Platform

Among 4 frequently-used platforms, PC (macOS/Windows), mobile terminals (iOS or Android), web and WeChat Mini Program, team 10 has made a choice. After analysing each platform’s advantages and disadvantages, WeChat Mini Program and mobile terminal were excluded from the list due to the small size of their adaptive devices. The web is also not considered. Using cookies may lead to serious privacy problem, while it is necessary if the software is built as a web. Besides, according to the questionnaire result, PC is more welcomed among students, our stakeholders. After taking into account both the functionality of these platforms and stakeholders’ opinions, the PC platform is chosen. Another potential user group is a teacher at the University of Nottingham Ningbo, China. Besides, computers in this school all use Windows system. Therefore, the platform is temporarily decided to be Windows.

Language

Back end

In the technical research chapter of the report, three programming languages are analysed. The project will contain several classes and objects for handling events and businesses which supports the service behind those events. JavaScript is supported well by most of the modern browsers and can cooperate smoothly with HTML and CSS. Whereas JavaScript is not strictly object-oriented, which makes it hard to write code of business part. C# is a commercial product supported by Microsoft; it is fully functional and has many resources to referrer to. However, supporting Windows platform only makes this language less attractive. Java, as a Java Virtual Machine based language, can be parsed and run on multiple platforms efficiently. It is also powerful in explaining animations and reacting to user actions. Being an object-oriented language also makes it easy to handle different events of objects. Therefore, the primary decision of the programming language of the back end would be Java.

Front end

The project focuses on the animation, which requires a strong front-end tool. Although AWT, Swing and JavaFX can work with Java to provide a user interface, the restriction on UI design and functionalities make it less attractive. Lack of resources and support community will also make the process harder. In comparison, HTML5 and CSS work well for designing UI freely. Besides, they are fully compatible with a back-end programming language such as JavaScript and Java. Existing learning resources are sufficient on the Internet as well. Moreover, it splits front and back ends, which further specifies the division of labour of the team and improve efficiency. Therefore, the team would choose HTML and CSS as the front-end languages for the development of UI.

Development Tool

IDE

Version Control and Team Management

Since it is a small development team, and customer involvement is needed, the Agile project management approach will be used to embrace changes to requirements, delivers and frequent releases.

Specifically, Scrum will be used to utilise backlogs as a formal “to-do list” which contains a set of tasks to trace the work. During the development process, Sprints will be planned based on the backlogs which are made during the meeting. Informal meetings and daily stand-ups will be held to make sure the efficiency of the team.

As for code quality, we plan to utilise systematic methods to guarantee it during the whole process. The thing would be confirmed at the very beginning is a coding convention, including comment, naming, indentation, and changelog.

Git will be used as a version control tool. Moreover, the software will be developed using a test-driven development approach, and pair programming is deployed to avoid basic mistakes. Deep into the process, the team is managed by several useful GitHub features. Issues with labels are used to raise questions, distribute tasks, alert bugs, show what is to-do, Doing and Done. Kanban is a clear and visible feature for managing tasks showing the whole process at the same time. Milestones will also be used for making stage-based objectives with due time, to improve productivity.



