RESEARCH ARTICLE   **OPEN ACCESS**

Game Development and Why It Is Important

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ABSTRACT:
Our research paper is on Game Development. Game Development is part of computer science where we can learn about games, how to develop the games, basically Games are used to fresh our mind and time easily pass. Many users play games to develop their mind, they can play puzzle games, word games, chess etc. In Game Development games are build or develop. In our project we build 3 to 4 games which is combined together. These games are basically small that every aged users can play. Basically all games are played by below age 30 to 35.Game is essential part of today's life, people stay at home no work to do they can't go outside so game is a solution to make busy themselves, they can learn from games also like- new words new letter etc.
It is very important now-a-days people are getting into depression because they can't go outside they all time stay at home. For student no work for them to do in evening time. So that time, they can play games and relax their mind.Some games are played by people in which they find themselves in game and their dreams come true. Games are build and sharp their mind
Rajat Chaturvedi   Karan pandit
by playing word games puzzle story games, chessetc.In 2019 there were around 300 million online gamers in India.

I. INTRODUCTION

Game Development is part of computer science where we can learn about games, how to develop the games, basically Games are used to fresh our mind and time easily pass.

Game Developmentis the whole process of creating games like 2Dand 3Dgames. These all games are called video games. Games are change the life of people basically some games are on true events (like story games) and some games are totally frictional (like shooting games etc.)

Game is built in two mode
i)   2D mode
ii)   3D mode

2DGames are in only x and y plane in this flat graphics, called sprites. 2D games are drawn as flat images, and the camera has no perspective. 2D games are much easier to build than 3D games but 2D games not much attractive but people can also play that games because it is easy to play (games like pacman, tiny bubbles etc.)2D games are more suitable for beginners, they have a larger target audience. 2Dgames are much cheaper and faster. These games are called "flat"games where we can move left, right and up, down. In 2D games there is no more option for movement

3D gamesare 3D games, by contrast, include full movement through three-dimensional planes. This means that the player is able to move around in a "real world" setting where they can turn 360 degrees, and in which objects have length, height, and depth.The first true 3D games were developed from wire frame models. The 3D models, which had no shading, were made from vertices and lines and could be seen through. Elite was the first of this new generation of video games, in 1984. Flat-shaded 3D polygons with 16 colors arrived with Bethesda's Terminator in 1990.

Our game is zombie garden / plants vs zombies

Plants vs. Zombies is a video game franchise developed by PopCap Games, a subsidiary of Electronic Arts (EA). The first game, Plants vs. Zombies, was developed and released by PopCap before its acquisition by EA. After PopCap Game's acquisition, EA helped expand the game into a franchise on many platforms and few different genres. Plants vs. Zombies was officially released on May 5, 2009, for PC and Mac.On August 20, 2012, PopCap announced that they were working on a sequel to Plants vs. Zombies. In July 2019, EA announced Plants vs. Zombies 3, another free-to-play mobile title in the series.A spin-off called Plants vs. Zombies Adventures was announced in March 2013and was released on May 20, 2013. In July 2014, it was announced that Plants vs. Zombies Adventures would close down on October 12, 2014.

About the game

In this there are plants which is choose by user to destroy the zombies. Plants are used to secure the player's gate. Plants are shooting the zombies if all the zombies are killed then the player get win or go to next level. If zombies are destroyed all the plants, then player loss the game. This game is very interesting game

SURVEY

The British Games Institute (BGI) was set up to support video game culture in 2019.The UK has the sixth largest games market globally, with 37.3 million people playing games. It is unsurprising that the video games industry generates considerable revenue.

Almost all boys(95.6%) responding to the survey said they play video games, while two-thirds girl (65.2%) respondents were video game players.

In 2016, India had about 201 million users of mobile games across the country. This was projected to reach about 370 million users by the year 2022, marking a considerable increase in the number of users. Overall, Indians preferred to use the mobile games than computer or console games.

Like China and South Korea, India is experiencing strong growth in online gaming. With between 35-50 million internet users, the country is attracting interest from the online video game industry. One of the factors driving the growth of the video game market is its large number of cyber cafes with more than 100,000 in 2006, 40% of which are used to play online. In 2008, there were 180,000 cyber cafes in India but by 2017, it declined to 50,000 one of primary reasons for decline was rules of IT Act, which caused licensing issues and other restrictions.

Many studios in India derive most of

Waterfall Model
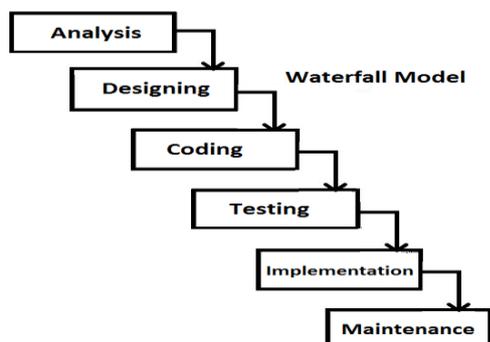
their income from outsourcing to foreign companies. Although there are a few studios working on their own titles, most of the studios are mobile based. There are a few studios working on larger projects on PC and console like Bangalore based Tentworks Interactive. Video gaming is growing very quickly

especially in the mobile space with the advent of cheap and affordable smartphones. A recent survey has found that women mobile gamers are actually more active than men in India. During the lockdowns of 2020 there was an increase in the amount of mobile gamers in India.Online gaming in India was estimated at □6,200 crore market with an estimated 300 million gamers.

PUBG Mobile became the most popular online game in India in 2018, as of January 2020, India became PUBG Mobile's largest market in the world with 116 million downloads, which is 21% of 555 million PUBG Mobile players worldwide.
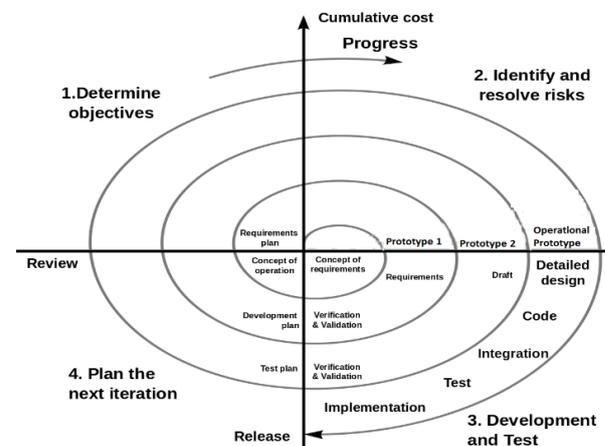
GAMEDEVELOPMENT MODELS

There are a lot of proposed software/game development lifecycle models which follow a specific life cycle during the process of development. These models are also termed as **Process & Development Models**. All these models follow a chain of steps in a circular formation, which is unique to its type for ensuring success in its development stage.

Waterfall Model

It is the oldest and most frequently used model Waterfall Model**.** It is the oldest and most frequently used modelThis model was very popular during early(1980's to mid 90's) game developments when the requirements were constant through the development. But these days, requirements change every day, hence following this model is not a good choice. It can be used for small game projects.

Spiral Model

This one is a flexible model. The spiral model has a repetitive approach, going forward in a circular manner where the project passes through four phases over and over in the form of a spiral, until it reaches the completion, hence allowing several rounds of refinement

In Game development, the typical steps in a Spiral Lifecycle Model are:
1. Design and Planning
2. Implement the plan or in other words code the Game.
3. **Play Test**: This involves playing the game and analysing it for improvements, looking for bugs/issues etc.
4. Evaluation of the current progress. Understanding what we did right, what we did wrong, and with new point of observations, move back to step 1.

Iterative Model

Here instead of beginning with fully known requirements, you can also start implementing a set of software requirements, testing, evaluating and plug-in further requirements after an iteration. During each iteration, new version of the game gets produced. This rinsing and repetition goes on until the complete project is ready.

Iterative Model Design
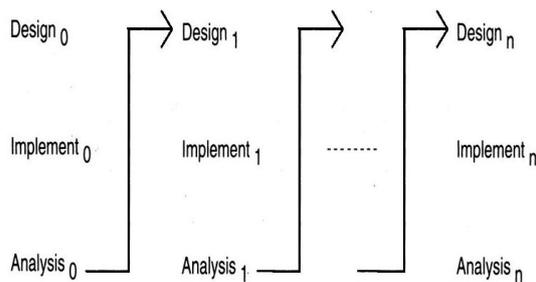
V-Shaped Model

This model is also called the Verification and Validation model and this model was born out of the Waterfall model and has the characteristics of a parallel running testing activity during each of its development stages. Like the waterfall model, each stage of V-shaped model is dependent on its previous stage. This model plays its role perfectly when all the requirements are clear beforehand, as it's very difficult to have a backward movement for making any changes

Big Bang Model

It doesn't totally follow the SDLC methodologies or in other words this model does not follows any specific process, and very small amount of time is spent on planning and designing this model at the time of game development. A bulk amount of resources are focused towards development. This is one of the uncommon methodologies normally used for small projects where only two to three developers are working for developing a game.

Agile Model

In this model, the product is broken down into a set of features, and hence it is used for quickly delivering a working product and so considered as a very rational development method. This model generates ongoing releases of your project, each having small and incremental changes updated from the previous released version. At each cycle, the project is tested and then released.

II. DISCUSSION

It feels like new studios and student developers struggling to make their first successful game, are emerging on a near-daily basis. While it's true that we all love a good success story, it's equally true that many folks both within and outside the industry fail to understand why a given title has achieved significant success. Video games are definitely an art. In my opinion, this isn't debatable; we're well past this point now. Like any art form, game creation is typically driven by great passion it's this passion which has fuelled many thousands of people to embark on their own development projects. Every developer has their own game they want to make and a story around how they broke into the game industry. I've spoken to two developers who quite literally lived in a treehouse for years in order to make their first game. There was the creator who started a project due to a near-death experience. There was even one group who covertly built their game at school when nobody was around. This is especially true if we only think about games as works of art that aren't subject to very specific constraints and practical considerations. What do I mean by "science of game design"? I'm referring to fundamental concepts that contribute to the effectiveness of a game's design concepts that are not subject to an individual's taste of opinion, at least, not as much as something like art or music. No, these are concepts that are more logical in nature and are based on sound, testable hypotheses. In the last seven years, I've interviewed more than 400 developers and industry folks. I've spoken to people like Fred Ford, Paul Richie, Edmund McMillan, Zach Barth, and other developers who "made it" in the game industry. Conversely, I've also interviewed many developers who spent years building games only to have them crash and burn commercially; many of these were incredible, innovative games that most gamers have never heard of (and certainly never played). I never cease to feel great sadness at these "failures", especially after talking to their creators. It may sound like I'm painting a grim picture. And I suppose I am in one way: I'm attempting to highlight the importance of understanding the science of game design in an effort to more

effectively grasp why particular games are successful or not. I see a lot of confusion about this within the gaming media, but it can also exist within the walls of even the largest and most established development studios.I know what you're thinking. "You're so smart, why don't you tell us what makes a successful game!" Okay, fair point. It's worth saying at the outset that any attempt to explain what makes a "good" game is, by definition, going to vary based on the kind of game being developed.That said, there are some general rules of thumb I've observed over time, especially as a result of interviewing so many developers and dissecting their work. In no particular order, here they are.This may sound obvious, but it's so very important. Even the best games can be dragged down when they are full of bugs that get in the player's way, or if they feature a user interface that is difficult to understand; always make sure to iron out as many pain points as possible in your design. Perhaps even more importantly, it's unwise to think of marketing as either "selling out" or someone else's problem that only arises when the game is ready to ship. Marketing is an opportunity for you to champion your creation, and communicate what makes it special to the outside world. Leaning into it early, and making it part of the overall process, is vitally important.One of the most salient examples I witnessed was Arcen Games, who saw enormous success with AI Wars—and then almost went out of business. I've spoken to Chris Park on multiple occasions, and he was frank about the mistakes he made in terms of game development, and the need to quickly adapt to keep his studio afloat.

III. CONCLUSION

Video games are a form of media that is often associated with negative health consequences. However, when games are played in moderation and with mindfulness, they are a viable source of stress relief as well as a catalyst for mental health improvement and development of social skills. Video games themselves are a relatively modern form of entertainment. They are engaging and immersive on a level different from that of traditional board games and other forms of entertainment. The player actively contributes to the level of satisfaction he/she attains from this medium and thus is more invested and willing to engage in the elements of the video game. The amount of play time is also an important factor in the effects of gaming. Although excessive playtime can have negative consequence, gaming in moderation can be healthy, fun, and educational.

REFERENCES

[1]. C. Anderson (2007). The Innovation in Gaming Isn't on the Screen.

[2]. R.T. Beckwith, L. Brandt, B.M. Slator (2006). Electric Worlds in the Classroom: Teaching and Learning with Role-Based Computer Games. Teachers College Press. 182 p.

[3]. D.A. Bowman, C. North, J. Chen, N.F. Polys, P.S. Pyla, and U. Yilmaz (2003). Information-Rich Virtual Environments: Theory, Tools, and Research Agenda. Proceedings of the ACM symposium on Virtual reality software and technology, Osaka, Japan, 2003.

[4]. J. S. Brown, A. Collins and P. Duguid 1989. Situated Cognition and the Culture of Learning. Educational Researcher, 18(1), 32-42

[5]. Mazurek, M., Hilgard, J., Rouder, J., & Bartholow, B. Christopher R, E. (2015). Effects of Violent Video Game Exposure on Aggressive Behavior, Aggressive Thought. RUNNING HEAD: VIOLENT VIDEO GAMES, AUTISM, AND AGGRESSION.

[6]. Homer, J., & Hirsch, G. (2006). System Dynamics Modeling for Public Health: Background and Opportunities. American Journal of Public Health, 452-458.

[7]. .Silvia Emili, FabrizioCeschin, David Harrison. 2016. Product– Service System applied to Distributed Renewable Energy: A classification system, 15 archetypal models and a strategic design tool. Energy for Sustainable Development, Volume 32, June 2016, Pages 71-98. Elsevier.

[8]. Barry Newell, José Siri. 2016. A role for low-order system dynamics models in urban health policy making. Environment International, Volume 95, October 2016, Pages 93-97. Elsevier