

MULTI-GAME SYSTEM



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MULTI-GAME SYSTEM

A Project Work

Submitted in the partial fulfillment for the award of the degree of

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AIML

Submitted by:

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**CHANDIGARH
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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
APEX INSTITUTE OF TECHNOLOGY**

**CHANDIGARH UNIVERSITY, GHARUAN, MOHALI - 140413,
PUNJAB**

MONTH: July & YEAR: 2021

DECLARATION

I, '**Akshay Kumar Kushwaha**', student of '**Bachelor of Engineering in AIML** ', session: **2020-2024**, Department of Computer Science and Engineering, Apex Institute of Technology, Chandigarh University, Punjab, hereby declare that the work presented in this Project Work entitled '**Multi-Game System**' is the outcome of our own bona fide work and is correct to the best of our knowledge and this work has been undertaken taking care of Engineering Ethics. It contains no material previously published or written by another person nor material which has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

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Date: 27/July/2021

Place: Patna, Bihar

Abstract

The name of project is Multigame System as its name suggest it is a system of multiple games. It allows user (player) to select any games from given option under the available games provided list.

Game available in our multi-game system are:

- Car game
- Tic Tac Toe game
- Hangman Game
- Word Guessing
- Casino Game

Every game included are in their updated form with some new additional features.

This multi-game system not only allows user(player) to play games but also keeps track of time duration upto which user(player) has played the game.

Time taken to play the game is shown after every game.

The Total time (sum of times taken in each game) and current day, date, time is reflected at the end of the whole game.

There is a function for handling files to update game scores and data to file and to take data from files to game while running.

This system also keeps track of the played history, which counts the number of times the user (player) have visited a played a particular game.

This multigame system consisted of many games in their upgraded ways and it itself is updated way of played games as it have many games in a single system.

User (player) is asked for a rematch at end of every game. Along with this awesome feature this system also have sound system in word guessing game.

To enhance the playing experience of the user (player). Furthermore it allows user (player) to enter their name to keep track of the playing history in a single go.

This Multigame system have bright scope for up gradation as we can many more games it in to improve playing experience. We can also add more theme songs for each particular game for smooth and amazing experience.

Acknowledgement

I have dedicated myself in this project. Although, it would not have been achievable without the support and help of many personal and administration. I would like to acknowledge all of them

I am extremely grateful to Chandigarh University for their guidance and constant supervision as well as for providing necessary information regarding the project and also for their support in completing the project.

In the achievement of fulfillment of my project on Multi game System, I would like to send my special gratitude to my mentor Mr. Digvijay Puri, of AIT Department. I would like to thank him for giving his precious time and valuable efforts, guidance and suggestions that helped me in various phases of the completion of this project. I will always be grateful to him.

Ultimately, as one of the team members, I would like to acknowledge my team member Shubham Singh (20BCS6816) for his support and coordination. As well as his abilities in developing the project and have willingly helped me out.

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1. INTRODUCTION

The Name of Our project is Multi-game System as its name suggest it is a system with multiple games. Which allows user to play multiple games. Now the question must arise many games are already available online. What's new in our project, well it not only allow user to play different games in a single system but also provide many different and amazing features, such as:

It allows user to switch between games without shutting down the whole system unlike other games available.

It has feature that counts the played history automatically so that user don't have to bother for keeping record of that how many time he/she have played the particular game.

It also keep track of the ace played highest score and their names to encourage new player to break their record and to create a new one.

The played history is maintained with the concept of file handling and is automatically updated if the new record has been created. With new high score the players name who has created the new high score.

It also computes the time duration for which the particular games has been played and reflects it at the end of the each game to provide the smooth experience of playing along with these feature it also computes total time duration spend on multigame system (means sum of the time duration spend on each game) and it is reflected at the very end with the current date, day, time.

Isn't it amazing?

It also have screen colour modulation in word guessing game depending upon the behavior of the answers which means a red colour and green colour for incorrect and correct answers receptively.

Furthermore it also have sound feature for every correct and incorrect answers.

And lastly in this system we have many options left to upgrade it as now-a-days players are versatile. So this project not only comes with these amazing feature and uniqueness but also with an amazing scope of up-gradation in future.

1.1 Problem Definition

It is a unique project, the games available in this multigame system were made to be played individually. There was no method to address the played history or to maintain information of highest scorer or to count played time or to reflect any information regarding day date and time.

We addressed this issues and created a game in which this all problems were solved. The problem mentioned were significant to be solved as this could have caused many troubles while playing such as: switching the game by closing whole system, user would be forced to keep track of day date time and played time duration as well as played history and who has score highest. With no extra motivation to play which we have also rectified by adding features such as screen colour change and sound system to enhance playing experience.

1.2 Project Overview

The name of our project is multigame system as its name suggests it contains multiple games and allow user (player) to choose any game from list of the available games and play it.

- It will also show the current date and time along with the time duration for which user (player) has played the whole game.
- It also displays Time taken to play the particular game after every game.
- It also produces the beep sound in games like word guessing. To raise up the playing mood.
- It also displays ace players scores and played history of all time collectively.

The multiple game system contains games as follows:

1. Car game
2. Tic Tac Toe
3. Casino game
4. Word Guessing
5. Hangman game
6. Instruction
7. Quit

Details about each game:

❖ Detail About Car game:-

- If the user (player) opted to play car game. User (player) will be first asked to Enter His/hers name.
- user(player) have to move car to left or Right to avoid car crashes with other cars coming from the opposite side.
- The Score of user (player) will be calculated on right side depending upon the distance user have covered.
- It will also calculated highest score, to give a target to user (player) to break record of highest score.

❖ Detail About Tic Tac Toe:-

- If the user (player) opted to play Tic Tac Toe game. user(player) will be first asked to Choose option from given option of :- 1 for Single player(Human vs Computer), 2 for double player(two humans), 3 for quit.
- After selecting one option user (player) will be asked to enter His/hers name.
- As the Tic Tac Toe game have nine blocks, each blocks will be given numbers from 1 – 9 by pressing the number user (player) can mark cross in the block.
- If the user (player) chooses used block, a notification will be shown as: The “X” is invalid.
“X” is block number pressed by user (player).

❖ Detail About Casino game:-

- If the user (player) opted to play car game. User (player) will be first asked to Enter His/hers name.
- Then user (player) will be asked the amount he wants to deposit.
- Then user (player) will be asked to enter amount for first round.
- Then user (player) will be asked to guess a number between 1-9, if the number guessed will be same as the number generated by system user will won the 8 time the money had bet. After losing 4 times in row user (player) will also get special offer of lucky draw. Which gives only two numbers for guessing to increase the winning probability of the user (player).

❖ Detail About Word guessing :-

- After starting the word guessing game user (player) gets a quick instruction of the game.
- Then user is shown the word with missing alphabet, from which user have to guess the word and type the word including with the alphabet those are missing.
- If the user (player) enters wrong answer -2 of the score will be deducted.
- If the user (player) enters correct answer user (player) will +points and a beep sound along with green screen to show a positive sign.
- At the end of each user(player) will be showed current day , date and time as well as time duration for which user(player) has played the particular game

❖ Detail About Hangman game :-

- In this game user(player) will be given blanks according to the number of letters present in the word
 - User(player) will be given hint below , regarding the word.
 - If the user(player) Enters wrong alphabet a structure of hanging man will start creating with each incorrect letter.
 - And if the user(player) successfully enters all the letter before the structure is created fully.
 - User(player) will win the game.
 - With each incorrect word score will be deducted and with each correct alphabet score will be added.
-
- At the end of each user (player) will be asked for a rematch. If user (player) chooses Y (yes), user (player) can continue to play. And N (No) for exiting.
 - If the user (player) choose Instruction the interface with some instruction which will help user (player) to understand multi-game system.
 - If the user (player) choose Quit the multi-game system will be closed.
 - Now use of Played history function as shown in interface.
 - It will Count the number of times user (player) has played each games. Or we can say how many times user (player) has visited options under Available games except quit.

1.3 Hardware Application

- Monitor
- Keyboard
- Mouse

1.4 Software Application

- C++ Language with required header files.
- IDE
- Compiler
- Operating system: windows 10.

2. LITERATURE SURVEY

In our project we have an object oriented programming language which is c++. c++ is a general purpose programming language. It can be used to develop operating system, browsers, games, and so on. C++ also supports different ways of programming like procedural, functional, etc. since c++ is a high level language that will teach you the basics of object oriented programming. It's a good idea to learn it.

We have also studied about different types of header files and their features and uses such as: "iostream", 'vector', 'fstream', 'conio.h', 'windows.h', 'chrono'.

2.1 Existing System

Our project named as multi-game system is a unique game which was available already on any sites or there was not any source code available.

Though the games which we have added in our multigame system were present online but they were not updated as they are now.

Some source code details which were directly available were as follows:

Car Game existing system:

The car game which was available directly was a simple car game. It was not taking any name as input.

It was not computing previous highest score. As well as any kind of system which reflects current date time and time duration for which user has played the game was not present.

Tic Tac Toe Game existing system:

Tic Toc Toe game which was available directly was a simple tic tac toe game which just allow players to play game

Casino game existing system:

It was a simple number guessing game without any lucky timer and current date day time feature.

Word guessing existing system:

It was a simple word guessing game which doesn't have any elapsed timer feature and any screen colour changing system.

Hangman man existing system:

It was simple hangman game without timer feature and less words options.

At last these all games were created to be operated separately. User (player) have to shut whole game to start another one

2.2 proposed System

Our project is not only a game, it is a set of game which contains 5 games under it. Every game keeps a magic in it. And all are bonded by each other in some conditions. There are five games in this one box.

All games existing system in our project are already explained in detail above.

The detail below consists of proposed system or the functions we have added in it to make more useful, amazing, user (player) friendly, upgraded and unique.

All game available in our project named as multi-game system are connected to each other.

Every game available in our system ask user (player) to enter their name in the very beginning.

Every game available in our system ask user (player) for a rematch in the very End.

It also displays Time taken to play the particular game after every game. Also,

At the time of closing game, our system Reflects current date, day, time, and elapsed time (time duration for which user have played the total games).

A unique feature of our project is that it also keeps track of the played history (which means the number of time the user (player) have a particular game and it is reflected when the user quit the particular game or try to switch between games.

Along with these features our multi-game system consists of game called as word guessing game, in which we have to complete the word by guessing the word by filling the missing alphabets. Which contains an amazing feature to make the playing experience more better the feature show a red screen on every incorrect answer and a green screen for correct one with different kind of beep sound respectively.

2.3 feasibility Study

We added all games by creating functions and included played history option but it was counting the played history of the game till the game is not closed. Then by taking suggestion from our mentor we updated this feature and made it as it will count the played history after the game system is restarted. And same for the highest score we updated it to highest score of all time from the highest score from previous match.

3. PROBLEM FORMULATION

For relieving stress

As we all are aware that everyone is dealing with a stressful life now-a-days and looking an easiest way to cope with it. And for this problem this multigame system will help user to use their spare time to get relaxed.

Less Requirements

As we know other games requirements are too high and complex and it is difficult for everyone to manage those requirements as a help and to solution to this problem this multi-game system requires very less requirements and everyone can enjoy it.

4. OBJECTIVE

The main of Main Objective of the Project on Multi-Game System is to manage multiple games, Points, Played History, Participants.

After implementation of this project player don't have switch between different games system.

User (player) will get options of playing many games in single system

- To improve the concept of different header files.
- To learn in deep concepts of object oriented programming language.
- To implement different kind of concept of c ++.

- By using c++ programming language we will come to know that how it is different from other object oriented programming language
- To improve different games and to add some new feature in them.
- To keep track of ace players score, played history, day date time and played time duration.

5. METHODOLOGY

Every section of game is divided into different parts with different modification.

In first there is header files which contain every set of libraries in it. These are “iostream”, ‘vector’, ‘fstream’, ‘conio.h’, ‘windows.h’, ‘chrono’.

There is a function for handling files to update game scores and data to file and to take data from files to game while running.

A section to show animation while loading game for being player ready for game.

Thereafter **screen modification** that is for control screen size and cursor position. Best use of this screen modification is in **car game**.

❖ First game which is on first section is **tic tac toe**.

- In this we have used class one for player and another for game. Which has some private data and some public data.
- This is a game in which you can play with another player and also you can play with computer. So, one function is there for computer input which takes input randomly.
 - There is a condition into it. If that random value has filled before with ‘x’ or ‘o’ then it will return to itself to generate new number till a new number generation.
- Another function is for player input and for both the player there is a single function which can call every time when we need to enter that data.
 - Also, there is a section into it, if the input position has filled then again it will print ‘position invalid’ and then call itself.
 - After game end data of game will simulate with max score if it got max then data will exchange and update max score with player name.

- Also, this game needs a function for check that of them has win or not.
 - If in this playing with a computer or with another player then after winning 'X' player it will show player name and a success dashboard.
 - Else part has also two divisions one for 'computer won' and another for '2nd player won' and both will show with their name in dashboard And in last it will go for score-board.

- There is a function that is for playing game in a synchronous way, and that contains logic for taking input one by one.
 - Condition for check which player has to do their chance. In a loop that logic is contained that's if playing against computer then it will popup section for taking input from computer and a player. And if playing with another player then it will give section for input according to your chance.
 - After that it will check for winner and if wins then go for win section but if there is no empty section in game board then it will Show a message for No winners and then ask for rematch.

- And the last function which is in private section of game is **DisplayScore** for showing score of each player according to their total winning score.

- In the public section of game there is a default constructor that contains the board value for winning list and a condition for winners. It's a simple logic to know there a player won or not.

- In first there is a function **init** which initialize all the empty lines and for count empty boxes.

- There are two different functions according to chosen value that is **one player game** another is **two player game**.
 - In one player game there is only one section to choose player and define his name and 2nd is auto initialized by computer. And after taking input game will save that names and start playing according to it.
 - In two player game there are two saperate section to take input their names and define that for 1st player key value as 'x' and for 2nd player key value as 'o'. And then start match according to their chance.

- ❖ 2nd game section is for Hangman and it's a game for genius players. All the functions and part of game process is in this section.
 - First function in hangman game is for printing message in a defined and designed way that will take message and which need to print and define every needful process for design and locate in middle of box.
 - Second function is DrawHangman that is a process that calculate chance to loose and make a hanged person as player loose there chance after enter wrong value.
 - In this sections there is an another function printLatters which helps to printMessage function to print any values.
 - A function printAvalibleLatters there is for printing a-z in a box using message function and latter function.
 - There is a bool function printWordAndCheckWin for printing input values and check for win that game or not. It contain the word you need to find and guessed word which you are choosing for win this game.
 - There is also a function defined by string that's loadRandomWord for finding a path that named with 'words.txt' and generate random values using the size of strings in that file. After generating word it will close that file that's ideal for file opening system in c++.
 - Another function triesLeft which calculate how many times you have entered wrong values and correct value. And if you enter a wrong value it will generate wrong and increase your leftLife.
 - The base function of HangMan game is this part and only this part is generating and evaluating every possible way to run this game and calculate every generated value.
 - There is a loop for run this game again and again with your permission and for calculate time that how much you spent time in a single word guessing.
 - Another loop is for a single guess. Whenever player will not find the correct word this game will run automatically. Evaluate player left tries and if correct then it will give score and if got wrong then decrease your left tries and score.
- ❖ 3rd selected game is casino game in the section. In this section there defined some function on top of the section and assigned in last of this section only.

- Function `kasinogame` is base function of this game and in this first a board will generate for show that game is running on.
 - In first it will take input from player for his name.
 - Also, it will ask for enter money that you want to deposit for playing this game.
 - After taking all data it will clear screen for players and then play.
 - In a loop it defined for asking from user to how much money you want to bet in one guess.
 - After that another loop for taking input that player to guess a number between 1 to 9. If your will bet beyond his left amount then it will generate a message to re-enter data and left money that player has.
 - There is a section in that a special offer for that player to win extra prize if that guess will correct and that all are generating using a `rand` function in this game. And the extra offer pack is on a defined place that defined using `gotoxy` position that defined on the top of section screen modification.
 - Also, there added a batter offer if player lose money 4 times one by one then it will generate a message to input guess between 1 and 2.
 - Credit score and check are in same way and after win it will change screen color using system function that is inbuilt function. And increase player score if extra offer will be on that guess then that also be included. And if guess will wrong then that generate a message that better luck next time. And bet amount will decrease in player amount.
 - In worst case if player lose all money then there is a conoditional statement that is for message to no money and redirect to end screen of this game.
- There is a function `kasinoRules` for print rules that player have to follow while playing.
- ❖ Another game is **find word game**. A game that create a magic while playing.
- In this section the first function **`wordgameInstruction`** is for printing instruction to play this game and some rules.
- And another is **`wordGuessingMain`** that is base function of this game. Everything is in this section is defined by this function only.
 - In first there is list of words which is given in string format.

- A welcome setup screen for sure that you are in game and game instruction which is sated using function of that upper function.
 - The game will proceed in a loop till player will not quit this game.
 - The index variable generate a number and string will call that from collection of words.
 - In a conditional statement it will generate hide words for making this game interesting. And hide words will show using '*' in this case.
 - If else condition is for check correct or not using compare inbuild function also the sound is used in this that will according to correct or wrong
- ❖ In the fifth section there added **car game** for gain too much fun and that all without graphics which will run very smooth and fast as game made for.
- As the first remember all screen modification function for this game.
 - In first variable for car that made using array of character made by '+'.
 - Function setcursor is defined cursor position for this game and size of visible range.
 - Function drawboard is for drawing screen using '+' in whole screen on board area.
 - GetEnemy and drawEnemy function is for drawing enemy on random positions which will opposite of player car. And using eraseEnemy it will erase at last position of board. And using resetEnemy it will call erase and gen enemy itself.
 - DrawCar function is for drawing that car on their positions using gotoxy function in a loop. And EraseCar will erase car on given position for workplace.
 - Collision function is for generate number to know the car collied with enemy car or not. If it return 1 then game end else run to the next collision.
 - Gameover function is for printing message after the collision of car with enemy car. It will show the final score made by player.
 - updateHighestScore function is for updating value of score to highest and to show it on the size board of game while playing.
 - updateScore is same as update highest score but it will run to update current score which the player running it current run
 - Instruction function is for showing instructions for all the game which is added in this whole process including car game also.

- Play is the base function of this game and in this firstly added some header lines and some instructions for run this game using gotoxy function for connect every word in a design.
- Before run this game there will a popup for press key to start. And then it will go for a loop for run this game. Every click of given keyword will enter and it use to move car to save from the enemy. There is some condition if it got wrong and find to click wrong and collision then break that loop and while playing it will update score and if score go up to the highest score, then it will also increase at the same time.
- ◆ There is a timer added in this for backup and for extra help if added timer will not work then use this (perfect) cause class is giving advance way to use just in two lines.
- ❖ In last the main function is given that is controlling every game and going to every condition with their branches and leaf's.
- There is a loop for run this game under that the player will be there every time
- There some title of game and available game also played game history that every part is printed using gotoxy to move that on their particular position.
- After all there is a variable for taking input from user to switch their games according to their choice
- After taking input there will start timer to calculate time while playing game and everything.
- After exit one game there will print time and current date and played time of that game.
- After exit that loop there player can see time history of game and how much time they played that all games in this program.
- There is a function updatescore is updating scores and moments of game. There is file which stores data of game, in this operation we have taken fstream library to use open and close functions and vector for going subsequent position and take the data of that part. Using that we converted to maxScore of all games and max-scorer name in file. Data upload will be done at the same time while playing different games in it. And after exit game if user will re-play this game, then he can find all his history of score, name and data.

Front view



Fig.1

Middle View



Fig.2

Backend view

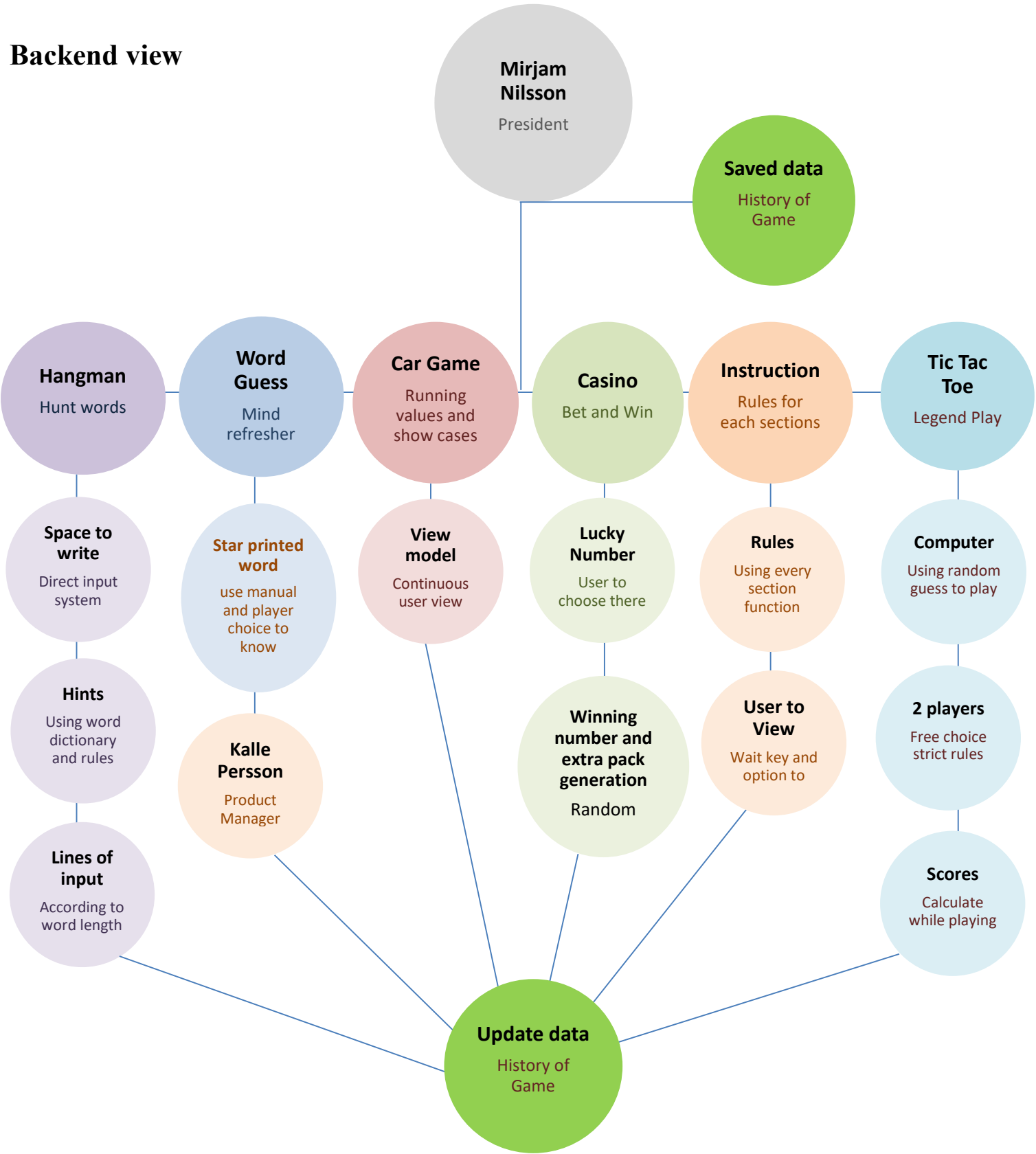


Fig.3

6. CONCLUSION AND DISCUSSION

By all counts and with proven results, it can be summarized that the future scope of the project circles around maintaining information regarding:

- We can add printers in future.
- We can give more advance software for multi game system including more facilities.
- We can host the platform on online servers to make it accessible worldwide.
- Integrate multiple load balancers to distribute the loads of the system.

The above mentioned points are the enhancements which can be done to increase the applicability and usage of this project.

We have left many options open so that if there is any other future requirements in the system by the user for the enhancement of the system then it is possible to implement them. In the last I would like to thanks every individual involved in the development of the system directly or indirectly.

I hope that our project will serve its purpose for which it is developed there by underlining success of process.

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