

Exploring Product Line Concepts in Game Building Authors: Diego Castro, Claudia Werner (diegocbcastro@cos.ufrj.br, werner@cos.ufrj.br) Federal University of Rio de Janeiro

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Introduction

- Games have emerged as a highly prevalent mode of entertainment [1]
 - Many fans
 - Diverse preferences
- Development process [1]
 - Exhaustive
 - Non-systematized
 - Prolonged release timelines



Introduction

- Dedicated community [2]
 - Remake the original game
- Software Reuse [3]
 - Mitigate development time and costs
 - Components
 - Model-based development
 - Software Product Line (SPL)



Remaking games

- Own versions of the games
 - Modding

It can be conceptualized as a manifestation of players' artistic freedom in remaking and reinterpreting the original game, comparable to the opportunistic reuse process [4]



Remaking games

- The process of building mods has some issues [4, 5]:
 - Lack of specific tools for mods
 - Time-consuming
 - Faster than building a game
 - Making the source code available to be modified
- Development Kits (SDKs)





Software Product Line

- Systems that have a certain set of functionalities in common [4, 5]
 - The original game serves as a structure upon which a new game is constructed
- Software X with Y characteristics
 - Characteristics can be altered, eliminated, or expanded by introducing new feature





EngageSPL

- ENgine for GAme GEneration through Software Product Line
 - Facilitate the expansion of gaming
 - Distinct characteristics
 - Variation points
 - 3 feature trees
 - Mechanics
 - Second level mechanics
 - Aesthetics



EngageSPL





Conclusion

- Game companies are growing in size
 - Billions of dollars per year
- Development process
- Software Reuse
 - Ad hoc reuse
 - Process and tools
- EngageSPL





- [1] S. Pashkov, "Video game industry market analysis: Approaches that resulted in industry success and high demand," 2021.
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- [4] D. Abbott, "Modding tabletop games for education,"Proceedings of International Conference on Games andLearning Alliance, pp. 318–329, 2018.
- [5] S. Agarwal and P. Seetharaman, "Understanding game modding through phases of mod development." Proceed-ings of ICEIS, pp. 114–121, 2015.



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THANK YOU!

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