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**DevTour**

version no.: 1.1.0

date: Feb. 14, 2021

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1. INTRODUCTION
   1. Project Overview

The project, named “DevTour”, aims to build a platform for students, especially programming beginners, to play mini games to experience as a developer and to communicate with each other. Users can log in their accounts and continue to play in their original game archive, and also leave their own comments and walkthroughs in the chat board. Our vision is to let users, especially novices in programming, understand the experience of being a software developer and engineer through the story of the game, and to create a platform for beginners and masters to communicate and discuss.

The development cycle of the whole project is about three months, and the developers include CHANG, Chirui, DING Baizeng, LYU An and YU Yue. We will use web-based access client-server architecture to implement the project, which may involve front and end technologies, such as HTML5, CSS3 jQuery, Ajax, Node.js, ReactJS, MongoDB and so on.

This report provides high-level descriptions on some functionalities, features and architectural designs. It also introduces the project background, architecture diagrams and brief descriptions of some key components of the system.

* 1. Objective

The overall goal of the project is to build a multi-functional network platform for the majority of programming developers, which integrates game playing, entertainment, career planning and social interaction. We find that most computer science students or beginner programmers are unable to map out their career plans clearly, and it is difficult to find mentoring opportunities and guidance with experienced developers, therefore, “DevTour” aims to provide such a platform.

First, our game mechanic is that the player has to answer a series of questions about the developer's career path, including any dilemmas they might encounter along the way. Due to the different choices, the player's health will be changed accordingly. The player's health is represented by four values: mental health, physical health, money, and academic status. The player's goal is to try to keep these values as balanced as possible through different choices, neither too high nor too low. When the four values are above or below a certain range, the round ends. Thus, the number of choices successfully completed is the player's score for the round. In this game, the player has to balance the four values by considering the possible consequences before making each choice, so the process of choosing is a process of experiencing a career as a developer. The first objective of the project is to give novice programmers the experience of being a developer through games.

Second, players can exchange ideas and share game tips with other players in the chat board. Users can post their reviews, thoughts on the game, and playthroughs to a chat board where other users can read and comment. Therefore, the second objective of the platform is to create a common discussion platform for developers – beginners or masters.

Overall, the objectives of this project is to provide a platform for developers, especially beginners, to explore their career and meet new friends.

* 1. Expected Customers and Market

The main target customers of “DevTour” are the programming beginners, especially for students whose major is related to computer science and engineering. Of course, for some experienced software developers, they can also know more beginners through this platform and give their own help. The most important thing is to let beginners learn more about the profession through the story of the game and make more friends on the way of the career.

For the market on this platform, we will first promote the software in colleges and universities, so that students learning programming will first join this platform. Next, according to the feedback of students, we will gradually improve some functions and gradually push it into the market.

The number of potential users is huge due to the large number of new programmers entering the developer profession. At the same time, as the popularity of programming technology is increasing year by year, almost every professional will be exposed to programming and software development at some point in the future, so there is a huge potential market to be explored. Of course, this project can continue to update and add the story in the game after launch to attract more players to join, and at the same time, VIP mechanism and hidden story can be added to make profits.

* 1. System Features

We divide the whole system into two subsystems, and users can click different buttons to enter the two subsystems. The first subsystem is the game experience system, and the other is the chat board system. Of course, the two systems share an account login mechanism and an account shares information in the two systems. In order to better understand the characteristics and operation mode of the whole system, we will introduce it in sections latter.

First, the user registration and login mechanism. New users can customize the username and password for registration. After registration, the user can use the registered account to log in. Each account independently stores the progress of the game and other data information.

Second, the game subsystem. After logging in, users can click into the game interface to play the game. The system automatically saves the game progress after each round of the game. The content of the game is to tell the story to the player and allow the player to make choices. Different choices have different consequences, so different choices affect the player's health. Player health value includes physical health, mental health, money and academic progress four values. Players need to balance their health by making choices that fit their current health. At the end of each round of the game, players break the balance of health, the system will record the number of questions successfully answered as the total score of the round of the game. At the end of each round, players are given feedback on the top 5 scores of the overall leaderboard. Players can also view their total progress, which is the total number of successful answers.

Third, the chat board system. After finishing a round of the game, or logging in again, users can click the corresponding button to enter the chat board system. The chat board feeds users comments from other users as well as comments from users to each other. Users can click the "Post" button to create their own comments and thoughts about the game, and they can also click the "Comment" button to reply to others' comments after reading them. Users can also delete comments and replies freely. The content of the chat board exists on the server side, so it ensures that the previous message is displayed every time the Web page is opened.

Finally, system maintenance and operation. System administrators have their own special account, login this account can modify the server database. The system administrator can create, traverse, modify and delete the user accounts to ensure the security. Administrators can also make changes to the database that stores stories and questions in the game, by creating new questions and answers, changing the consequences of each answer, and deleting outdated questions and answers. Finally, the administrator can also modify and delete the comments and messages in the chat board.

Our system will be designed to maximize user friendliness, robustness and reliability for all above features.

1. BACKGROUD

“DevTour” was originally designed to provide a platform for programming beginners to plan their own career by playing education simulation games, and to communicate with each other in a relatively relaxed environment. The ultimate purpose of this product is to provide a platform for beginners to discuss career planning issues and to find like-minded friends and common topics among developers. We hope that it can let science and engineering students escape the stereotype of “wearing a plaid shirt and boring” and become more socially active.

We found that most of the programming beginners, computer majors in the face of their coming into the society to seek work will enter a very confused state, sometimes cannot handle the work and study pressure. We hope that through the plot setting in the game, players can understand their love for programming learning and work, understand their strengths and weaknesses, and even understand the influence of their personality on future career planning. Because in the workplace, you may experience the annoyance of 996 work schedule, may experience the workplace PUA and so on, so our story design can start from there and give the player an early taste of what it's like to be a developer. Of course, not only the game, but we also hope that the programming developers can become a big collective, we can exchange thoughts and feelings in our platform, or find like-minded friends, or help other beginners to get started and so on.

Therefore, the most attractive feature of our product is the game that simulates real world problems, and the player can choose the answer freely to get different consequences. By answering real world questions, players can feel their own inner answers as well. In order to get higher score, the player is also forced to reply answers that are not what they really think, taking into account their current health. In fact, in real life, there are all kinds of dilemmas, and sometimes you need to consider the current situation and have to make a choice against your mind: this is the most attractive part of the game.

Of course, in addition to games, this product also has a social function, so it will bring more programmers and developers into the community to discuss career planning and share personal experiences with each other.

1. SPECIFICATION
2. SYSTEM ARCHITECTURE
   1. Architecture
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