Snake Game

A Project

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ABSTRACT

The project is intendent to develop a game with C program.

This project aims to bring the fun and simplicity of snake game with some new feature. whose aim will be to challenge the human players. It will also have the multiplayer feature that will allow more than one player to play the game over a network. This project explores a new dimension in the traditional snake game to make it more interesting and challenging. The simplicity of this game makes it an ideal candidate for a minor project as we can focus on advanced topics.

DECLARATION

We certify that this project is our original work. No part of this submitted elsewhere partially or fully for the award of any other degree. Any material reproduced in this project has been properly acknowledged.

We declare that this project and the work presented in it are our own and has been generated by us and hereby declare that the project entitled "**Snake Game"** submitted in partial fulfilment of the requirement for the degree of Bachelor of Science and Engineering (CSE) of Bangladesh University of Business & Technology (BUBT), is our own work and that it contains no material which has been accepted for the award to the candidate(s) of any other degree or diploma, except where due reference is made in the text of the project . To the best of our knowledge, it contains no materials previously published or written by other person except where due reference is made in the project.

CERTIFICATE

This to certify that Md Mahmudul Hasan, Arifur Rahaman Ovi, Md Mahbubur Rahman Khan & Meftahul Jannat of B.sc Engg. in CSE has completed their project work titled "Snake Game" In partial fulfillment for the requirement of B.sc Engg. in CSE Bangladesh University of Business & Technology (BUBT) in the year of 2020.

Project Supervisor

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DEDICATION

We dedicated our dissertation work to our family and helpful Teachers who have motivated, encouraged and supported us throughout the process. And we also dedicated this work to Almighty Allah out creator, our source of inspiration, Wisdom, Knowledge and understanding.

APPROVAL

This project “Snake Game” submitted by Md Mahmudul Hasan ID NO:18192103139, Arifur Rahaman Ovi ID NO:18192103141, Md Mahbubur Rahman Khan ID NO: 18192103150, Meftahul Jannat ID NO:18192103149 Department of Computer Science and Engineering(CSE), Bangladesh University of Business and Technology(BUBT) under the supervision of Md. Anwar Hussen Wadud, Lecturer, Department of Computer Science and Engineering has been accepted as satisfactory for the partial fulfillment of the requirement for the degree of Bachelor of Science (B.sc.Engg.) in Computer Science and Engineering and approved as to its style and contents.

Supervisor

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Dr. M. Ameer Ali (Professor)

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Table of Content

Project Background

Snake Game. It is a remake of traditional snake game with C Program – computer-controlled opponent snake and multiplayer functionality.

This project aims to bring the fun and simplicity of snake game with some new feature. Whose aim will be to challenge the human players. It will also have the multiplayer feature that will allow more than one player to play the game over a network.

The traditional snake game does not offer much challenge to its players. Hence players loose interest in the game after playing it for some time. Offering some sort of challenge and adventure to the players will help increase the addictive power of this game. This game will make this game more challenging and interesting.

Short Literature review

This proposal is organized into several subsections. The objectives of proposing the snake game for minor project is justified by the simplicity of the game. This will allow us to focus on more advanced topics like computer-controlled opponent.

Information about some of the existing snake games have been collected from the internet. Lots of variants of traditional snake game exists but none of this game provide the experience of a commercial multiplayer games.

A simple block diagram has been presented here which gives some insight into the structure of the game. This block diagram is for illustration purpose. The final block diagram will be more elaborate and will contain all the components of the game.

The scope of this project has been discussed taking into account its commercial value and educational value. The educational value of this project will allow us gain insight of the networking concepts used in multiplayer game.

Problem Statement

The traditional snake game does not offer much challenge to its players. It is impossible to bring out the best playing skill of a players unless a challenge is offered to them. The players loose interest in the game after playing it for some time due to lack of challenge. Hence when people hear about snake game, they quickly form an image of old age arcade game.

The absence of powerful graphical resources and weak support for networked application in the programming language is one of the factors that has delayed the development of an interesting and challenging version of snake game.

Objectives

This game aims to change the way people think of traditional snake game. It will offer the experience of commercial multiplayer games to the player retaining the simplicity of traditional snake game.

The major objectives of this project are:

1. Create a snake game that will have all the functionality of traditional snake games.
2. Introduce multiplayer functionality in the game that will allow several players to play a game simultaneously. It should give the experience of real time games to the players.

Exiting System Study

A large number of games based on the traditional snake game have been developed across large number of platforms (Linux, windows, etc.) and devices (mobile phones, portable game consoles, etc.). These games have lots of variations in them. Some of these games support multiplayer gaming. However, none of this game have the feature of "computer-controlled snake as opponent to the human players. Hence players loose interest in the game after playing it for sometime

Existing games:

● Nibbles - A worm game for GNOME. Supports multiplayer network game. No support for computer-controlled opponent snake.

● Original Nokia Phone snake game was included in early Nokia mobile phones. It is plain snake game without any additional feature like multiplayer

There are large number of variants of original snake game available on the internet. Almost all of them have same set of features. Some games provide the feature of multiplayer gaming.

Names of functions and their functionality

void gotoxy: Places Cursor on the screen at input coordinates x and y.

void clrscr(void): Clears screen.

void ret_color(void): Sets console back to normal(white) color.

void setcolor(int color): Sets console to an input color number.

void colorfn(void): Sets console to a random color.

void display_food(void): Displays food at a random location on the screen.

void welcome_mesg(): Displays a welcome message.

void buildwalls(): Displays outer walls.

void fs(): Puts the screen in fullscreen mode.

void check_hi_scores(int score): Compares the input high scores with those already saved in a file a new high score is saved in the file. also the file contents are displayed.

fs(): This function simulates alt+enter for fullscreen display.

intrst=0: Flag to check whether restart or initialize.

restart: This is a goto label.

x=24; :this is the position where the snake will be at the beginning of the game.

char cont: To save user response on exit confirmation.

intsnakelength=4: Assign a default length to the caterpillar/snake.

intspx[200]={24,24,24,24,24} : Array size can be extended to increase snake length.

int i: Needed in for loop.

intfoodflag=0: Use,when food is eaten, print another food somewhere on screen is zero when food is needed to be printed is one when food already exists on screen.

intxychanged=1: This flag indicates change in coordinates. initially set to true.

intcollisionflag=0: This flag indicates collision.1 when true.

int level=0: The level mainly as of now represents the speed of game.

delaytime=100: Higher delaytime=lower level.

char keypressed='i' : Initialize to prevent this variable from having a random garbage value. **welcome_mesg():** Call function that displays welcome message.

buildwalls(): Call function that displays boundary walls.

gotoxy(x,y): Print snake's head.

gotoxy(spx[0],spy[0]): This piece of code removes snake's trail.

case 'q': The user presses q key.

fflush(stdin): Clear up kb buffer to recieve input.

else if((cont=='g')): If player chooses a new game.

if(collisionflag==1): If collision has taken place display the following else continue as usual.

Sleep(1000): Small delay before displaying 'game over' message.

void ret_color(): This sets the color of display back to white.

void setcolor(int color): Sets console to an input color number.

void colorfn(): Sets console to a random color.

gotoxy(2,5): Special asciicharacters at the four corners.

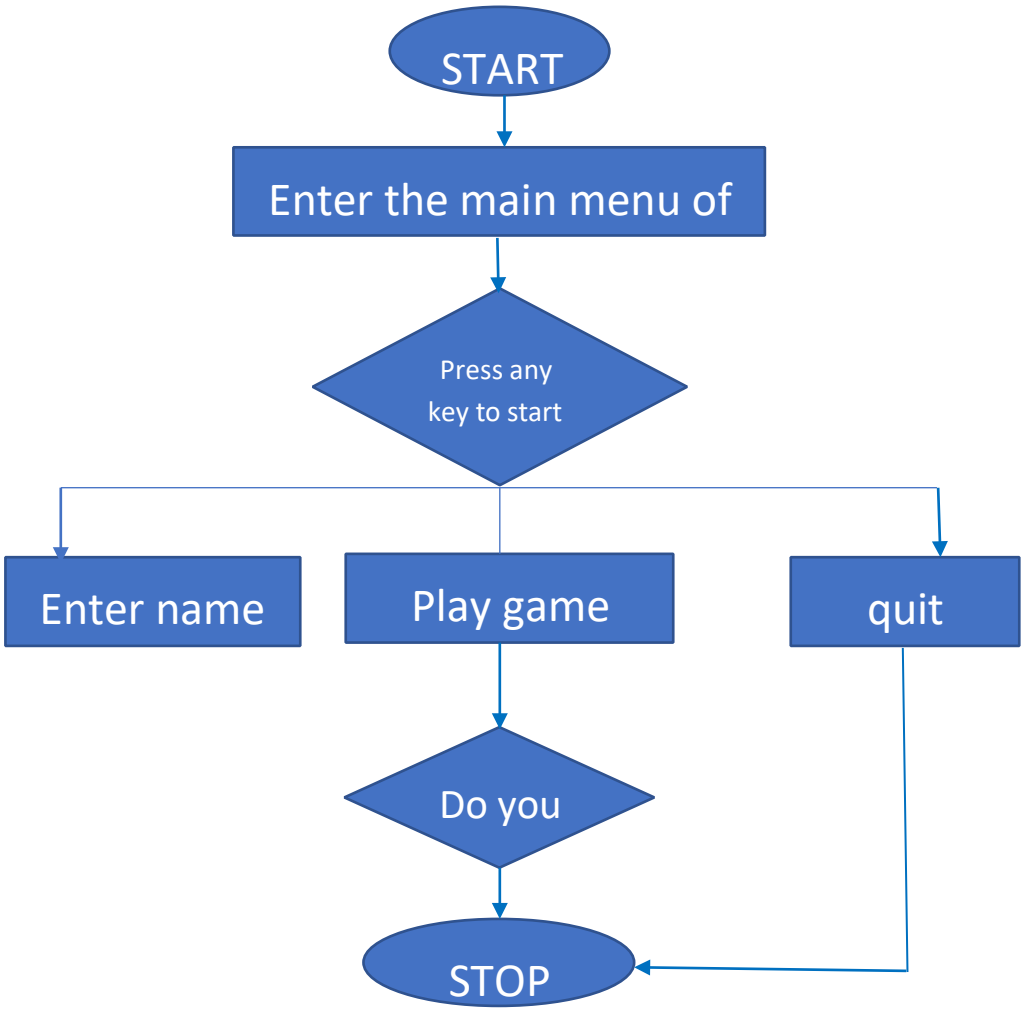
fclose(fp): Compare the current score with all stored high scores.

setcolor(7): Revert to normal color.

American Standard for Information Interchange (ASCII)

Technically, Ascii Is 7-Bit Representing Only 128 Characters (0-127). The Range 0-31 Are Control Characters, with 32-127 Representing Alphabetical Characters from A To Z, Numerals From 0 To 9 And Punctuation Marks (Though Not in That Order). Ascii Only May Be Used to Encode U.S. English. Some People Confuse Codes Above 128-255 To Be Ascii, But Technically Speaking, They Are Not. As Computers Evolved, It Became Common to Use An 8-Bit Byte. This Last Character Allowed for An Extra 128 Characters, Which Is Known as Extended Ascii. Different Systems Implement Extended Ascii Differently, So There Are Compatibility Issues That Aren't Encountered in The First 128 Character.

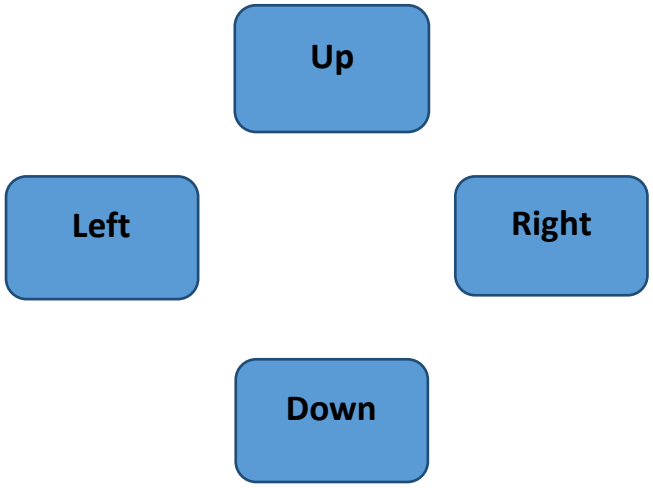
ER DIAGRAM


START
Enter the main menu of
Press any
key to start
Enter name
Play game
quit
Do you
STOP

How the Snake Game Works

How the Snake Game Draws the Snake:

- The snake drawn one pixel at a time.
- Uses the PSst command.
- User click on one of the path's directional command buttons to change the path of the snake.



Let's make some changes:

- Open the snake game from lesson 1.
- Change the value of **IngSnakeColor**to **vbRed.**
- Add the following code to your program:

SnakeColor = red_color

Run your program!

- The variable **spX** and **spY**, specify the point on the form where the text pixel will appear.
- The **sngXFactor** and **angYfactor** specifies the number of pixels that are to be added to
  spX to advance the head of the snake in the **X** direction.
  spY to advance the snake in the **Y** direction.

Expected Results

The final version of the proposed game will deliver the following features:

1. A game that will retain the simplicity of snake traditional snake game and contain attractive graphics and user interface to attract the players.
2. The real time experience of commercial multiplayer games will be available in the snake game that will allow more than one player to play a game simultaneously over a network.