Introduction to Game Programming

Game Genres & Game History
Concept Development

• High concept
  • Typically a single sentence description of the game that sounds interesting
  • Example:
    • Ping-Pong on the computer (Pong)
    • A street racing game where you drive a getaway car for the mob (Driver)
    • An ordinary technician battles monsters after an accident at a secret research facility (Half-Life)
Genre

• High concept may fall into an existing genre or category
• It could be a hybrid combining elements from different categories
• It could be a genre yet unheard of

• What would be your choice?
Genre – Adventure Game

• Story-based game that usually relies on puzzle-solving for actions

• Can be text-based (Infocom’s Zork) or graphical (Sierra’s King’s quest)

• Can be told from a first-person (Seventh Guest) or third person perspective (Monkey Island)

• Usually not in real time – player usually takes his time between turns – nothing happens in the game world until she/he enters her/his command

• Usually mouse-based point-and-click in which player indicates what he wants by moving the mouse on screen

• Player expects a complex world and a good story
Genre – Action Game

- Real time games in which the player must react/act quickly to what’s happening on the screen

- Dominated by first person shooters (FPS) such as Quake, Unreal, and Halo

- Could be third person (Tomb Raider) as well
  - In which the gamer can see the heroine or hero as she/he moves through the environment and gamers have more to do than just shoot and kill

- Opponents could be computer generated artificial intelligence (AI) or other human player over a network (local or internet)
Genre – Action/Adventure Game

• Combination of the two mentioned game types
• Typically long-term obstacles
• Games focus on exploration
• Item gathering, puzzle solving, combat are features
• Don’t fit in either action or adventure category
• 79s Atari Adventure is example
• Stealth games (e.g. Amnesia) and survival horror (e.g. Resident Evil) are subtypes
Genre – Role Playing Game

• Gamer generally directs a group of heroes on a series of quests

• Gameplay revolves around gradually increasing abilities and strengths of the heroes (Ultima, Might and Magic, Final Fantasy)

• Players expect to be able to micromanage their characters, all the way down to the weapons they carry and specific armor for their bodies

• Combat is an important element by which the heroes gain strength, experience and money to buy new equipments

• Like adventure games, RPGs feature a huge world with a gradually unfolding story
Genre – Strategy Game

• Requires players to manage a limited set of resources to achieve a pre-determined goal

• Resource management frequently involves deciding which kinds of units to create and when to put them into action
  
  • Player has to continuously balance which kind of unit to build, how many resources to allocate towards offense and defense (Command and Conquer),...

• Usually turn-based – player may take his time to make a decision – computer reacts only when player indicates to be ready.

• Real time strategy (RTS) games set the computer AI in action without giving gamer open ended time

• AI opponents may be substituted by humans in the Internet
Genre – Simulation Game

• Simulations or sims are games that seek to emulate the real world operating conditions of complicated machinery such as jet fighters, helicopters, tanks and so on.

• The more serious the simulation the higher the premium that’s placed on accuracy and equipment controls.
  • Players expect to spend hours learning the intricacies of the machine and expect a manual as well to help them with finer points.

• Less serious sim games, known as arcade sims, have simplified controls, less to learn, and punished less often for mistakes.
Genre – Sports Game

• Sports games let players participate in their favorite sports as a player or as a coach

• Must accurately reproduce the rules and strategies for the sport

• Session may over an individual match, a short series, or an entire season
Genre – Fighting Game

• Usually, two person games in which each player controls a figure on the screen using a combination of moves to attach his opponent and defend against opponents attacks

• Players expect to find a basic set of attacks and defense mechanisms and master those over time

Prince Of War  Matrix Rampage  Sumo Slam  Fat Ninja
Genre – Casual Game

• Traditional games such as chess, bridge, solitaire, poker etc.

• Players generally want to drop into and out of these games quickly

• Game rules should be emulated correctly

• Simple user interface

• Little learning curve
Genre – Puzzle Game

- Games for intellectual challenge of problem solving (Castle of Dr. Brain, Incredible Machine)
- Puzzles play the pivotal role and are an end in themselves (opposed to adventure games where puzzles are integrated into stories).
Genre – Education Game

• Those games that teach while they entertain (Oregon Trail, Reader Rabbit)

• Aimed at younger audience

• Designers have to work with subject experts to ensure that the content is appropriate for the target group
More Games

• **Rhythm** Games: music games, examples: DJ-Hero, Guitar-Hero, Rock band, AudioSurf, Dance Dance Revolution

• **Online** games: can include any game if it is played over a network (especially, the Internet).

• **Programming** games: player has no influence on game directly, needs to write a script/program instead.

• **Exergame**: …get fit!

• …
**VIDEO GAME timeline**

As the world of video games continue to evolve, we take a look back at popular consoles and video games that helped make Nintendo, Sony, and Microsoft the giants they are today.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
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<tbody>
<tr>
<td>1967</td>
<td>Atari releases Breakout, the first video game console that works on a standard television. It motivated Ralph Baer and his coworkers to develop the first video game console that could display a full-color image.</td>
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<tr>
<td>1972</td>
<td>One of the earliest arcade video games, Pong, is a simple tennis game that became the first commercially successful video game.</td>
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<td>1974</td>
<td>Gran Trak 10, the first racing arcade game, is released. It is the first arcade game to use RAM.</td>
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<tr>
<td>1974</td>
<td>Maze Wars is released. Considered to be the earliest first-person shooter.</td>
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<tr>
<td>1977</td>
<td>Nintendo releases Space Invaders, a popular arcade game.</td>
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<tr>
<td>1977</td>
<td>Atari releases the Video Game Computer System (Atari 2600) in the United States. It is the most successful video game console of its time.</td>
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<tr>
<td>1982</td>
<td>Nintendo releases the NES in the United States.</td>
</tr>
<tr>
<td>1984</td>
<td>Sega releases the Sega Master System as a competitor to the NES.</td>
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**Source:** onlineeducation.net, 01/14/2015
1986
- Notable Releases: The Legend of Zelda
- Out Run
- Bubble Bobble
- Dragon Quest
- Metroid

1987
- Notable Releases: Phineas
- Street Fighter II
- Tecmo Super Bowl
- Sonic the Hedgehog
- Sega CD

1989
- Sega releases the Sega Master System as a competitor to the NES

1990
- Notable Releases: Altered Beast
- Super Mario Bros.
- Power Pad

1991
- Notable Releases: Road Rash
- Street Fighter II
- Tecmo Super Bowl
- Sonic the Hedgehog
- Sega CD

1994
- Notable Releases: Hiller's Dream Land
- Final Fantasy
- Prince of Persia

1995
- Notable Releases: Chrono Trigger
- Time Crisis

1996
- Nintendo releases the N64. The last significant cartridge-based home console was released in 1990, it sold 63 million units

1997
- Notable Releases: GoldenEye 007
- Final Fantasy 7
- Grand Theft Auto
- Gran Turismo

1999
- Sega releases the Dreamcast. Considered to be ahead of its time and the pioneer of online gaming, the Dreamcast sold 10.6 million units

2000
- Sony release the PlayStation 2, 138 million units sold and is the best selling console to date

2004
- Nintendo releases the first handheld console to use an optical disc, the DSi

2005
- Microsoft release its second console, the Xbox 360

2006
- The Sony PlayStation 3 and the Nintendo Wii are released, just 8 days apart from each other; both enter the 3D video console war

2009
- Nintendo releases the Wii U, and Sony releases the PlayStation 3

Source: onlineeducation.net, 01/14/2015
Platforms

Source: jesperjuul.net, 12/06/2012
Platform release history

Source: jesperjuul.net, 12/06/2012
Game Proposal Document

• High concept
• Genre
• Gameplay
  • Summarizes what the player does as she/he plays the game
• Features
  • Lists major selling points of the game (advanced graphics, new technology etc.)
... Game Proposal Document

• Setting
  • Describes the game world in a few paragraphs and explains why the game is interesting

• Story
  • Synopsis of the story if the game has a story

• Target audience
  • For whom is the game being developed? Kids? Sports fans? Mass market? ...

• Target hardware platform
  • If it’s a PC game then memory, processor speed etc.

Source: Rabin (2010): Game Development
… Game Proposal Document

• Estimated schedule
• Estimated budget
• Competition analysis
• The Team (credentials of members)
• Document summary (reiterate why this will be a great game)