Comp 369 - Assignment 1

Game Development Company Research

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This paper is focuses on the discussion of game companies, and the different games they have created in the past and present, as well as the opportunities these companies provide for aspiring developers. The format of the discussion is an introduction to the different companies, followed by an analysis of two games that each company has created. The first game to be discussed is a game that each of the companies have created in the early stages of the company’s establishment. The second game is a more recent game that they developed within the last 5 years. I will be examining both of these games to demonstrate their differences between then and now. This contrast in release date will allow for a comparison of the growth in the game industry through the amount of revenue generated from the games and the types of game engines used in development. Finally, there will be a brief discussion and analysis of each company’s job positions and what qualifications they require for such positions. I have chosen three job positions will be discussed from each company because of the large number of positions available. The positions to be discussed are chosen due to their relevance in this course and in the game industry.

The game industry has gone through rapid development in recent years.The release of new technologies in the form of improved game engines, virtual reality technology, mobile game development, and improved computer hardware are some of the examples of recent developments. There are clear improvements in the quality of games released in the past five years, compared to those that were released twenty years ago. For example, visuals and graphics improved immensely, along with gameplay that is becoming more intricate and complex. It is crucial for companies to improve on these aspects because companies are always improving their technology. The current development for games is not the only aspect that makes companies successful. A rich history of creative games that were developed in the past can help create a name for a company, depending on the game’s success and popularity in the gaming community. Some older games can continue to be played, demonstrating that well-developed games can affect future generations. It is important to research and explore what companies have done in the past in order for them to be successful today. The three companies under examination are Bioware, Blizzard, and Valve, where a game developed in the past (longer than ten years ago) and a game developed more recently (in the last five years) will be compared and contrasted for each company. This will help in differentiating the technologies used to develop the games, the differences in the amount of revenue generated, and the types of games being created. Each of these companies will be explored to determine what the job prospects for the companies are and what knowledge are required for those particular positions.

Bioware is a company that was developed in Edmonton, Alberta. The company was founded in 1995 by Ray Muzyka, Greg Zeschuk, and Augustine Yip (Bioware, n.d.). The company currently has between 501 to 1000 employees (Crunchbase, n.d.), where they had 800 employees in 2010 (Brightman, James, 2010). Bioware was also bought by Electronic Arts in 2008 (Thorsen, Tor, 2007). Bioware had created some iconic games that are still well-known today. A couple of series that the company made were Baldur’s Gate, Neverwinter Nights, the Starwars series of games, Dragon’s Age and Mass Effect (Wikipedia, n.d.). The two game series I will be discussing are Baldur’s Gate and Mass Effect, because these two games are a large contribution to the company’s current success. Starting off with Baldur’s Gate, the game is a third-person CRPG (Computer Role-Playing Game) where the player must complete quests, develop their skills as the game progresses, and ultimately complete the storyline. The game was the first game to use Bioware’s Infinity Engine for graphics (Wikipedia, n.d.). Another factor in the game’s development was the use of the Lua scripting language to help with debugging (Tofer, Cameron, 1999). Baldur’s Gate has made a mark in history, as it was known as “a triumph that single-handedly revived the CRPG” genre of games (Rausch, Allen, 2004). The original series (first game) sold 2 million copies (Web.Archive, n.d.), while the series as a whole sold 5 million copies (Plunkett, Jack, 2009). The game was developed for Windows, Mac OS, and Linux. The game was marketed towards PC gamers and people who were into RPG games, especially Dungeons and Dragons, since the game uses advanced Dungeons and Dragons rules (BaldursGate.Wikia, n.d.). Baldur’s Gate has won many awards, including Origin’s Award for Best Roleplaying Computer Game of 1998 (Web.Archive, n.d.). Today, the Infinity Engine is an open-source game engine with cross-platform development available (Cheong, Ian, 2012).

The next game from Bioware I will be discussing is Mass Effect 3, which was developed a lot more recently than Baldur’s Gate. Mass Effect 3 is the final title in the Mass Effect trilogy, which began in November of 2007 (although there was a 4th game: Mass Effect: Andromeda, which was released in 2017). The game under discussion was released in November of 2012 on Windows, PlayStation 3, Xbox 360, Wii U systems (and ported onto Xbox One in 2016). Mass Effect 3 is a third-person shooter that also has a combat system involved. In comparison to the previous games in the trilogy, Mass Effect 3 has some changes in play style, improving on the old system and adding new features to the combat system. The game utilizes the Unreal Engine 3, which was developed by Epic Games. Unreal Engine 3 is written in C++ and uses DirectX. The game was a continuation of a successful series, where it was able to sell over 3.5 million copies in the first week of sales (Thier, Dave, 2012), making over $200 million (Sterling, Jim, 2012) (Mudgal, Kartik, 2012). As for an update to the number of copies sold, there were over 6 million copies of the game sold by January 2017 (Alforte, Allan, 2017). Mass Effect 3 won an award for Best RPG of 2012 (Hinkle, David, 2012), which definitely helps contribute to the company’s current success.

There are multiple job openings available at Bioware; a few of them are Level Designer for Dragon Age Franchise, Gameplay Programmer for Anthem, and Online Software Developer for Dragon Age Franchise (Career4.SuccesesFactors, n.d.). For the Level Designer, the skills that the position requires are experience in 3D level design, experience in a Visual Scripting language, the ability to work with people in other disciplines (artists, programmers, etc.), and have participated in shipping at least one AAA title as a game developer. For this type of position, courses in visual scripting languages such as Luna or Blueprint visual scripting would be very beneficial in learning the technical knowledge to perform the job correctly. Another course would definitely be in level design, to learn the techniques and terminology to create a proper and intricate levels. For the GamePlay Programmer, the technical skills are more honed towards programming, where the applicant should have knowledge in C++ and object-oriented design and implementation, knowledge in implementing A.I, character controls, pathfinding, experience in assemblers, scripting languages, and interpreted languages. A course that would help in this would definitely be a course on C++ as the backbone language for this job. Additional courses for assemblers (such as on MIPS or VU Code), possibly scripting languages (Perl, Python, Ruby) and interpreted languages and object-oriented languages such as C# or Java would also be beneficial. As well, a course in game development would definitely be necessary to have an understanding in what needs to be created by the applicant.The third position is for a Online Software Developer position, which focuses more towards client/server architecture, along with multithreading, multiprocessing, and real-time systems. Similar to the Gameplay Programmer position, this position also focuses on C++ for server applications, but it is also handy to know Java/C#. Therefore, it would be recommended to take a course on C++, Java or C#, along with a database course, a course on multithreading, and on client/server creation and interaction.

The next company under discussion is Blizzard Entertainment, a company that has developed many spectacular games, many of which have a large impact on the E-Sports scene. Blizzard was developed in 1991 and based in Irvine, California, starting off with the name of the company as Silicon & Synapse. The CEO is Michael Morhaime, and the chief development officer is Frank Pearce (Blizzard, n.d.). Blizzard has many games to maintain and develop, which results in a relatively large workforce. The number of employees working in blizzard was 4700 in 2012, and 9600 as of May 2017 (under Activision Blizzard) (Forbes, n.d.). Blizzard is well known for a series of game line ups they created; specifically, they were made very popular by Starcraft (Starcraft 1 and 2), Warcraft (1, 2, and 3) and World of Warcraft (and their expansions), and Diabolo (1, 2, 3, and their expansions). These series of games pushed Blizzard to become a very popular and well-known company. From then to the present day, they released more games that are also incredibly popular, such as Hearthstone, Heroes of the storm, and Overwatch (Shaw, Michael, 2016). Another contribution to the success of Blizzard and their games was their merge with Activision in July of 2008 when Vivendi Games merged with Activision. Vivendi Games owned the rights to many Blizzard games, such as Warcraft, Starcraft, and Diabolo. Thus, this merge lead to the development of Activision Blizzard, Blizzards parent company (Investigator.Activision, 2008).

The first game from Blizzard that will be discussed is Starcraft, which was developed in 1998. The game utilized a modified version of the Warcraft 2 engine (an engine developed for a different Blizzard game, written in C/C++) (Wikipedia, n.d.). Starcraft was set to take place in space in the 26th century with a fight between three races (zerg, protoss, and terran) (Starcraft.Wikia, n.d.). The game is a strategic Real-Time Strategy game with a large learning curve, but was also a very satisfying game to develop one’s skills in because the game is so complex. Starcraft was insanely popular, contributing largely to the development of E-Sports. It was one of the greatest games created and has “become the standard by which real-time strategy games are judged”, as said by GameSpot (Web.Archive, n.d.). Starcraft was most popular in South Korea, where the tournament had cash prize pools and were even broadcast on live television (Regan, James, 2006). Adding onto Starcraft’s accomplishment, the game also sold 1.5 million copies in 1998, becoming the bestselling game of that year (IGN, 1999). Seeing the accomplishments of Starcraft has demonstrated how such an old game can still impact the current gaming community so much and help push Blizzard to become the successful company it is today.

A more recent game developed by Blizzard is Hearthstone, which was released in March of 2014 (Wikipedia, n.d.). Hearthstone is very unique, as it was a game that possibly pushed for a new genre of games. Hearthstone is one of the first widely distributed online card games that became immensely successful and became a part of E-Sports. Hearthstone is a turn-based game that focuses on different decks being built depending on the hero chosen. The goal is to bring the opposing heroes health to zero. The game revolves around the use of mana in order to pay the cost to use certain cards, or to use the hero's ability (hero power). Decks are composed of minions, weapons, or spells, which can differ from hero to hero. The development team for Hearthstone was much smaller than the other games that Blizzard makes. The team was around 12-15 people, in comparison to other teams that exceeded 60 members (Wawro, Alex, 2014). Another interesting fact is that Hearthstone was first prototyped using Adobe Flash, before being fully developed in Unity (Takahasi, Dean, 2014). In terms of revenue, the game has generated around $400 million US dollars in 2016 (Lee, Tyler, 2017). Although the game is free-to-play, it also has micro transactions throughout the game that allows the players to buy more packs. Hearthstone is capable of generating such income due to their large player base, where in 2014, the game had about 20 million players (Haywald, Justin, 2014), but by 2017 the game had around 70 million unique players (Chalk, Andy, 2017).

In terms of job prospects for Blizzard Entertainment, they have an extremely long list of jobs available, ranging in all different kinds of disciplines. The ones we will briefly take a look at are Lead Software Developer in C#, Android Software Engineer, and Game Designer (Careers.Blizzard, n.d.). For the Lead Software Developer position, the main required experience is at least 8 years of software development experience, with knowledge in C#, CSS, and JavaScript, as well as knowledge in Unity 3D and mobile development. Some beneficial courses to take would be courses in C#, Unity, Web design and/or CSS and JavaScript, mobile development courses, and any other programing related courses. For the Android Software Engineer position, knowledge in Java, object-oriented design and MVC design, networking and protocol knowledge such as in TCP or HTTP, and knowledge in game and mobile game development. Other useful courses to help prepare for this position are courses on Java, software engineering design courses (for a better understanding of object-oriented and MVC designs), a networking course to know more about TCP/IP and HTTP, a game development course, and finally a course on Android application development. For the final position of Game Designer, Blizzard is looking for individuals with at least 2 years of game design knowledge, along with participation in one shipped game, experience in designing characters, enemies, abilities, weapons, and power-ups. It is important to take a look at taking courses in game design to learn how to design characters. It would also be interesting to take courses in 3D design/modelling to be able to design any models, if the opportunity were to occur.

The final company under discussion is Valve, which was founded in 1996 by Gabe Newell and Mike Harrington, with their headquarters being based in Bellevue, Washington (Wikipedia, n.d.). In 2016, Valve had about 360 employees (Chalk, Andy, 2016). Valve is one of the most well-known companies by pc gamers, due to a program they created called Steam, which is very popular and contains a vast number of games (essentially it is a game distribution medium). Valve also has created a line-up of games that are iconic and very well-known in the gaming community. These games are Counter-Strike (Source and Global Offensive), Left 4 Dead and Half-Life series, Portal series, Team Fortress Series, and Dota 2 (valvesoftware, n.d.). Something different about Valve in comparison to the other companies discussed above is that Valve doesn’t have a parent company. In terms of the games under discussion, we will be looking at Half-Life as the game developed in the past, and Dota 2 as the newer game.

The story behind Half-Life is that it takes place in a fictional facility where a theoretical physicist accidentally creates a dimensional rift to a trans-dimensional world called Xen. Extraterrestrial life starts to swarm Earth and kill the survivors (Wikipedia, n.d.). The game presented a very interesting 3D First-Person Shooter horror-themed game. The game itself utilizes the GoldSrc Engine (developed in 1998 and used internally by Valve), which is derived from Quake Engine (developed in 1996). GoldSrc was written in C, Assembly language for the rendering, and C++ for games and tools (Wikipedia, n.d.). Half-Life was also available for Windows, PlayStation 2, OS X, and Linux systems. The game was very popular; earning over fifty awards, and was deemed the “Best Game of All Time” in 1999, 2001, and 2005 issues of PC Gamer Magazine (valvesoftware, n.d.). The game was able to sell 8 million copies by November of 2004 (Musgrove, Mike, 2004) and 9.3 million copies by December of 2008 (Faylor, Chris, 2008). Valve didn’t end the series here, as it also released the sequel to Half-Life (Half-Life 2), which was developed in 2004 and uses the source game engine (Wikipedia, n.d.). Half-Life 2 sold around 6.5 million by 2004 (Remo, Chris, 2008).

The final game we will be looking at is Dota 2. Dota 2 is a free-to-play game that was based off of the very popular moba custom map created in Warcraft III by IceFrog. Dota was one of the most well-known MOBA games at its time. In the time between Dota and the release of Dota 2, there were also many popular MOBAs that appeared, such as Heroes of Newerth and League of Legends. Dota 2 has a very steep learning curve in comparison to many other MOBAs, but is also described as a “deep and rewarding competitive game” (Thursten, Chris, 2013). Dota 2 was officially released in July of 2013 for Windows, OS X, and Linux systems (steampowered, n.d.). The game uses Source 2 for a 3D video game engine, written in C++, which was also developed by Valve (Walker, John, 2012). Originally, Dota 2 used the original Source engine, but was ported to the Source 2 engine in 2015, being the first game to use the new engine (Nunneley, Stephany, 2015). Source 2 is the predecessor of the original Source engine, which was used to create many of the Valve’s well-known games, such as Half-Life 2, Counterstrike: Source, Team Fortress 2, Left 4 Dead, and Portal. The Source 2 engine was developed back in 2015, and was created in the hopes of increasing efficiency of developers (Seppala, Timothy, 2015). Dota 2 itself is extremely successful, winning many awards such as IGN’s People’s Choice Award in 2011 during its first public showing (MacDonald, Keza, 2011). This game also earned PC Gamer’s and onGamers eSports game of the year award in 2013 (PCGamer, 2013) (Conners, Cody, 2014). Also, on the year of the game's release, it won IGN’s Best PC Strategy & Tactics Game, Best PC Multiplayer Game (IGN, n.d.), and People’s Choice Award awards (IGN, 2011). Due to the game’s success, it was able to generate a large income for Valve. In 2015, it was said from the industry-intelligence firm SuperData Research, that Dota 2 made around $18 million per month (Grubb, Jeff, 2015). Dota 2 also enjoys giving back to the community in terms of many large tournaments such as The Majors and The International. They are known for having the largest prize pools in eSports history, found in their yearly The International tournaments (Wikipedia, n.d.). Just recently in 2017, TI7 was completed, with a prize pool of US$24,787,916 (Wikipedia, n.d.).

For positions available at Valve, there are multiple openings in different fields, such as character design, hardware and software engineering, and more. We will be looking at Game Software Engineering, Steam Software Engineer, and Steam Database Administrator (valvesoftware, n.d.). For the Game Software Engineering position, Valve is looking for individuals that have a strong background in C++ or another similar language, with a strong sense of software engineering skills, good communication, and 4 or more years of software development experience. For the Steam Software Engineering position, the criteria for an acceptable applicant is similar to that of the Game Software Engineering position, where the applicant should have 5 or more years in developing in C++ or another similar language, along with a strong knowledge in fundamental programming skills. Thus for these two positions, it would be good to take courses on C++ and in software engineering practices (to learn how to develop good, maintainable, and scalable code). For the Steam Database Administrator position, Valve wants an individual with 5 or more years of experience in database implementations on a SQL Server. It is important for the individual to know scripting languages, design and management of disk storage systems, and networking systems. Thus, taking courses in database languages such as SQL or SPARQL, along with taking courses on developing fast, indexed databases would be beneficial.

The game industry has evolved greatly through the desire to create new and innovative games for consumers. Bioware, Blizzard Entertainment, and Valve are all game design companies that have been examined to determine what allowed the company to become so successful. As well, some of the company’s most popular games have been observed to understand their contributions to the company’s success. The games were analyzed to see how successful they were through their sales and revenue generation, the awards that the games have won (due to their innovation or well-designed gameplay at the time of their release), the type of languages, game engines, and platforms that the game used and released on. The job positions from each company were also examined, to see what kind of qualifications the company's desired for specific positions. Many positions required knowledge in C++ or other object-oriented languages, knowledge in 3D modelling and design, and most importantly, experience in programming or design. Gaining knowledge in order to tailor one’s skills to fit the job qualifications can be done through taking courses in the aspects that are required by each job. By taking such courses, one would be able to develop the technical skills in order to begin building the experience that companies are looking for. The research conducted on game companies and their game development positions demonstrates the significance of tailoring one’s skills to the requirements of those positions by exploring opportunities to gain in-depth knowledge in particular fields; this knowledge can be found in many online courses.

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