Chapter 2: History of Video Games

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The First Computer Game

- Noughts And Crosses, a Tic-Tac-Toe game programmed in 1952 by A.S. Douglas at the University of Cambridge.

- The game was played against the machine and the player determined who played first (EDSAC / USER). Once the game started, the player specified where he wanted to place his nought or cross using a mechanical telephone dialer.

- Noughts and Crosses is considered as the first real graphical computer game

The First Multiplayer Video/Electronic Game

- **Retromodo: Tennis for Two**

  In 1958, Dr. William Higinbotham was working at the Brookhaven National Laboratory on a simulation of bouncing balls and missile trajectories that could predict the paths objects could take. For amusement he created Tennis for Two, which is considered to be the world's first videogame. It was demonstrated in October of that year.

  - It used a five-inch oscilloscope screen. The game was viewed from the side of the net rather than an overhead vantage point.

  - It is the first interactive game made from an analog computer, using controllers with buttons and rotating dials to control the angle of an invisible tennis racquet's swing.
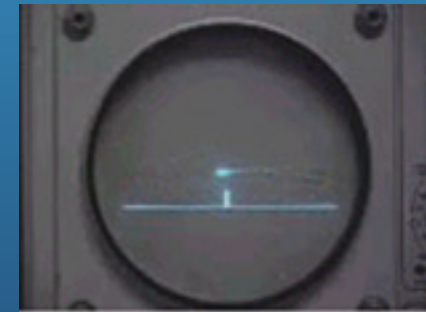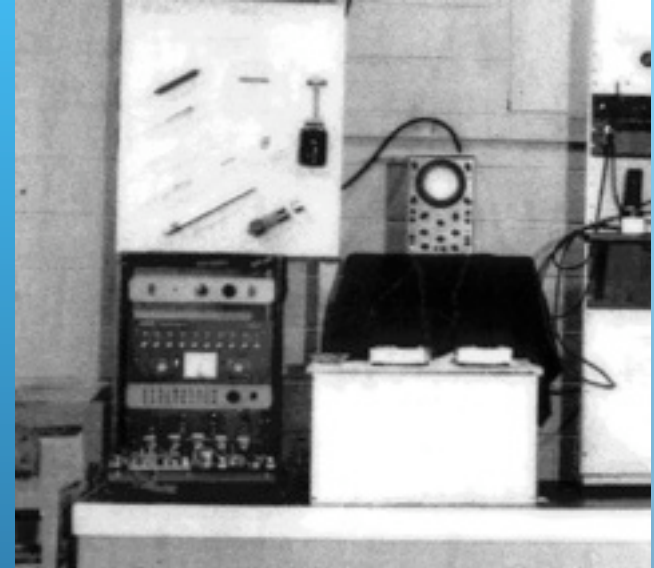
The First Multiplayer Computer Game

- Spacewar – developed at MIT in 1961 by Wayne Witanen and J. Martin Graetz, and Steve Russell,

- They develop the idea to pit two spaceships with limited fuel supplies against each other in a missile duel.

- The two spaceships called the wedge and the needle, according to their shapes, are rendered in rough outlined graphics.
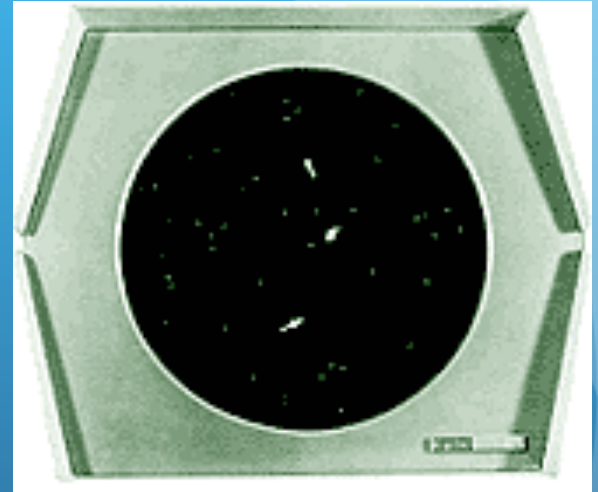
After Spacewar

- Spacewar became more sophisticated overtime with new features added to the game to make it more interesting – adding gravity, hyperspace, star maps...

- Spacewar spread from MIT to other campuses thanks to the ARPAnet – precursor to the Internet. Was only played on campuses because of the cost of the equipment.

- Galaxy was the commercial version of Spacewar that appeared in the early 70's in Stanford.

- PONG – a game based on Tennis for Two, was created by Nolan Bushnell, who formed Atari. It appeared in 1972. It first came out as an arcade game. Was released as a home game in 1975.

Early Multiplayer Online Games (MOG)

- Mazewar – which appeared in 1974 was the first "graphic virtual world" which gave the players (shooters in this case) a perspective view of a maze in which players roamed around shooting each other.

- Mazewar was also the first networked game, in that players at different computers connected via ARPAnet could visually interact in virtual space.

Role Playing Games (RPGs)

- Adventure – first multiplayer adventure game developed in 1975 by Crowther, based on the mammoth cave system in Kentucky that he used to explore and created maps for. Players assumed the role of a character that explores the cave and plots to kill a dragon or monster.

- The game was expanded by Woods and became a Dungeons and Dragons style game that included a computer controlled dungeon master (game maestro/referee). It was text-based and players used a defined set of commands and descriptions to play.

```
.RUN ADV11

WELCOME TO ADVENTURE!!  WOULD YOU LIKE INSTRUCTIONS?

YES
SOMEWHERE NEARBY IS COLOSSAL CAVE, WHERE OTHERS HAVE FOUND
FORTUNES IN TREASURE AND GOLD, THOUGH IT IS RUMORED
THAT SOME WHO ENTER ARE NEVER SEEN AGAIN. MAGIC IS SAID
TO WORK IN THE CAVE.  I WILL BE YOUR EYES AND HANDS. DIRECT
ME WITH COMMANDS OF 1 OR 2 WORDS.
(ERRORS, SUGGESTIONS, COMPLAINTS TO CROWTHER)
(IF STUCK TYPE HELP FOR SOME HINTS)


YOU ARE STANDING AT THE END OF A ROAD BEFORE A SMALL BRICK
BUILDING . AROUND YOU IS A FOREST. A SMALL
STREAM FLOWS OUT OF THE BUILDING AND DOWN A GULLY.


GO IN
YOU ARE INSIDE A BUILDING, A WELL HOUSE FOR A LARGE SPRING.


THERE ARE SOME KEYS ON THE GROUND HERE.


THERE IS A SHINY BRASS LAMP NEARBY.


THERE IS FOOD HERE.


THERE IS A BOTTLE OF WATER HERE.
```

Little maze of twisting passages
Little maze of twisty passages
Maze of little twisting passages
Maze of little twisty passages
Maze of twisty little passages
Twisting little maze of passages
Twisting maze of little passages

Dungeons and Dragons (DnD)

- Dungeons and Dragons is a Role Playing Game (RPG) that was created in the early 70's. It is strictly a board game and requires a Dungeon Master to control the game and set/manipulate/script the plot.

Zork – another text-based DnD

- Zork – developed at MIT in 1977, a take off from Adventure.

- Named it Dungeon but were sued and reverted back to Zork.

- Had a better plot and a more powerful text parser – e.g., instead of "hit troll", "hit the troll with the Elvish sword"

- Developed versions for the Apple, Atari, Commodore, IBM PC. Split game into 3 parts due to memory requirements.

```
West of House                          Score: 0        Moves: 1


ZORK I: The Great Underground Empire
Copyright (c) 1981, 1982, 1983 Infocom, Inc. All rights reserved.
ZORK is a registered trademark of Infocom, Inc.
Revision 88 / Serial number 840726

West of House
You are standing in an open field west of a white house, with a boarded front
door.
There is a small mailbox here.

>open mailbox
Opening the small mailbox reveals a leaflet.

>
```

MUD – Multi-User Dungeons

- Coined at the Univ. of Essex, MUDs are multiplayer adventure games set in virtual worlds that are text base, DnD type games played online. They took off in the early 80's after Univ. of Essex connected their campus network to the ARPAnet. Was a takeoff from Zork.

- "Players can read or view descriptions of rooms, objects, other players, non-player characters (played by the dungeon master), and actions performed in the virtual world. Players typically interact with each other and the world by typing commands that resemble a natural language."

```
Telnet british-legends.com                                          _ □ ✕
*n
Path.
You are standing on a path which leads off a road to the north, to a cottage
south of you. To the west and east are separate gardens.
*w
Flower garden.
You are in a well-kept garden. There is an unexpectedly sweet smell here, and
you notice lots of flowers. To the east across a path there is more garden.
*w
Cliff.
You are standing on the edge of a cliff surrounded by forest to the north and
a river to the south. A chill wind blows up the unclimbable and unscaled
heights. At the base of the cliff you can just make out the shapes of jagged
rocks.
*w
As you approach the edge of the cliff the rock starts to crumble. Hurriedly,
you retreat as you feel the ground begin to give way under your feet!
*leap
You are splattered over a very large area, or at least most of you
is. The rest of your remains are, evn now, being eaten by the seagulls
(especially your eyes). If you'd have looked properly before you leaped you
might have decieded not to jump!
Persona updated.
Would you like to play again?
:
```

Graphical Games

- The 1980's saw the development of graphical games played on home computers, consoles attached to TVs, and graphics terminals – Soft Disk, Atari, Commodore, Apogee, id Software…

- Online gaming was limited to either games running on the NSFnet (campuses) or propietary networks such as AOL, Compuserve, Genie, etc., that charged hourly or monthly fees for playing "hosted games"- Wolfenstein 3D

- The early 1990's saw the development of the first graphical multiplayer online games using peer to peer networking over LANs - Doom

- The late 1990's saw the true start of online games with the commercialization of the Internet (NSFnet -> Internet).

Graphical Multi Player Online Games (MPOG – MMPOG)

- The different types of MPOGs:
    - First person shooter
    - Third Person Shooter
    - Real Time Strategy
    - Role Playing Game
    - Sports

The Early MPOGs – mostly FPS

- Dune II (RTS)

- Everquest (RPG)

- Doom

- Warcraft (RTS)

- Doom II

- Ultima Online

- Warcraft II (RTS) – Released Battle.net to assist players to find aopponents and communicate via chat rooms when moved to the Internet.

- Quake – first WAN game that also used a server to connect players and maintained state of the game world (persistent game hosts)

- Sony PS2, MS Xbox – LAN

- DS and PSP WiFi

Evolution of MPOGs

- The game system architectures:
  - Single client with split screen
  - Peer to peer over LANs
  - Client server
  - Peer to peer and client server hybrid
    - Game state maintained by server, voice/chat peer to peer
  - Network of servers – client
    - Peer to peer between servers –improved processing speeds but need to coordinate game state
    - Client – server

Migration from LAN to WAN

- Latency and loss main problems – a serious impediment for FPS, less so for RTS such as Warcraft

- Discovery of players – e.g. Battle.net, provides a meeting place for players, chat rooms, etc.

- Persistent vs non persistent game hosts – more common for RTS than for FPS, the world continues to exist and the players impact on the world is semi-permanent even after the player exits.

Evolution of Online Game Platforms

- PCs – more processing power, more memory, larger storage, better display, high end external audio system, headsets, joysticks, sensory devices,microphones

- Game Consoles – Stand alone to networked, larger drives, higher end processors and more memory

- Handheld Game Consoles – from point to point wiring to WiFi access

- Mobile Phones – the latest growth segment in gaming

Distributed Virtual Environments

- Three branches of research have come out of computer games:
  - Simulations – military, business, health, education/training
  - Computer Supported Cooperative Work – collaborative virtual environments (CVEs) allow people to work together on projects, science in virtual space with models
  - Distributed Virtual Environments for 3D immersion such as a CAVE