[HUMAN-COMPUTER INTERACTIVE PROJECT ALLOCATION MANAGEMENT SYSTEM]

Project Progress

Information Technology/Data Science Capstone Project

COMP5703/DATA5703

Group Members

1. ENHAO LIU (490142011)
2. CHEN GUO (490100996)
3. JIANAN LUO (480295479)
4. DONGCHEN SUI (460479606)
5. JIEQI HUANG (480524106)

TABLE OF CONTENTS

Table of Contents i

1. PROGRESS & ACHIEVEMENTS 1

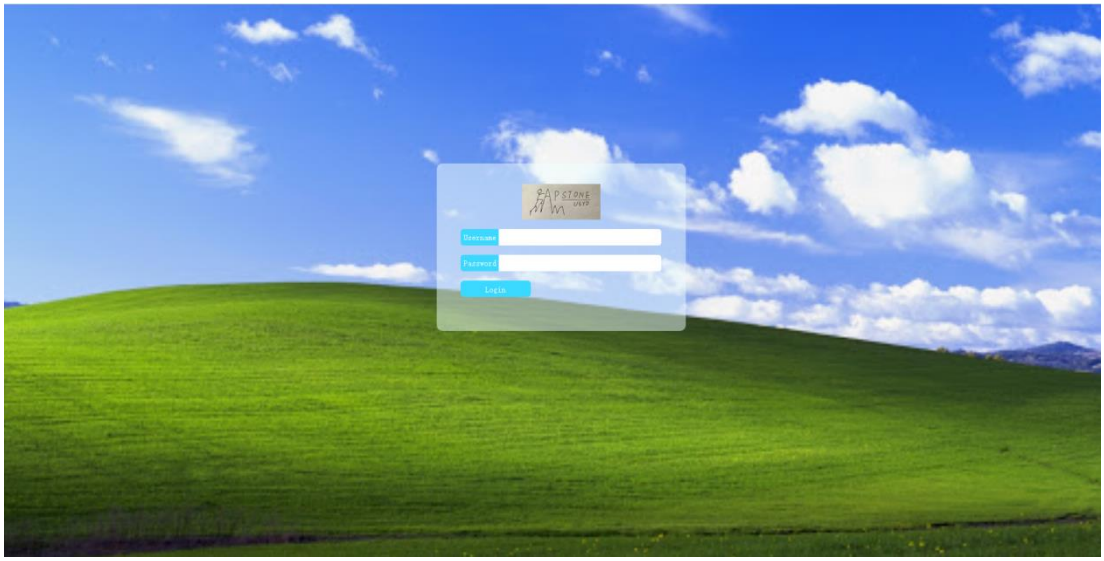
2. OBSTACLES 4

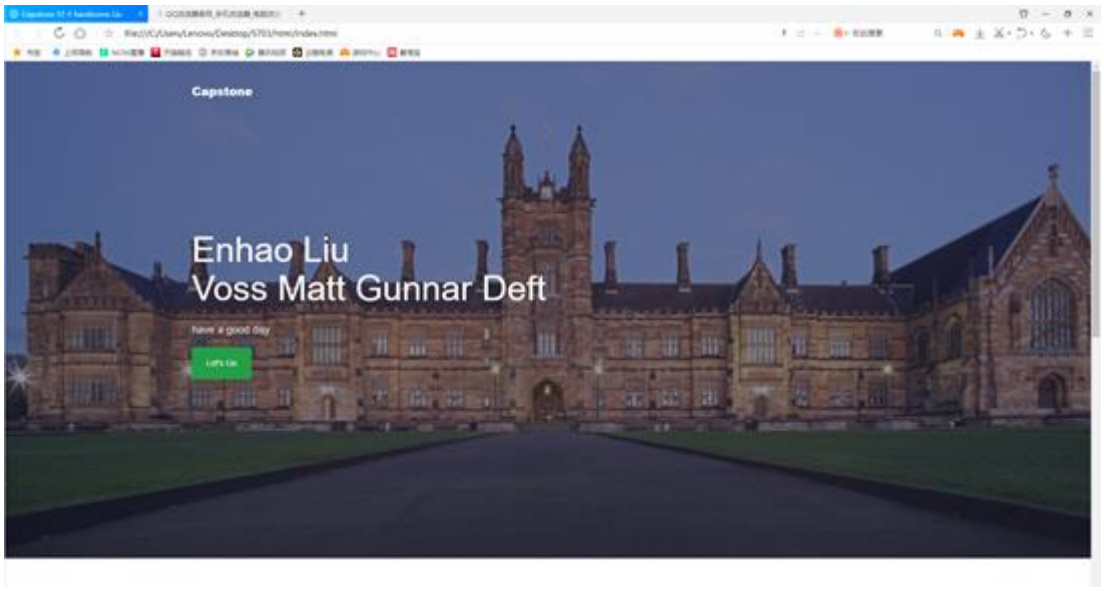
3. DEVIATION TO TIMELINE 6

4. MILESTONES & REPORTING 7

1. PROGRESS & ACHIEVEMENTS

Regarding the progress and achievements of the current project, it can be said that after several weeks of hard work, the project is progressing smoothly according to the plan, about 70% completed, and there is a preliminary model. In terms of algorithms, the first challenge (screening and allocation of projects, and information display of projects and teams) was basically solved, the debugging of the code part was completed, and the test went smoothly. Regarding the fourth challenge (the supervision of the number of project requirements, and the reorganization and merging of the team), we are also working hard to think and discuss, and try to write, and it is expected that there will be results in the final delivery. In terms of visualization, the visualization graphics and solutions are basically determined, including the login interface, the home page and the image displayed after reading the data, 3D pie chart and honeycomb chart. Some details still need to be refined and improved, such as the logo part. Most of the js code of the web page has also been written, such as the style and content of the login interface and the layout of the data interface, as well as the links between different interfaces.



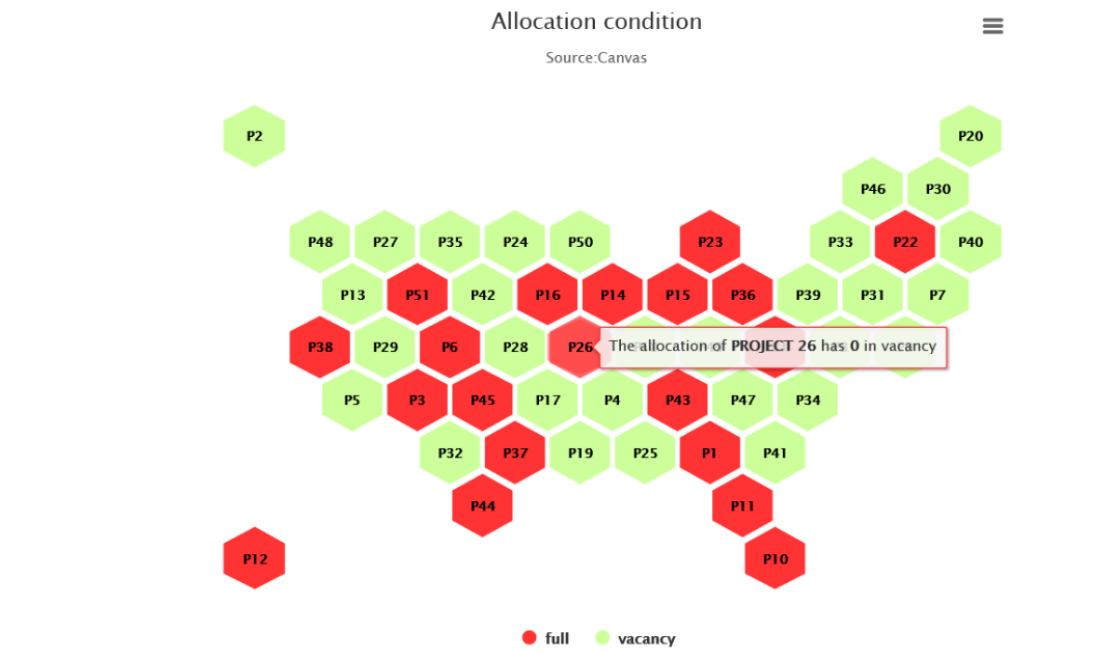


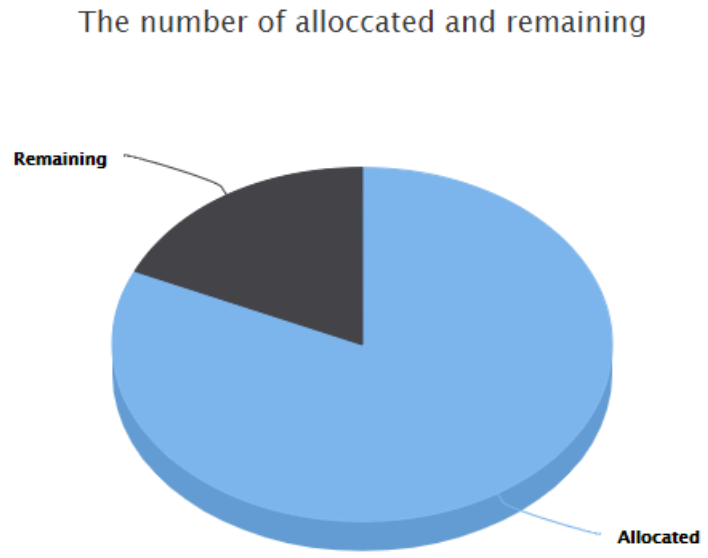
WHAT CAN WE DO

Allocation

RESULTS

Figure results






```
        break
    elif group_dic[group[0]] < 4 or group_dic[group[0]] > 5:
        break

    for project in vacancy_list:
        if (group[1] == project[0]) and (project[1]>project[2]):
            # check first preference, if there are vacancies
            allocation_list.append([group[0], project[0]])
            project[2] += 1
            break
        elif (group[2] == project[0]) and (project[1]>project[2]):
            # check second preference, if there are vacancies
            allocation_list.append([group[0], project[0]])
            project[2] += 1
            break
        elif (group[3] == project[0]) and (project[1]>project[2]):
            # check third preference, if there are vacancies
            allocation_list.append([group[0], project[0]])
            project[2] += 1
            break

print(allocation_list)
print(vacancy_list)


with open('allocation_list.csv', 'w', newline='') as f1:
    writer = csv.writer(f1)
    writer.writerow(['group_id', 'project_id'])
    for i in allocation_list:
        writer.writerow(i)

with open('vacancy_list.csv', 'w', newline='') as f2:
    writer = csv.writer(f2)
    writer.writerow(['project_id', 'number_of_groups_allowed', 'number_of_groups_allocated'])
    for i in vacancy_list:
        writer.writerow(i)
```

```
[['1', '1'], ['2', '1'], ['3', '2'], ['4', '3']]
[['1', 2, 2], ['2', 1, 1], ['3', 2, 1], ['4', 2, 0]]
```

2. OBSTACLES

The problems encountered in the process and plan of our project mainly appeared in three aspects:

1. As the core factor of the project, the problems we encountered in the algorithm are the most serious, and we need to solve them actively and timely.

First of all, the first problem we encountered in the algorithm was the unclear project requirements. In the first few weeks of the project, we had some natural understanding of many details of the project, which led to the lack of inquiries about specific requirements in the initial communication with the client, which delayed the start-up time of the development.

Secondly, we lack test data in the design of algorithms and programs. Especially after completing a small part of the programming, real-time testing is needed to verify the completion of this part. Therefore, we asked the client on the one hand, and studied the details of the project on the other. Finally, according to the requirements of various aspects, we produced different test simulation data to better show the results and optimize the algorithm.

The last point is some of the problems we encountered in the fourth challenge of the project (group size requirement). This challenge requires us to collect those groups whose number of members does not meet the requirements of projects, and then reorganize them collectively by managers. In the design, we found that there are many issues that need to be considered. Different choices for these details will affect the design and development of other parts of the project. So we asked the client some important detailed requirements in time, and finally clarified the precise purpose of this challenge. On the other hand, this challenge not only involves the adjustment of algorithms, but also the interaction between human and computer, so this also requires the members of our team in charge of different parts to cooperate to solve this problem.

2. Then there is data visualization. The problems in this part are divided into two points.

Firstly, the design of our data visualization image, at the beginning, was mainly generated by specific software, such as Gephi. There is no doubt that this software can greatly reduce the difficulty of data visualization, but at the same time, it will

also lead to another problem, that is, the view produced by this is not easy to transplant and difficult to implement on the web interface. Therefore, most of these data visualization diagrams can only be used as a reference for subsequent development.

In addition, we conceived many unique views for data visualization at the beginning, hoping to express the target data in more detail and accurately. However, in the follow-up communication with the client, we realized that some of our image designs are a bit too complicated, although these images are more professional and can convey more information compared with basic images such as pie charts. But our project design is required to be simpler and easier to understand, so as to ensure that users can use and browse normally even without relevant computer and Internet knowledge.

3. Finally, the web interface design part. The problem we encountered in this part is mainly that all team members lack relevant knowledge and design experience. In our previous university studies, the courses we chose were more about data (database, data analysis) and programming (java, python). Although web development relied on JavaScript, we still lacked relevant development points. So this requires us to find as many relevant documents and materials as possible through various channels, and accelerate our own learning of web design while drawing on the development experience of others.

3. DEVIATION TO TIMELINE

Our original plan was to discuss and find research related to the project, and define the team's roles and responsibilities. Since we were not successfully assigned the project in the first week, our task was delayed. We actively communicated with teachers and asked about the project, and postponed the tasks of the first week to the second week. The original plan for the second week was to complete the project definition and start the learning of relevant knowledge. However, since we have not yet obtained the specific details of the project, we cannot start. But we received a description of the project. So we searched for related research based on it. Completed the first week of delayed content. In the third week we had a meeting with the client and we learned about the requirements of the project. We completed the second week's tasks through many discussions, and also completed the project evaluation and designated project plan that need to be done in the third week. In the sixth week, we should have done the algorithm part of the project. And the algorithm is integrated into the database, and the database is connected to the web page. However, our progress was delayed due to multiple reasons. The first is that the member responsible for the algorithm is sick and unable to work. Coupled with other members' unfamiliarity with algorithm writing, it is impossible to complete the task of algorithm writing in the prescribed plan. Secondly, because it was the first development, many difficulties were encountered when the algorithm was integrated into the database. So it took more time to complete. In the seventh week, I encountered a lot of difficulties in user interface design, which was caused by the unfamiliarity with web design and the deviation of our previous estimation of the difficulty of web design.

4. MILESTONES & REPORTING

Milestone	Tasks	Reporting	Date
Week-1	Form a group and ~~assign tasks to group members.~~ Move to week-2. We were not successfully assigned	None	26-8-2020
Week-2	~~Project definition.~~ Move to week 3. The project could not be defined because the project details were not received.	The client puts forward project outline to us.	2-9-2020
Week-3	Project evaluation and designated project plan.	The customer showed us the requirements and details of the project.	9-9-2020
Week-4	Initial algorithm writing. And the learning of related knowledge.	Ask the customer for some details about the project.	16-9-2020
Week-5	Proposal Report Due	Show customers the algorithm of some functions and ask about the details of the project.	23-9-2020
Week-6	Create the database, ~~algorithm integration into the database, and connect database to the web page.~~ Move to week 7. Algorithm preparation is delayed. And because of the initial development and learning related knowledge, the integration of algorithms has been delayed.	Meeting cancelled	30-9-2020
Week-7	~~UI design.~~ Move to week 8. It takes more time to write web pages and implement the design.	Show customers the results of data visualization. But the customer asked for some more concise figures.	14-10-2020
Week-8	Progress Report Due	Client meeting to review the UI and logo.	21-10-2020
Week-9	Algorithm debugging, web page rendering.	None	28-10-2020
Week-10	Texting	None	4-11-2020
Week-11	Documentation	None	11-11-2020
Week-12	Rlelease	None	18-11-2020
Week-13	Final Presentation	None	25-11-2020
Week-14	Final Report (thesis)	None	6-12-2020
Week-15	Final Project Artifacts	None	13-12-2020