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Pacman Shooter Game

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ABSTRACT:A simple pacman implementation with the maze a pacman and a dot for the pacman to shoot. It is a multi player game in which human player control pacman to traverse a maze avoid the four ghost. To clear the stage we have to shoot all the ghost. To increase the fun and difficulties of the game we added a variations introduces randomness to the movement of the ghost. In each stages of the pacman game a player need to control pacman to avoid being shoot by the ghost. We also added the colour of background and colour of the ghost. When all the pills are shooted. The pacman should be control to shoot all the enemy as soon as possible.

In this game we used a mouse to shoot the enemy and right and left click to movement of the pacman. Whenever the player gets game over the high score is kept so that next time player try to break it. We say that the endgame of the stage has been reached whenever the no. Of ghost is less. the game has ended when pacman shoot all ghost or ghost catches the pacman. The main aim of pacman shooter project is to shot all the ghost.

KEYWORDS: Pacman Shooter ,AI, Main Menu, Music, Multiplayer Server online

I. INTRODUCTION

1.1 Original Pacman :: It is a classic video game came out in Japan on may 21,1980 And October of that year is released in United states of America. The original Japanese title of pacman was changed to pacman it is a maze action game release by name published mid game as part of licensing agreat with nomo America. The player controlpacman who eats all the dots called power pallets the ghost turn blue ,allowing pacman to eat them for bonus , it is the first game run by namcopacman arcade board. The yellow pie –shaped pac-man character who travel around a maze and trying to shot and avoiding four hitting ghost quickly become an icon in 1980. The original version's objectives were to guide the PacMan around the maze collecting all of the pills without being eaten by the ghosts. Once all of the pills in the maze have been eaten, the game will begin again on a new maze which may or may not be the same as the previous map. The more maps the Pac-Man completes, the harder the game becomes. Each map has four power pills in addition to normal pills.

1.2 Problem Statement:

We found that game is made for only single player only and not for multiplayer .

This Game is very attractive and it is features of shooter Game and previous Game is made for eating of pacman food and escaping

We made for shooting and multiplayer option so tackling this is problem in another project .

1.3 Motivation:

We got motivation from open ended highly graphics which are played in today in Computer / PC / PS4 / XBOX / . In this open world pc Game we have Games like Grand Theft Auto V , Red redemption , PUBG , Counter – strike (Condition Zero) and many more which can be played in multiplayer and involve massive interation and co-ordination of other player also .

1.4 Aim and Objectives:

1.4.1 Aim:

This project intends to:

(1) To play Game and multiplayer interaction

(2) It has lead scoreplayer

(3) It has massive multiplayer option with source port and IP Address

1.4.2 Objective:

The main objective of this project is to develop for the ghosts of the video game Pac-Man. They will improve their movements in accordance with Pac-Man's actions. If Pac-Man takes all dots and shoot the frightened ghosts rapidly, the ghosts will begin to move better. Nevertheless, if Pac-Man has greater difficulties taking all dots, the ghosts will be more kind and they will move worse. The complexity for each level will be increasing as the ghosts keep their experience for each level won.

II. LITERARTURE REVIEW

Definition of literature Survey :::

" A Systematic and through search of all types of published literature as well as other sources including dissertation , theses in order to identify as many items as possible that are relevant to a particular topic "
- GASH, 1989 (American Scholar)

Basic Initialization of Game :

In a game of Pacman a specific algorithm is used to control the movement of the ghosts who are chasing (running towards) Pacman. It consist to kill 50 enemy bots at a same time. Therefore the implementation from starting to end is totally different approach . So it will be consist of Different mode in different Level

Research :: Literature on Gaming :

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Basic Initialization of Game :

Games-based Learning (GBL) has developed a reputation with educationalists it is perceived as a potentially engaging form of supplementary learning that could enhance the educational process and has been used at all levels of education including primary, secondary and tertiary education. Despite this recognition and utilization there is still a lack of empirical evidence supporting GBL as an approach. The studies showed that GBL have been used to teach a variety of subjects to children and young people in PE with mathematics, science, language and social studies being the most popular. The analysis shows that more Randomised Controlled Trial (RCT) studies should be performed comparing GBL to traditional teaching approaches to ascertain if GBL is a useful, viable teaching approach at PE level; there is a distinct lack of longitudinal studies and further longitudinal studies are required;

Scope and obstacles :

In this section, we are going to explain what we need to do in order to solve the previous exposed problem, and what can be dangerous to satisfy the objectives on
time.

Scope and requirements :

The scope and requirements of the project will be introduced in this section.

Scope :

In order to solve all the objectives, developing a video game platform based on the classic Pac-Man is needed.
 We have to consider keeping some features from the classic game:
• Number of characters (the four ghosts and Pac-Man).
• Number of stages (one stage).
• Different items (dots, energisers and fruits).
• Restrictions in the movement of the characters (the ghosts cannot change to the opposite direction).
• Difference in speed between Pac-Man and the ghosts.
• Reduction of the ghosts' speed and increase Pac-Man's speed when Pac-Man eats an energiser.
• Delay time to the ghosts' departure.
• Different targets for each ghost. On the other hand, the forecast features to discard are Reducing speed when Pac-Man eats a dot.
• Reducing speed when the ghosts are in the tunnel.
• Shorting way when Pac-Man turns left or right.
• Original system collision between Pac-Man and the ghosts.

 The platform needs to allow two modes: a game mode where Pac-Man is controlled by the user, and the ghosts by CPU, and a simulation mode where Pac-Man and the ghosts are controlled by CPU and the user controls the cameras of the scene

III. IMPLEMENTATION

Platform :

The platform has been baptised as SMART PACMAN and it is based on the original video game Pac-Man, its models are in 3D. However, the camera used to project the stage is orthogonal, due to the fact that the perspective camera causes a weird effect. The platform begins with the following screen:

Pac-Man
The agent of Pac-Man is queried for each step. That is because Pac-Man can turn to the opposite direction whenever it wants, and it always has two directions to choose. The agent of Pac-Man returns to an abstract action. The following list explains how Pac-Man chooses the next direction given each abstract action: • Attacking. Pac-Man remembers the nearest frightened ghost's position and chooses the direction which takes him to the shortest path.
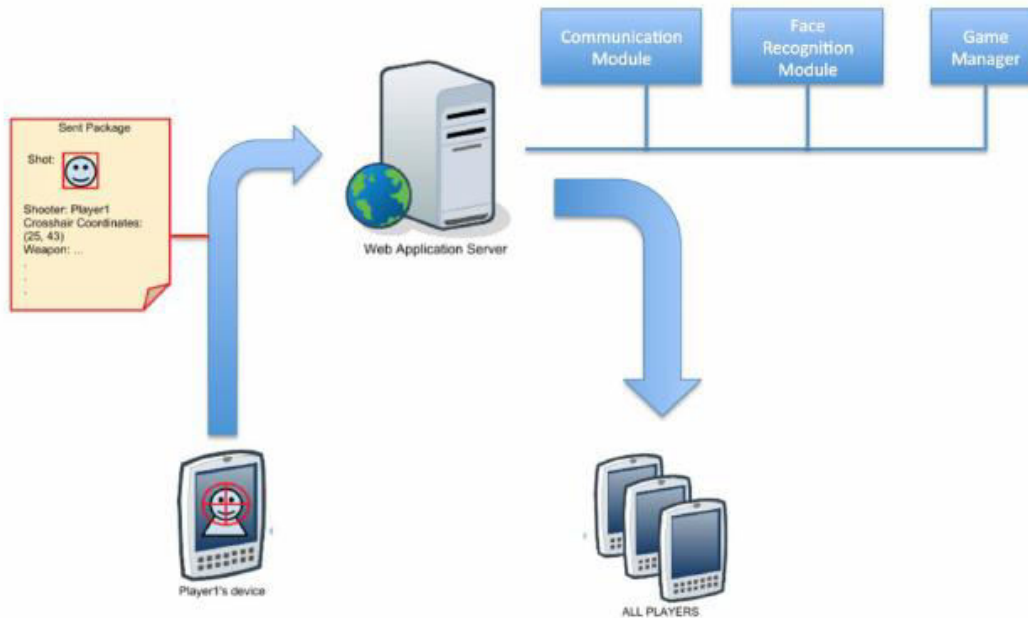
❖ **Multiplayer Mobile Game Application Flow Diagram**

 Most of these games require users' focus and attention, isolating them from the real world. However, mobile games can also be designed to provide entertaining human-human interaction experience. In this way, instead of isolating the users from the real world, mobile game applications can convert a smartphone to a tool that allows users to interact with the others in a fun way. With this motivation, in this study, we designed a mobile game application that enables individuals play paintball or laser tag style games using their smartphones .

The application benefits from computer vision and pattern recognition technologies, specifically, face detection and recognition to detect and identify the players. In order to have real-time processing capability, which is required for the game, we have employed fast and robust face detection and recognition algorithms. The developed game consists of two main components, server and mobile application.

The server application regulates the game rules and players' network stream. In addition, server application contains the face recognition module. The game application sends camera frames that contain players' faces to the server. Thus, mobile application contains only network and face detection module. At the beginning of the game, players join a game session, which is created by one of the players. After all the players are attended, training stage is started by the server. Mobile applications gather player images as training data and sends them to the server.

MMORPG (massively multiplayer online role-playing game)

A *massively multiplayer online role-playing game* (*MMORPG)* or MMO is short for massively multiplayer online role-playing game. It is a video game genre where thousands of people play together in an online world. In the game, the player starts at a low level or rank and progresses until he or she has achieved the maximum level or rank. During a player's journey, they gain new abilities, skills, better gear, and get access to advanced areas in the game that often require a party or raid of people to complete.MMO games may also be considered to be a social network of sorts because they allow players to communicate with one another through private, public, and voice chat.

What Does MMORPG Stand For? :

Though it might seem that MMO and MMORPG stand for the same thing, MMORPGs are distinct because of their social and role-playing elements, specifically character creation and player progression. MMORPG players often use the term MMO as shorthand, but an MMO can include a battle royale or real-time strategy game that isn't an RPG
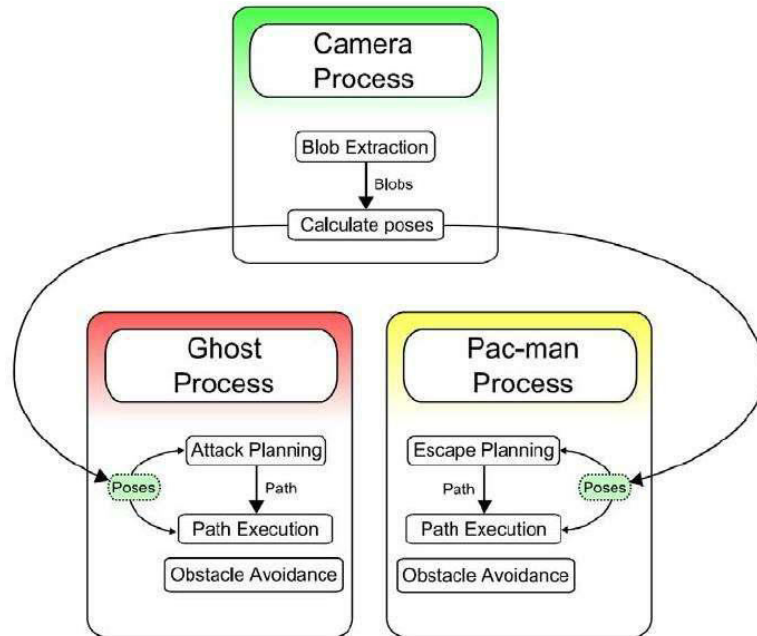

Figure 1: Block Diagram

❖ **5 Characteristics of MMORPG Video Games**

Although there are many types of massive multiplayer online role-playing games, most share similar characteristics:

Multiplayer gameplay: While single-player games don't require other players for you to advance the game, most MMORPGs require you to team up with others to complete quests or take down bosses.

Free-to-play or monthly subscription: Some MMORPGs have their players pay as monthly subscribers, while others let you play games for free. You can often purchase character upgrades or cosmetics as microtransactions.

Character creation: You will almost always have the ability to create and customize a character. Character customization allows gamers to more deeply inhabit the type of character they want to be in the fantasy world, such as a warrior or a thief.

Character progression: The gameplay will usually involve some form of advancing your character's level to increase your strength, skills, and other attributes. This is often done by completing quests or killing creatures to gain experience points and level up. Most MMORPGs don't have an endgame, so players can progress for as long as they want to play.

Open-world exploration: Players can typically explore a unique sandbox-style game world to find items, meet other characters, and complete quests. New players will enter the game into the same new world where others are playing.

Certain Terminologies used in project

1)What is an IP?

An IP address is a string of numbers separated by periods. IP addresses are expressed as a set of four numbers — an example address might be 192.158.1.38. Each number in the set can range from 0 to 255. So, the full IP addressing range goes from 0.0.0.0 to 255.255.255.255.
IP addresses are not random. They are mathematically produced and allocated by the Internet Assigned Numbers Authority (IANA), a division of the Internet Corporation for Assigned Names and Numbers (ICANN). ICANN is a non-profit organization that was established in the United States in 1998 to help maintain the security of the internet and allow it to be usable by all. Each time anyone registers a domain on the internet, they go through a domain name

registrar, who pays a small fee to ICANN to register the domain.

2)How do IP addresses work ?

If you want to understand why a particular device is not connecting in the way you would expect or you want to troubleshoot why your network may not be working, it helps understand how IP addresses work.
Internet Protocol works the same way as any other language, by communicating using set guidelines to pass information. All devices find, send, and exchange information with other connected devices using this protocol. By speaking the same language, any computer in any location can talk to one another.

The use of IP addresses typically happens behind the scenes. The process works like this:
Your device indirectly connects to the internet by connecting at first to a network connected to the internet, which then grants your device access to the internet.
When you are at home, that network will probably be your Internet Service Provider (ISP). At work, it will be your company network.
Your IP address is assigned to your device by your ISP.
Your internet activity goes through the ISP, and they route it back to you, using your IP address. Since they are giving you access to the internet, it is their role to assign an IP address to your device.

3)Source Port

Source ports are often created by fans after the original developer hands over the maintenance support for a game by releasing its source code to the public The term was coined after the release of the source code to doom. Due to copyright issues concerning the sound library used by the original DOS version, id Software released only the source code to the Linux version of the game. Since the majority of Doom players were DOS users the first step for a fan project was to *port* the Linux *source* code to DOS. A legitimate source port includes only the engine portion of the game and require that the data files of the game in question already be present on users' systems. Source ports are in no way meant to encourage copyright infringement of software.

Source ports share the similarity with unofficial patches that both don't change the original gameplay as such projects are by definition mods. However many source ports add support for gameplay mods, which is usually optional (e.g. DarkPlaces consists of a source port engine and a gameplay mod that are even distributed separately). While the primary goal of any source port is compatibility with newer hardware, many projects support other enhancements. Common examples of additions include support for higher video resolutions and different aspect ratios, hardware accelerated renderers (OpenGL and/or Direct3D), enhanced input support (including the ability to map controls onto additional input devices), 3D character models (in case of 2.5D games), higher resolution textures, support to replace MIDI with digital audio (MP3, OggVorbis, etc.), and enhanced multiplayer support using the Internet.

4) client-server Model

The client-server model, or client-server architecture, is a distributed application framework dividing tasks between servers and clients, which either reside in the same system or communicate through a computer network or the Internet. The client relies on sending a request to another program in order to access a service made available by a server. The server runs one or more programs that share resources with and distribute work among clients. The client server relationship communicates in a request–response messaging pattern and must adhere to a common communications protocol, which formally defines the rules, language, and dialog patterns to be used. Client-server communication typically adheres to the TCP/IP protocol suite. TCP protocol maintains a connection until the client and server have completed the message exchange. TCP protocol determines the best way to distribute application data into packets that networks can deliver, transfers packets to and receives packets from the network, and manages flow control and retransmission of dropped or garbled packets. IP is a connectionless protocol in which each packet traveling through the Internet is an independent unit of data unrelated to any other data units.Client requests are organized and prioritized in a scheduling system, which helps servers cope in the instance of receiving requests from many distinct clients in a short space of time. The client-server approach enables any general-purpose computer to expand its capabilities by utilizing the shared resources of other hosts. Popular client-server applications include email, the World Wide Web, and network printing.
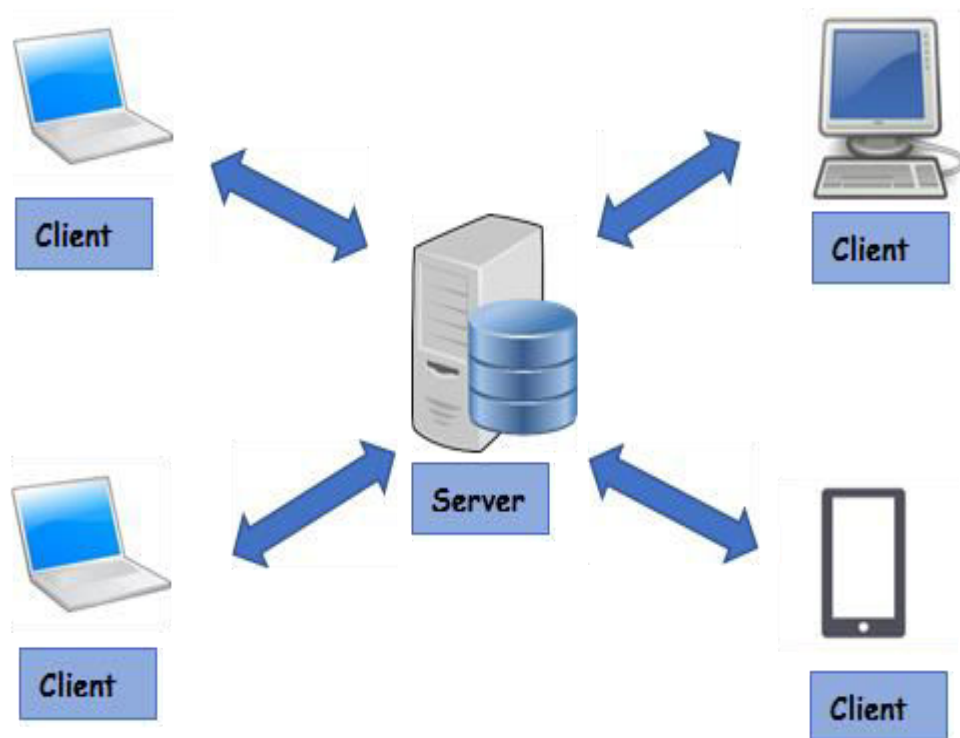
Client-Server-Achitecture.

What is a Client-Server Network?

A client-server network is the medium through which clients access resources and services from a central computer, via either a local area network (LAN) or a wide-area network (WAN), such as the Internet. A unique server called a daemon may be employed for the sole purpose of awaiting client requests, at which point the network connection is initiated until the client request has been fulfilled.

Network traffic is categorized as client-to-server (north-south traffic) or server-to-server (east-west traffic). Popular network services include e-mail, file sharing, printing, and the World Wide Web. A major advantage of the client-server network is the central management of applications and data.

Difference Between Client and Server ::

Clients, also known as service requesters, are pieces of computer hardware or server software that request resources and services made available by a server. Client computing is classified as Thick, Thin, or Hybrid.

Thick Client: a client that provides rich functionality, performs the majority of data processing itself, and relies very lightly upon the server.

Thin Client: a thin-client server is a lightweight computer that relies heavily on the resources of the host computer -- an application server performs the majority of any required data processing.

Hybrid Client: possessing a combination of thin client and thick client characteristics, a hybrid client relies on the server to store persistent data, but is capable of local processing.

A server is a device or computer program that provides functionality for other devices or programs. Any computerized process that can be used or called upon by a client to share resources and distribute work is a server. Some common examples of servers include:

Application Server: hosts web applications that users in the network can use without needing their own copy.

Database Server: maintains and shares databases for any computer program that ingests well-organized data, such as accounting software and spreadsheets.
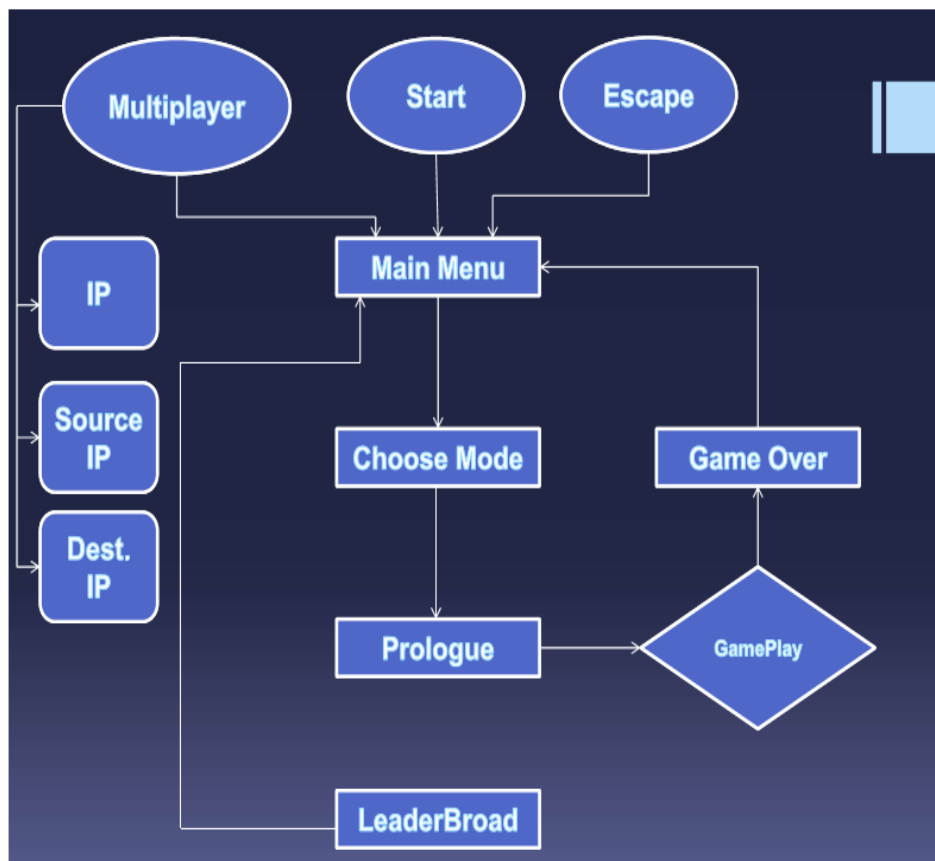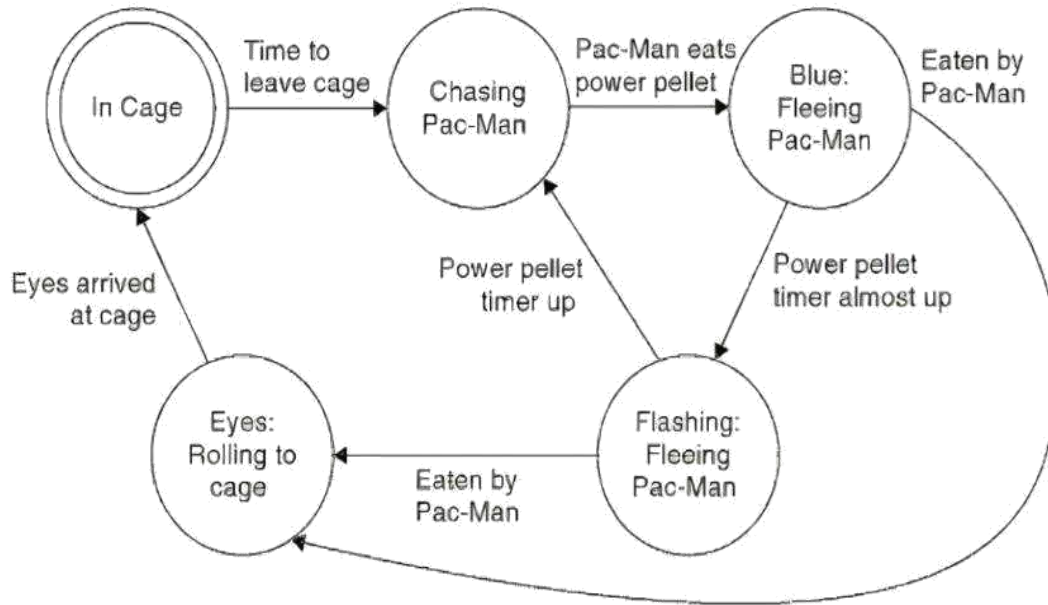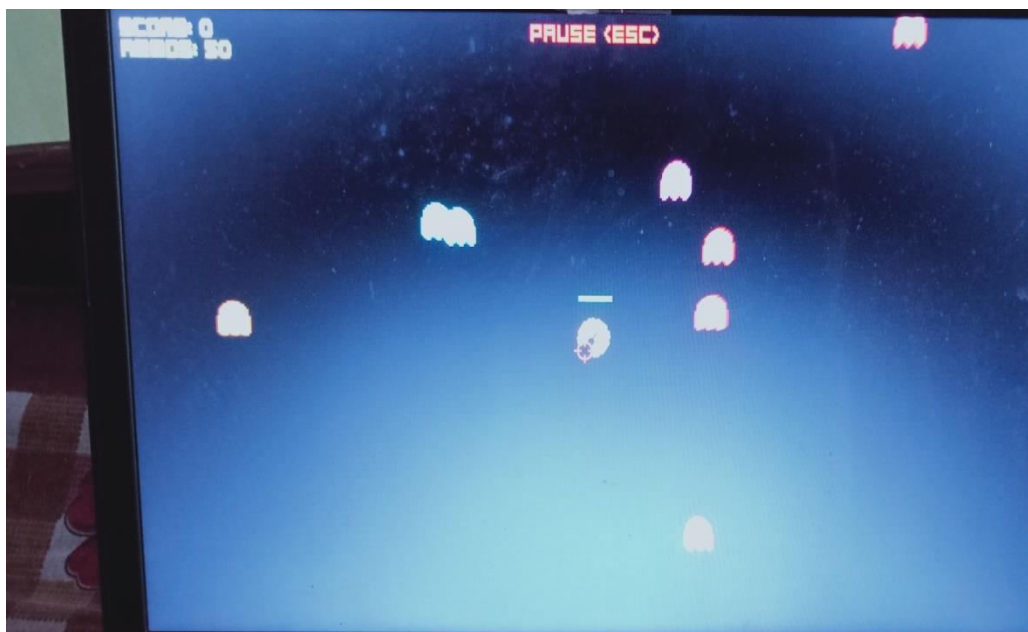
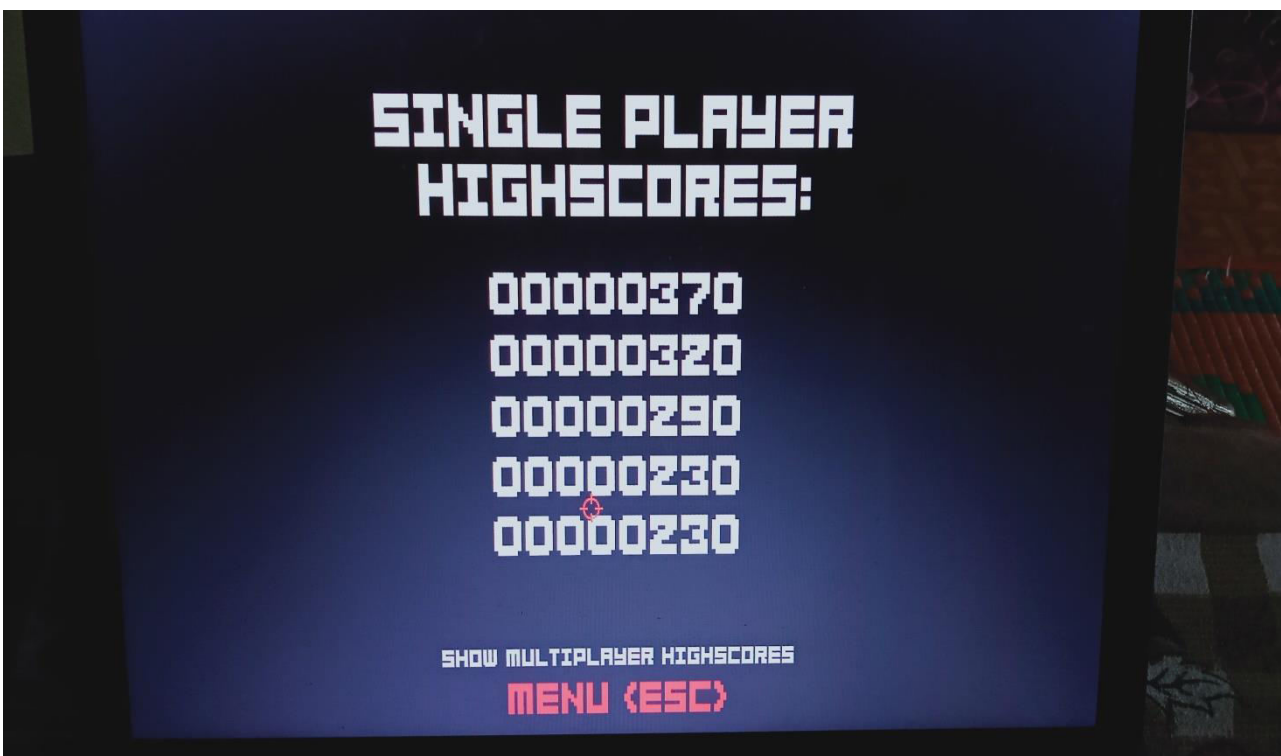**Flowchart of Pacman Game**
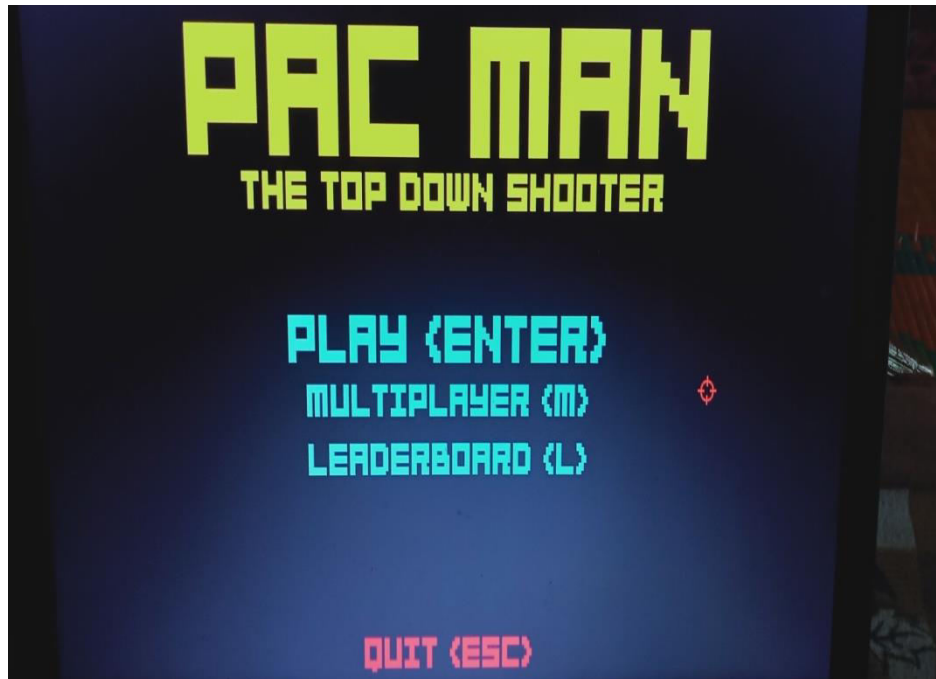
Main screen

Play <Enter>

Multiplayer <M>

LeaderBoard<L>

IX. CONCLUSION

By the end of Project we made Massive Multiplayer Online games (MMOG or MMO games) can gather hundreds, thousands or even millions of players , Which build persistent world games where social relationships are established to improve the performance of the users and their online, centralized and persistent nature facilitates the collection and analysis of user data.Many tendencies were found upon selecting and analyzing each paper., while RPG was the most researched sub-genre. Other observations include that the improvement of the game was the aim of about one-third of the sample and the most common data source was the Game Log from each game.

This system has been completed in this final year project which certainly needs more improvements in the near future by using flask. We can gladly say that this project has achieved all the objectives planned inside the time allotted. We found a few issues during the development yet none of them made the end of the development fall behind.The first task of the development, the platform of Pac-Man, was successfully completed with the majority of features from the original Pac-Man. The third task of the development Having in mind the results of the questionnaire, we can notice that we satisfy our expectations about developing a machine learning which adapts its level according to the user level. Even though the sample of users is small (ten users), all people noticed the increase in the difficulty and most of them thought that the level suggested was appropriate.The fourth task of the development, the navigation, was extremely fast to develop, it did not suppose a great effort implementing it at all. Although its contribution in the project was not really used in the end, it clearly has great possibilities in front of new features for future projects.A more intelligent plan is likely to be possible, which could lead to a higher chance of consuming all four ghosts. Another issue is the choice of the parameter values in the rule-based system. Currently the parameters used were determined by manual experimentation. We recognise that even better results might be achieved by optimising the parameter, perhaps using an evolutionary approach.

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