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An Experiment of a Video Game Software Development using Object-Oriented Methodology

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1 Background

In a video game, Many characters and items appear. Each character and item have a parameter and do action to other objects. These can be treated as member a variable and a member function. It is natural to be made a model as an object. Much time is needed for development of a video game software. And in a sequel creation and a similar creation of the contents, it is important code reusability. From the above reasons, Object-Oriented Methodology is a useful method for video game software development.

2 Purpose

I show the purpose of this research. The concrete technique for performing video game software development using Object-Oriented Methodology is shown. For this, I develop video game software using to Object-Oriented Methodology. And I investigate validity of the Object-Oriented Methodology in video game software development.

In this research, I conduct the development experiment by Object-Oriented Methodology in video game software development. After the experiment,

I evaluate that it is useful to help of the load of development and saving of time etc. It is expected that this research can show the validity of the Object-Oriented Methodology in the video game software development.

3 Approach

I perform development using object-oriented methodology, and development which is not used. In this development experiment, I perform development using Object-Oriented Methodology, and development which is not used. I show common implement environment by the two developing methods. The implement is performed to a handheld game machine WonderSwan((C)BANDAI CO.,LTD.) The reason is shown. By making it the home video game machine in market, the investigation as more realistic video game software is attained. The two developing methods of the specification of the software developed are the same. In the development which is not used Object-Oriented Methodology, the C language is used using traditional method. In the development which is used Object-Oriented Methodology, CASE tool computer support environment F-Developer is used for the design stage I use the Model Editor which is the function of F-Developer, and draw the class diagram and state chart diagram of UML. Next, I define the variables, state changes and event etc of classes. Based on these information, Prototype Execution is performed using function F-Prototyper of F-Developer. By performing Prototype Execution, I can confirm the value of states and a variables before implement. That is I can expect reduction in bugs. I implement by the C language based on this design.

4 Experiment

The investigation of a usage of computer support environment F-Developer and handheld game machine WonderSwan. Determination of the specification of the video game software to develop. The design and the implement of traditional method. The analysis, the design, and implement using Object-Oriented Methodology. In the design of the development using Object-Oriented Methodology, computer support environment F-

Developer is used and Prototype Execution is carried out. I compared that the Prototype Execution result and implemented result. Performing the above things, I showed that how useful Object-Oriented Methodology for video game development.

5 Conclusion

I developed by two methods using Object-Oriented Methodology and not using it. Change of a design stage and the program was easy for the development method which used Object-Oriented Methodology. The performance of the software operated at quicker speed not using Object-Oriented Methodology. In this experiment, the great differences are drawing speed and touch judging speed. Compared with the method which is not used, change of a design stage and a program was easy for the method which used object-oriented methodology for the development method. The performance of the done software operated at speed with quicker not using object-oriented methodology. In this experiment, drawing speed and the speed of a contact judging changed a lot.

I write whether Object-Oriented methodology is useful to video game software development. As a conservative opinion is how development by the conventional method. It is easier to use Object-Oriented Methodology at large development case. Therefore, it is better to use Object-Oriented Methodology. In this case, it is necessary to dismantle the designed classes. The reason is compared with the time of not using Object-Oriented Methodology, execution speed is quite slow. It is concluded that it is good to use Object-Oriented Methodology, for the characters as main subjects, and to dismantle classes as background etc, to improve speed etc.

Future views are written. The created model in this development experiment was comparatively small. When many characters are added to current model, does this development technique function well as extension? For example, when it is a bigger mode, what does it become? How are a sound and sound effects treated? If we can treat, the validity of Object-Oriented Methodology is more conspicuous. The computer support environment F-Developer has a function that data can be exchanged on other computers and real time through using network. Moreover, F-Developer

can do Prototype Execution with animation to cooperate with GUI using programming language Java. This is used, F-Prototyper and WonderSwan are connected. And the animation of F-Prototyper connects with the state of the characters of WonderSwan. Contrary to the above, F-Prototyper received data from WonderSwan to move the state of the characters on WonderSwan. If F-Prototyper and a home video game machine WonderSwan are connected, clearer Prototype Execution can be performed.