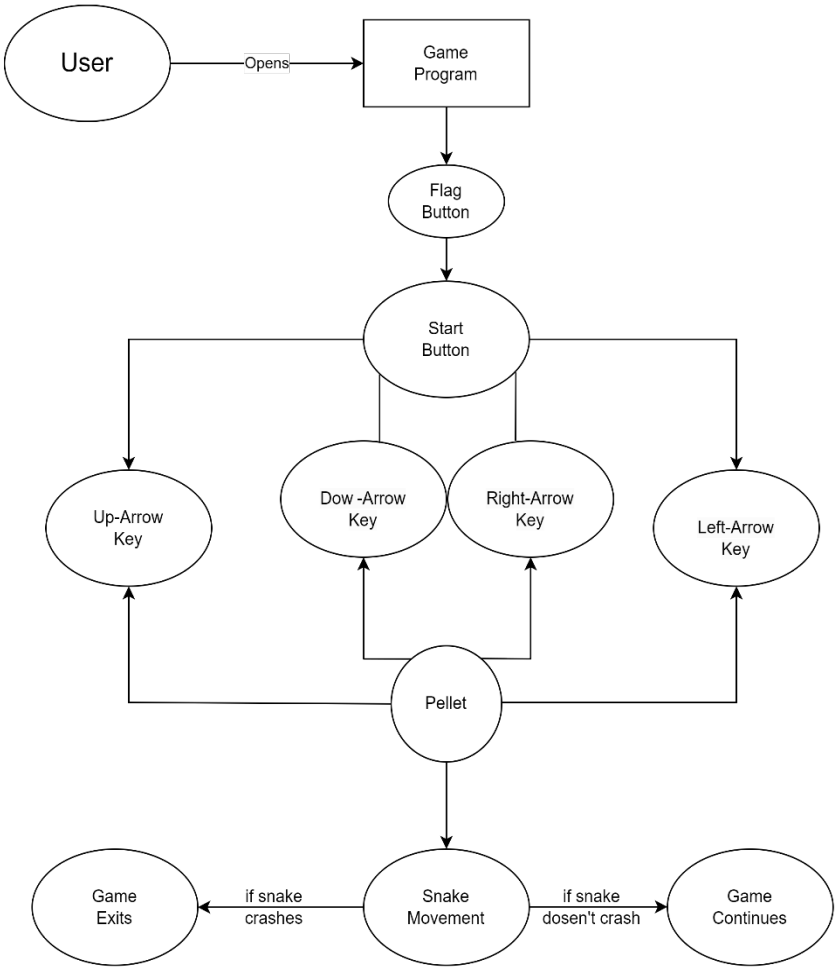
2.8 Time line chart of Python Snake Game

CHAPTER IV
DATA FLOW DIAGRAMS

3.1 Level Zero DFD:

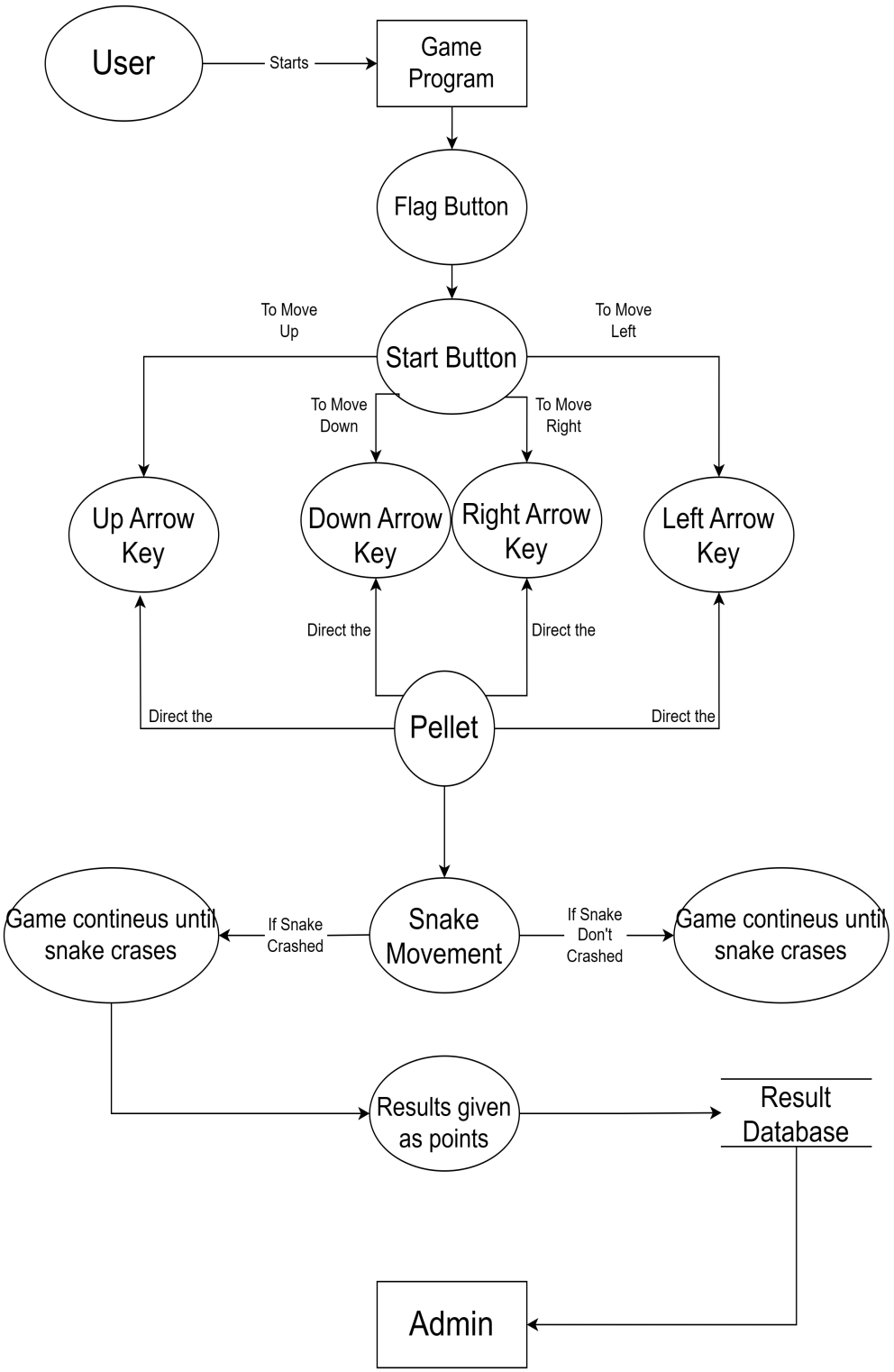
3.1 Level Zero DFD of Python Snake Game

3.2 Level One DFD:



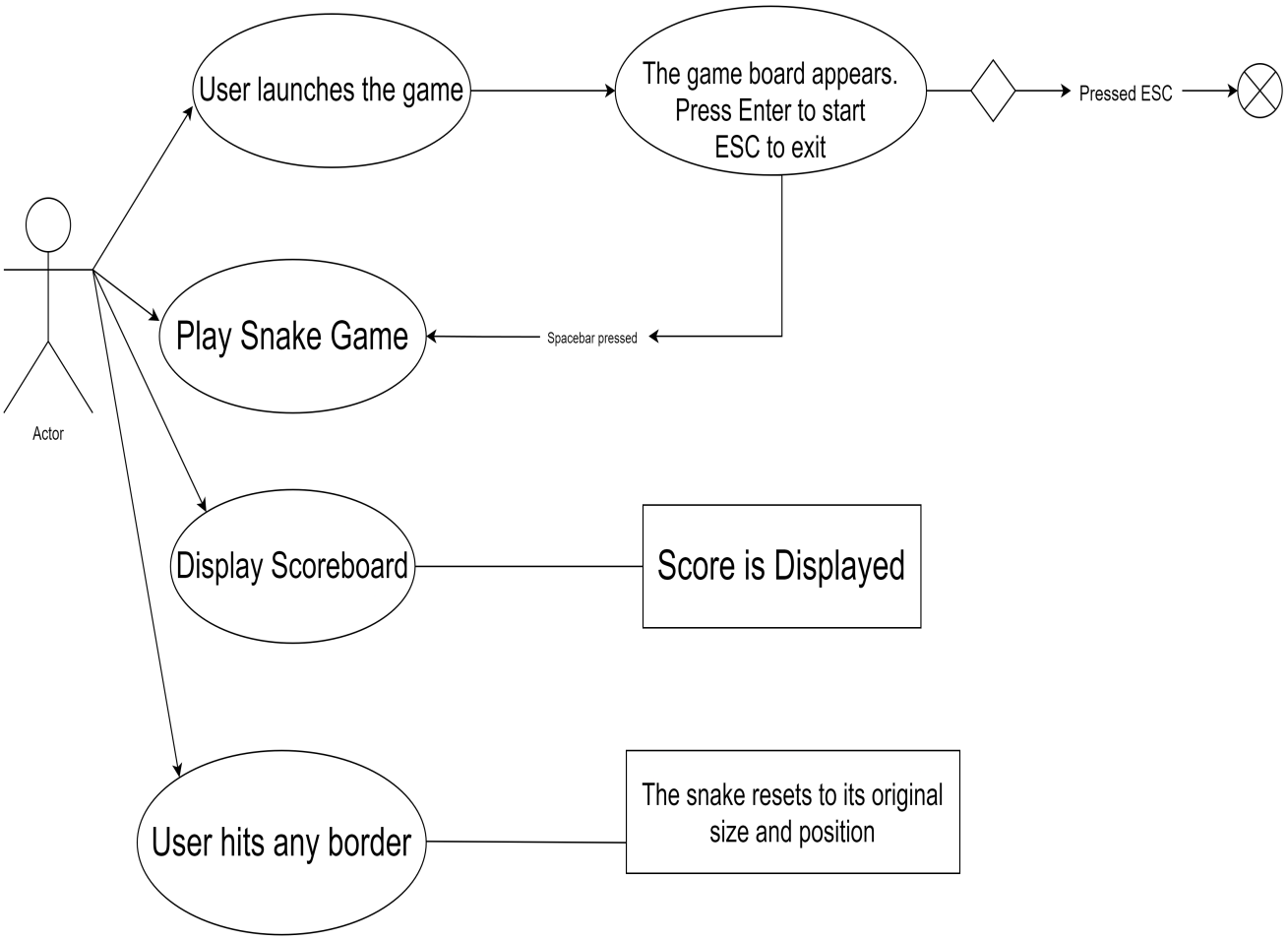
3.2 Level One DFD of Python Snake Game

3.3 Level Two DFD:



3.3 Level Two DFD of Python Snake Game

CHAPTER V
USE CASE DIAGRAM



4.1 Use Case Diagram of Python Snake Game

CHAPTER VI
DATA DICTIONARY

Name	Description	Type
SCREEN WIDTH	Width of the game screen in pixels	int
SCREEN _ HEIGHT	Height of the game screen in pixels	int
GRID _SIZE	Size of each grid square in pixels	int
GRID_WIDTH	Width of the game screen in grid units	int
GRID_HEIGHT	Height of the game screen in grid units	int
UP	Direction constant for up movement	int
DOWN	Direction constant for down movement	int
LEFT	Direction constant for left movement	int
RIGHT	Direction constant for right movement	int
SNAKE_COLOR	Color of the snake	tuple
APPLE_COLOR	Color of the apple	tuple
FPS	Frames per second for the game loop	int
SNAKE	List of (x, y) tuples representing the snake's body	list
DIRECTION	Current direction of the snake	int
APPLE	(x, y) tuple representing the location of the apple	tuple
SCORE	Current score of the player	int
GAME_OVER	Boolean indicating whether the game is over	bool
CLOCK	Pygame clock object for timing the game loop	clock
SCREEN	Pygame display surface for rendering graphics	surface

5.1 Data Dictionary of Python Snake Game

CHAPTER VII
SCREENSHOT OF DEVELOPMENT PHASE 1

7.1 Snake Game Design

Figure 7.1 Snake Python Snake Game

7.2 Code of Snake Game

```
# import required modules
import turtle
import time
import random

delay = 0.1
score = 0
high_score = 0


# Creating a window screen
wn = turtle.Screen()
wn.title("Snake Game")
wn.bgcolor("blue")
# the width and height can be put as user's choice
wn.setup(width=600, height=600)
wn.tracer(0)

# head of the snake
head = turtle.Turtle()
head.shape("square")
```

Figure 7.2 Code of Python Snake Game

CHAPTER VIII
SCREENSHOT OF DEVELOPMENT PHASE 2

8.1 Snake Game Design

Figure 8.1 Python Snake Game Design

8.2Code of Snake Game

```
# import required modules
import turtle
import time
import random

delay = 0.1
score = 0
high_score = 0


# Creating a window screen
wn = turtle.Screen()
wn.title("Snake Game")
wn.bgcolor("blue")
# the width and height can be put as user's choice
wn.setup(width=600, height=600)
wn.tracer(0)

# head of the snake
head = turtle.Turtle()
head.shape("square")
head.color("white")
```

Figure 8.2 Code of Python Snake Game

CHAPTER XI
SCREENSHOT OF DEVELOPMENT PHASE 3

9.1 Snake Game Design

Figure 9.1 Python Snake Game Design

9.2Code of Snake Game

```
# import required modules
import turtle
import time
import random

delay = 0.1
score = 0
high_score = 0


# Creating a window screen
wn = turtle.Screen()
wn.title("Snake Game")
wn.bgcolor("blue")
# the width and height can be put as user's choice
wn.setup(width=600, height=600)
wn.tracer(0)

# head of the snake
head = turtle.Turtle()
head.shape("square")
head.color("white")
```

Figure 9.2 Code of Python Snake Game

CHAPTER X
CONCLUSION

- The simple game is entertaining, still is not a fully fledged game with good graphics.

- We will be working on similar python-based games.

CHAPTER XI
FUTURE ENHANCEMENT

- Later our team will be creating a website that lets a user play some beginner level python-based games.

- The Website will even let a user upload their self-made python games.

- The Future website will be similar to a code complier rather than other normal comilers, it will have many pre-installed plugins, liblaried, and modules.

CHAPTER XII
REFERENCES

Website:

1. https://stackoverflow.com/questions/30050194/snake-game-in-python-using-turtle-graphics

Book:

1. Class 12 Computer Science Textbook

Other Resources:

1. https://www.youtube.com/watch?v=bfRwxS5d0SI&t=1284s (Youtube)