Development Plan and Actual development

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| Development | Requirement | Priority | Actual complete time | Comment |
| UI development | Develop all the required pages | High |  |  |
| Implement MVC pattern | High |  |  |
| Apply framework to connect the front-end to back-end | High |  |  |
| Database development | Implement the database structure | High | 2020.03.22 | Modified later. Final version is confirmed on 2020.04.08 |
| General function development | User login | High | 2020.03.25 |  |
| Forget password | Low | 2020.03.25 |  |
| User logout | Low | 2020.04.22 | Can directly close the windows |
| Teacher function development | View all the module of this teacher account | High | 2020.03.27 |  |
| View all the teaching session of selected module | High | 2020.03.27 |  |
| View own profile | Low | 2020.03.26 |  |
| Set/update name and time of teaching session | Low | not completed |  |
| Start/continue/end class attendance recording | High | 2020.04.13 | Core function |
| Recognize student face image | **Very High** | 2019.11.09 | Find open source algorithm |
| Identified student face image | High | 2019.11.09 |
| Signal identification success or failure | Medium | 2020.04.13 |  |
| View immediate attendance condition for a class | Medium | 2020.04.13 |  |
| Search information based on student name | High | 2020.04.07 |  |
| View attendance sheet of a student | High | 2020.04.08 |  |
| View attendance sheet of a teaching session | High | 2020.04.06 |  |
| Sort teaching session list | Medium | 2020.03.28 |  |
| Sort student attendance list | Medium | 2020.04.08 |  |
| Sort session attendance list | Medium | 2020.04.11 |  |
| Save session attendance information to local file | High | 2020.04.11 |  |
| Edit attendance information and add remark for it | Medium | not completed |  |
| Admin function development | View login account | Low | not completed | All the information can be access by directly login local database, with the help of workbrench. |
| View student list | Medium | not completed |
| View teacher list | Medium | not completed |
| View module list | Medium | not completed |
| View session list | Medium | not completed |
| Add/ update/ delete teacher accounts in user database | Low | not completed | All these operations can be done using MySQL workbrench. However, this program should have provided a batch import operation. With limited time, this part hasn’t been implemented |
| Import/ update/ delete student information in database | High | not completed |
| View database | - | not necessary |
| Import/ update/ delete information of teaching session in database | High | not completed |

presentation of the project (summary) and reflection, including clear discussion of original plan and actual project activities and schedule.

The original plan is listed in Part 2.2 as a Gantt chart. In the original plan, there is an outstanding characteristic that we undermined some of the working load and make the plan too idealized. For instance, in the original plan, UI development was only given one week and information visualization was only given one week. Also, there is nearly no progress in spring festival, the time period is wasted. These lead to a lack of time in the last month.

* **UI implementation**

Basic UI development is completed at 2020.02.15. Boya WANG implemented the UI design, set the structure and the MVC pattern for program, Guohao YU connected the page transferring and Hongyi ZHU worked on qss pattern. As the original plan shows that Basic UI development need to be completed at 2019.11.18. The actual working progress is extremely slower than the plan. This should be noticed and warned when developing on the project. However, we didn’t realize that and even ignored it.

* **Set running environment**

After the UI group almost complete their job, it still took nearly half a month to set up all the running environment. It should be done in the preparing period or designing period. However, it is delayed to the developing period because without installing all the running environment or required software, we cannot run the program and do further development. This condition has not been considered when we made original plan, because we have no idea of how difficult to set a correct environment as this is the first time that we deal with a whole project using quite a lot of libraries.

* **Function implementation**

The functionalities are quite more than we imagine. In the user requirement, not all the functionalities have been considered. For instance, load all the information to a list for selection and sort function to let user easily find what they want. Also, this is the first time that we wrote a program in python. Fortunately, python is easy to learn and work with. From 2020.03.15 to 2020.04.13, most of the functions of teacher have been implemented by Yiming Li. And during this period, several bugs were found and also been fixed. At the same time, Mingchen Li was working on recording page to show the camera image, implementing the face recognition API and record students’ attendance. As the time limitation and the strike of Mingchen Li, the remaining time is used to complete and improve the finished part and the admin functions are all leaving unfinished.

* **Test**

Test is taken by Guohao Yu and Hongyi Zhu. With insufficient communication with functionality developer, many test cases have been skipped when developing functions on the program. Many bugs are found when writing the code, and all these bugs were fixed during development. It may be a better solution to make develop and test combined together, the same as the original plan suggests. However, in the situation of COVID-19, it is hard to cooperate will development and testing. In the real case, the developer found the bugs by himself before the tester download the latest version and test it. When the tester doing the test, these bugs may already have been fixed.

* **Final report**

The final report is decided to start more than four weeks earlier than the deadline. However, the real situation is that Boya Wang prepared for the documentation format and specification alone and wrote some parts of the report. Rest of us started working on the final report only one or two weeks before the deadline, without leaving time for checking and improvement. Even one group member hardly contributed anything in report.

There is a great difference between imagination and reality. With the experience in this project, we all believe that next time we can do better on time management, set more reasonable plan and strictly follow the plan.