E-LEARNING OF JAVA BASIC WITH GAMIFICATION SYSTEM

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ABSTRACT

Java is one of the programming languages that contribute in developing the computing technologies. This programming language has been introduced to the education in Malaysia in order to coping with the advancement of technology. The Java programming subject is compulsory course that should be taken by the computer sciences students. According to the advancement of technology, most of the subjects uses e-learning system to conduct the learning and teaching process. The flexibility of e-learning system which are available at any where and any time cause the increasing of students' engagement towards the system. Furthermore, the implementation of gamification into the e-learning system make it more attractive and enhance the students' motivation during the learning and teaching process. However, learning Java programming subject has its limitation which is students are unable to gain the better understanding about the basic Java programming during the first year of semester. Another limitation that has found is the current e-learning system still lack of integration with gamification elements. The main objective for this system is to build the system with the element of gamification. The gamification element that had been chosen to implement in this system is the timer and leaderboard. The timer is challenged students to choose the answer during the time given. For leaderboard, it is to shows the students who are get the best marks among them. This can motivate students to do better. Another objective is to test the system using the WebpageTest tools. The online system was designed and developed using the web-based applications such as the MYSQL as the database creation, Notepad++ is uses to write the system source code and graphical representations, and Awardspace.net as the webhost to make the system available in online environment. The result shows that all the tasks in Usability Test are completely done by the lecturer and students. In User Acceptance Test, users are agreed that the system is user friendly and beneficial to the students' learning experiences with the mean score 4.15 and 4.20. Users also agreed that the features in the system are able to use, the provided button is easy to click, and the consistency of the theme used on the system with the mean score 3.85, 4.20 and 4.20 respectively. After conducted the testing, there are a few limitation that were found. The system do not shows the timer which make users unable to estimate the time range per questions. Besides, the system performance is lower than expected. This system had taken more time to load every webpages. It is because the image use by this system comes out in a large size. There is recommendation to use the smallest size instead of the largest size. This will take shortest time for the webpages of the system to load. By implementing those recommendations, there will be more users attracted to use the system. This will make the users who are from the Computer Science programmes enhance their learning process and methods.

Keywords: Java programming, e-learning, Gamification, Quiz, Leaderboard.