SNAKE   GAME

A project report submitted In partial Fulfillment Of the Requirement for the

Award of degree of

Bachelor of Technology

In

Computer Science & Engineering

BY

ARJUN KUMAR SAINI	**(CSE)**
ARJUN PUNDEER	**(DS)**
PRAGYA MOHAN	**(LATERAL ENTRY, CSE)**
PINKU RATHOUR	**(LATERAL ENTRY, CSE)**

Under The Supervision Of

Mr . AMOL SHARMA

Assistant Professor

MEERUT INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

MEERUT INSTITUTE OF TECHNOLOGY, MEERUT

Affiliated to

DR. A.P.J. ABDUL KALAM TECHNICAL UNIVERSITY

UTTAR PRADESH, LUCKNOW

March, 2022

Certificate

I hereby declare that the work which is being presented in the project report entitled, "**SNAKE GAME**", in partial fulfilment of the requirements for the award of degree of Bachelor of Technology submitted in Computer Science and Engineering of Meerut Institute of Technology, Meerut, is an authentic record of my own work carried out under the supervision of **Mr. AMOL SHARMA** and refers other researcher's works which are duly listed in the reference section.

The matter presented in this Project has not been submitted for the award of any other degree of this or any other university

<div align="center">

ARJUN KUMAR SAINI

ARJUN PUNDEER

PRAGYA MOHAN

PINKU RATHOUR

</div>

This is to certify that the above statement made by the candidate is correct and true to the best of my knowledge.

(Name of Co. Supervison)   **Mr. AMOL SHARMA**

Meerut Institute of Technology,   Meerut Institute of Technology,

 MEERUT.   MEERUT.

Countersigned by

Mr. Ayush Singhal   **Mr. K.N. Tripathi**

<designation>   HOD – CSE

Meerut Institute of Technology,   Meerut Institute of Technology,

MEERUT.   MEERUT.

ACKNOWLEDGEMENT

It gives us a great sense of pleasure to present the report of the B. Tech Project undertaken during **B. Tech. Second Year**. We owe special debt of gratitude to **Mr. AMOL SHARMA** and **Mr. Aayush Singhal**, Department of Computer Science & Engineering, Meerut Institute of Technology, Meerut for his constant support and guidance throughout the course of our work. His sincerity, thoroughness and perseverance have been a constant source of inspiration for us. It is only his cognizant efforts that our endeavours have seen light of the day.

We also take the opportunity to acknowledge the contribution of **Mr. K.N. Tripathi**, Head, Department of Computer Science & Engineering, Meerut Institute of Technology, Meerut for his full support and assistance during the development of the project.

We also do not like to miss the opportunity to acknowledge the contribution of all project co-coordinators and faculty members of the department for their kind assistance and cooperation during the development of our project. Last but not the least, we acknowledge our friends for their contribution in the completion of the project.

Signature: Signature:

Name: **ARJUN KUMAR SAINI**   Name: **ARJUN PUNDEER**

Roll No.:   Roll No.:

Date: Date:

Signature: Signature:

Name: **PRAGYA MOHAN**   Name: PINKU RATHOUR

Roll No.:   Lateral Entry   Roll No.:   Lateral Entry

Date: Date:

ABSTRACT

This project aims to bring the fun and simplicity of snake game with some new features. It will include computer controlled intelligent opponents whose aim will be to challenge the human players. It will also have the multiplayer feature that will allow more than one players 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 like multiplayer functionality and implementation of computer controlled intelligent opponents.

TABLE OF CONTENTS

1 . INTRODUCTION

In this final project, we would like to implement a "Snake" game based on Javascript and HTML or CSS. We try to implement this simple game based on the basic design. The objective of this game is to eat square as many as possible and get to the High scores while avoiding running into yourself or out of the edges as it leads to the end of the game and starting of a new game. We are working with this game as our final year milestone project and as a part of our degree, we choose this type of work for doing better with the development cycle, development period, graphics, scripting, adopting new technology, animation. In a game project, the product is game. But and here comes the point: A game is much more than just software. It has to provide content to become enjoyable. Just like a web server: Without content the server is useless, and the quality cannot be measured. This has an important effect on the game project as a whole. The software part of the project is not the only one, and it must be considered in connection to all the other parts: The environment of the game, the story, characters, gameplay, and the artwork. The purpose of this document is to outline all aspects of the project created as part of the final year project for the CSE course. Over the following document, we shall, explain the reasons for the game, explain how the game works and give you our idea for the future of this game and others which will be made from it. The main aim of this project report is to highlight the features as follows: - •To show how the project is developed. •To show the details of design and coding.•To show how the user can work with the software.
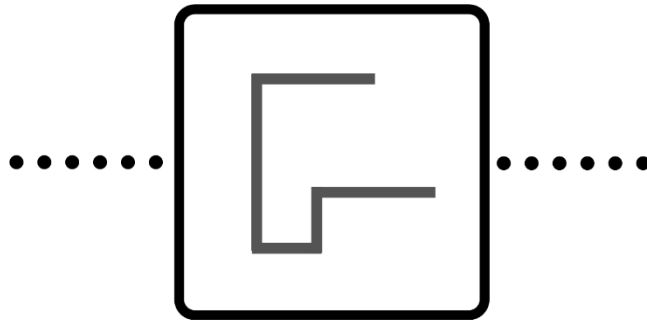
USER INTERFACE

Figure No - 2.1

1. Displaying the board and a still snake

First, we need to display the game board and the snake. Start by creating the file `snakegame.html`. This will contain all of our code. Next, open the file in your preferred browser.

To be able to create our game, we have to make use of the HTML `<canvas>`, which is used to draw graphics with JavaScript.
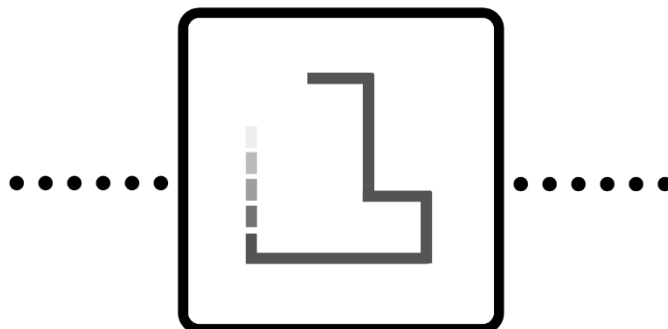

Figure No – 2.2

For now, the main function only calls the functions clear Canvas() and draw Snake(). On to the next step!

2 . <u>SOFTWARE REQUIREMENT SPECIFICATION</u>

- ## **Javascript :**

JavaScript often abbreviated JS, is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS. Over 97% of websites use JavaScript on the client-side for web page behavior, often incorporating third party libraries. All major web browsers have a dedicated JavaScript engine to execute the code on the user's device.

Javascript is chosen for our gaming project because it is quite easy to develop with some simple validations and error checks. Player-1 starts playing the game and both the players make their moves in consecutive turns. The player who makes a straight 3-block chain wins the game. This game is built on the front-end using simple logic and validation checks only.

- ## **CSS :**

    Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.

    CSS stylesheet will let us personalize the visual appearance of our game.

- ## **HTML 5**

    Html stands for Hyper Text Markup language.it is used to design web pages using markup language.Html is the combination of Hyper text and Markup language. Hyper text defines the text Document within tag which defines the structure of web page

HARDWARE SPECIFICATION :

- Intel i3 processor or equivalent or higher
- RAM – 4GB and higher
- ROM – 1 GB HDD or higher
- Network connectivity – Wi-fi or hotspot

SOFTWARE REQUIREMENTS :

- **HTML :**

  The HyperText Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.

  Web browsers receive HTML documents from a web server or local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

- **CSS**

  Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.

  CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. This separation can improve content accessibility; provide more flexibility and control in the specification of presentation characteristics; enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file, which reduces complexity and repetition in the structural content; and enable the .css file to be cached to improve the page load speed between the pages that share the file and its formatting.

- **JAVASCRIPT :**

  JavaScript often abbreviated JS, is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS. Over 97% of websites use JavaScript on the client-side.

FEASIBILITY STUDY

This Snake game is designed for use purposes. Any user can play this game is his laptop, pc or even mobile. Users have to extract the HTML file and run it on any web browser in your system.

when you play this game in your real life you have to invest money in paper and pen also space to play.
And you have to draw a new box of 16 * 16 when any user starts a new game. So it is more time-consuming by the way.

So, that's why this is project is built for solving the problem of users and we build this game.
we can use other technology like c language, c++ language, but the problem is it takes too much time to design this project and consume more time.

But this game is designed over new web technology like HTML, CSS, JAVASCRIPT because it is easy to use and see the output very quickly and programmers don't have to wait for the output results by the way and it is budget-friendly and time-saving technology.

So, here users don't have to compile this project every time. Simply any user can run this game in the web browser again and again without compiling and crashing.

3. TECHNICAL FEASIBILITY

This tic tac toe game uses such software technology as HTML, CSS, Javascript which are open source. Anybody can use this technology because it is free to use. when any user visited this site then freely used this code.
 Now, let's talk about the hardware technology here we use an Intel i3 processor and 1TB HDD or use 500 GB HDD also it depend upon the user.

So, our project is cost-effective from the business point of view and any user plays it for free. In this project, there is no need to invest too much money in making this gaming project also.

 If any user wants to customize this game in their way so, they can easily do this with the help of web development technology.

4 . System Design

• Data Flow Diagram (DFD) :

The DFD (also known as a bubble chart) is a hierarchical graphical model of a system that shows the different processing activities or functions that the system performs and the data interchange among these functions. Each function is considered as a processing station (or process) that consumes some input data and produces some output data. The system is represented in terms of the input data to the system, various processing carried out on these data, and the output data generated by the system. A DFD model uses a very limited number of primitive to represent the functions performed by a system and the data flow among these functions.
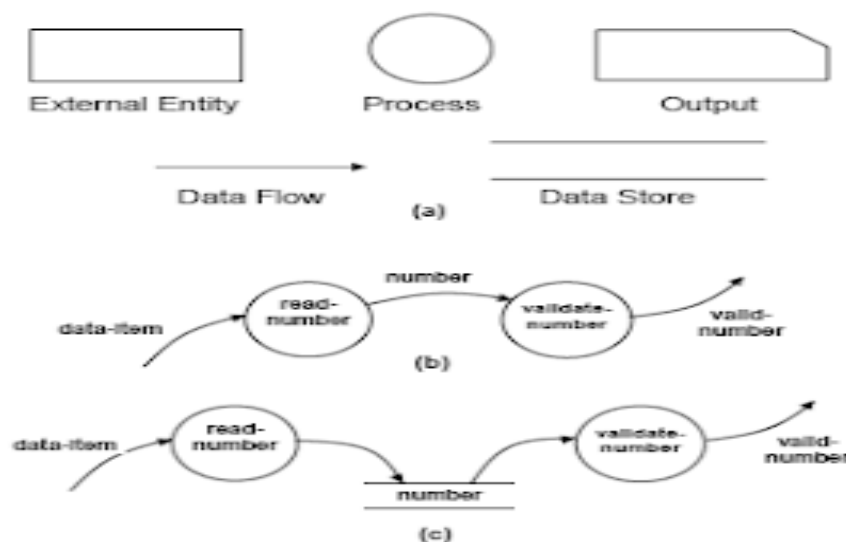
Data flow diagram

Figure No – 4.1

Here, two examples of data flow that describe the input and validation of data are considered. In Fig. 5.1(b), the two processes are directly connected by a data flow. This means that the 'validate-number' process can start only after the 'read-number' process had supplied data to it. However, in Fig 5.1(c), the two processes are connected through a data store. Hence, the operations of the two bubbles are independent. The first one is termed 'synchronous' and the second one is' asynchronous'.

Importance of DFDs in a good software design

The main reason why the DFD technique is so popular is probably that DFD is a very simple formalism – it is simple to understand and use. Starting with a set of high-level functions that a system performs, a DFD model hierarchically represents various sub-functions. Any hierarchical model is simple to understand. The human mind is such that it can easily understand any hierarchical model of a system – because in a hierarchical model, starting with a very simple and abstract model of a system, different details of the system are slowly introduced through different hierarchies. The data flow diagramming technique also follows a very simple set of intuitive concepts and rules. DFD is an elegant modeling technique that turns out to be useful not only to represent the results of structured analysis of a software problem but also for several other applications such as showing the flow of documents or items in an organization.
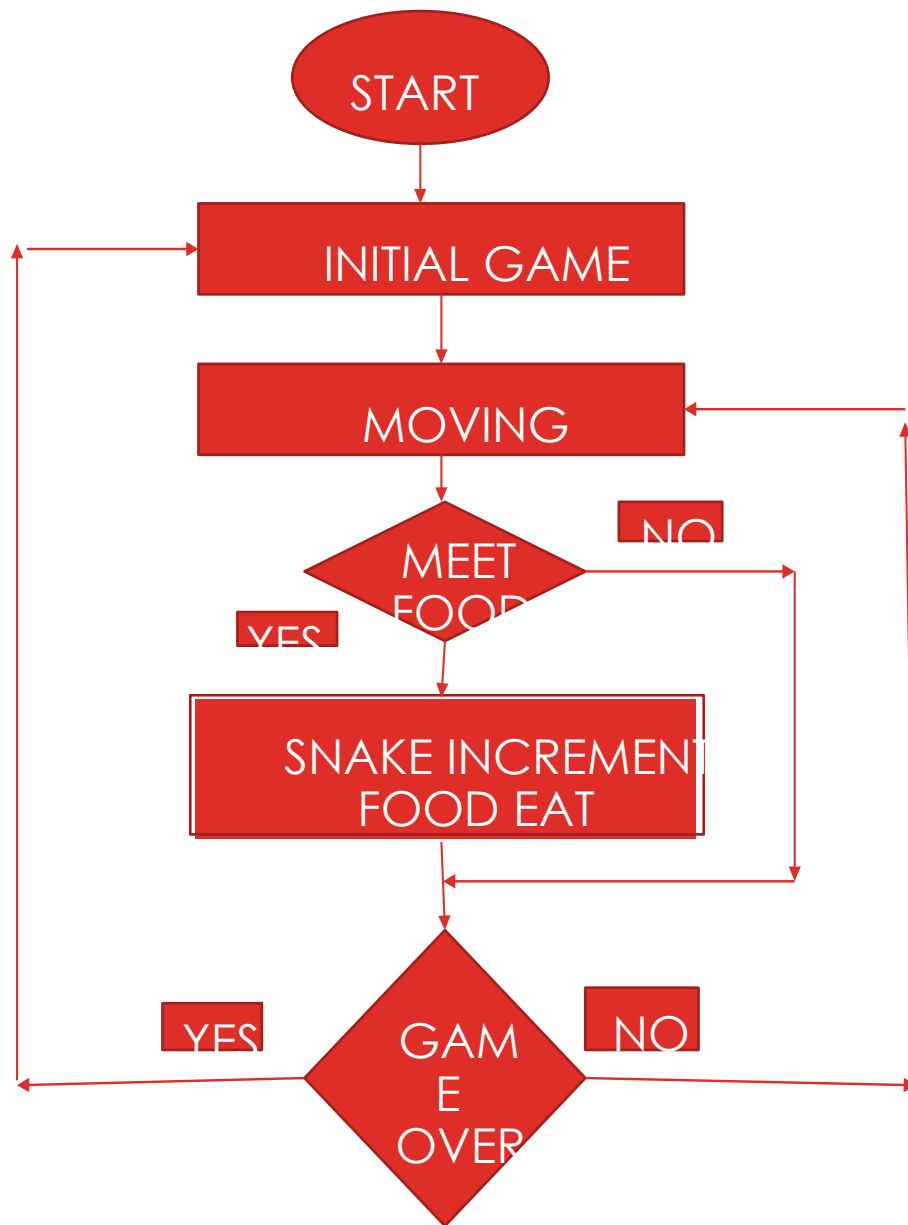
Figure No - 4.2
Activity Diagram

Basic notation of activity diagram :

| Notation	Definition
Filled circle	Start (Initial node)
Filled concentric circle	Finish (Final node) : An activity may have more than one activity final node
activity **Rounded Rectangle**	Activities
Obect/Node **Rectangles**	Other Objects (the different systems)
Arrows	Flow of work
Diamond	Branch and Merge : A decision node accepts tokens on an incoming edge and presents them to multiple outgoing edges.
Guards	Condition under which flow is taken out of branch
Solid bar	Activity coordination/concurrency control (Fork join)

5. SNAPSHOTS :
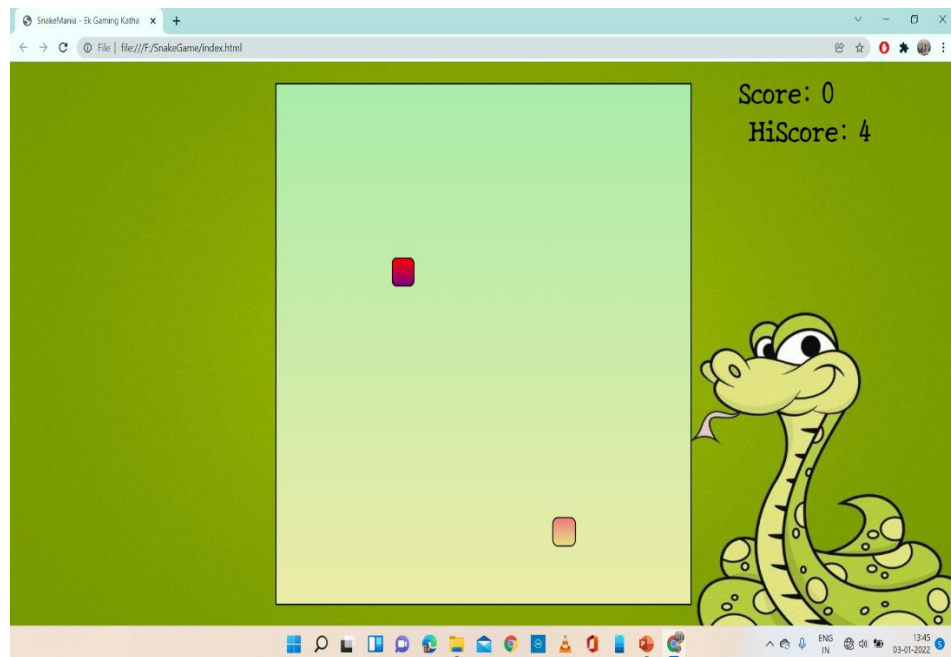
FIGURE No – 5.1
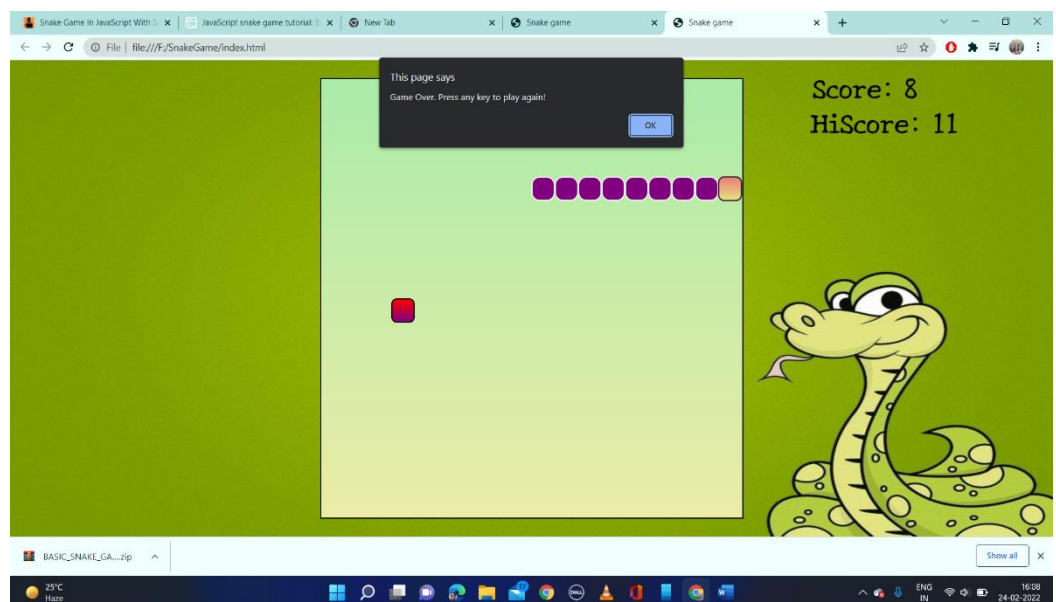
Figure No – 5.2

6 . CONCLUSION :

The coding of Snake was extremely difficult with many errors arising. Many systems had to be written numerous ways before a final working solution was found. For example, two different movement methods were used prior to final version; however, even the final version is flawed as vertical movement causes the snake to change scale. There were also issues with the food – snake collision detection. While the final version resulted in a snake that could eat food, the movement glitch caused the food to cause further size issues.

Despite the fact that the game could not truly be played due to the fact no score could be given, the game is still satisfying. With the exception of the size glitch when turning, the snake responds to user input and moves around the screen as directed. Given longer to work on this, the collision detection with the movement would be the first thing fixed. By fixing this, all other sections of code that are currently not working would run.

FUTURE SCOPE :

we truly enjoy making and playing games. That is why we were excited to write an article about creating a Snake Game JavaScript game, which is simple enough to be an interesting project for both our students or just someone that is self-learning.

We hope to inspire other users while introducing them to both game and web

development at the same time. With JavaScript, HTML, and CSS you are free to

explore and experiment while making a simple game.

Users can make this game using other technology to enhance the project. In the future using this project convert it into the mobile app and any user directly install it from the google play store and play this game on mobile phones.

7 . REFERENCES :

1. https://www.w3schools.com/jsref/default.asp
2. https://www.tutorialspoint.com/index.htm
3. https://ilovecoding.org/blog/js-cheatsheet
4. https://zetcode.com/javascript/snake/
5. https://webdevtrick.com/javascript-snake-game-source-code/
6. https://www.freecodecamp.org/

7. **^** Jump up to:*ᵃ ᵇ Gerard Goggin (2010), Global Mobile Media, Taylor & Francis, p. 101, ISBN 978-0-415-46917-3, retrieved April 7, 2011*
8. **^** *Rusel DeMaria & Johnny L. Wilson (2003). High score!: the illustrated history of electronic games (2 ed.). McGraw-Hill Professional. p. 24. ISBN 0-07-223172-6. Retrieved April 7, 2011.*
9. **^** *"Blockade video game, Gremlin Ind, inc. (1976)". Arcade-history.com. April 4, 2008. Archived from the original on June 11, 2011. Retrieved November 4, 2011.*
10. **^** *Blockade at the Killer List of Videogames*
11. **^** *Rusel DeMaria & Johnny L. Wilson (2003). High score!: the illustrated history of electronic games (2 ed.). McGraw-Hill Professional. p. 48. ISBN 0-07-223172-6.*
12. **^** *"You have 4537 of 4549 known Tandy Radio Shack TRS-80 - Model I games". Archived from the original on August 12, 2011. Retrieved November 4, 2011.*
13. **^** *"Retrogaming Times Monthly 7". My.stratos.net. January 1, 2005. Archived from the original on September 22, 2011. Retrieved November 4, 2011.*
14. **^** *Gesenhues, Amy (September 27, 2017). "Google's latest Easter Egg is a video game that shows up with searches for 'snake' & 'play snake'". Search Engine Land. Retrieved November 1, 2017.*
15. **^** *More, James (January 20, 2009). "History of Nokia part 2: Snake | Nokia Conversations - The official Nokia Blog". Conversations.nokia.com. Archived from the original on July 23, 2011. Retrieved November 4, 2011.*
16. **^** *"Taneli Armanto: Snake Creator Receives Special Recognition". Dexigner. Archived from the original on 2 October 2017. Retrieved 6 March 2013.*
17. **^** *neoncherry (August 12, 2007). "The Unofficial Nokia Gaming Blog: Snakes for S60 Download". Archived from the original on November 1, 2007. Retrieved November 4, 2011.*
18. **^** *Nokia 3310 relaunched today with new version of Snake, 24 May 2017, archived from the original on 28 June 2017, retrieved 14 June 2017*
19. **^** *"Top 100 Games of All Time". Next Generation. No. 21. Imagine Media. September 1996. pp. 55–56.*
20. **^** *"MoMA | Video Games: 14 in the Collection, for Starters". Archived from the original on September 8, 2015. Retrieved March 24, 2016.*