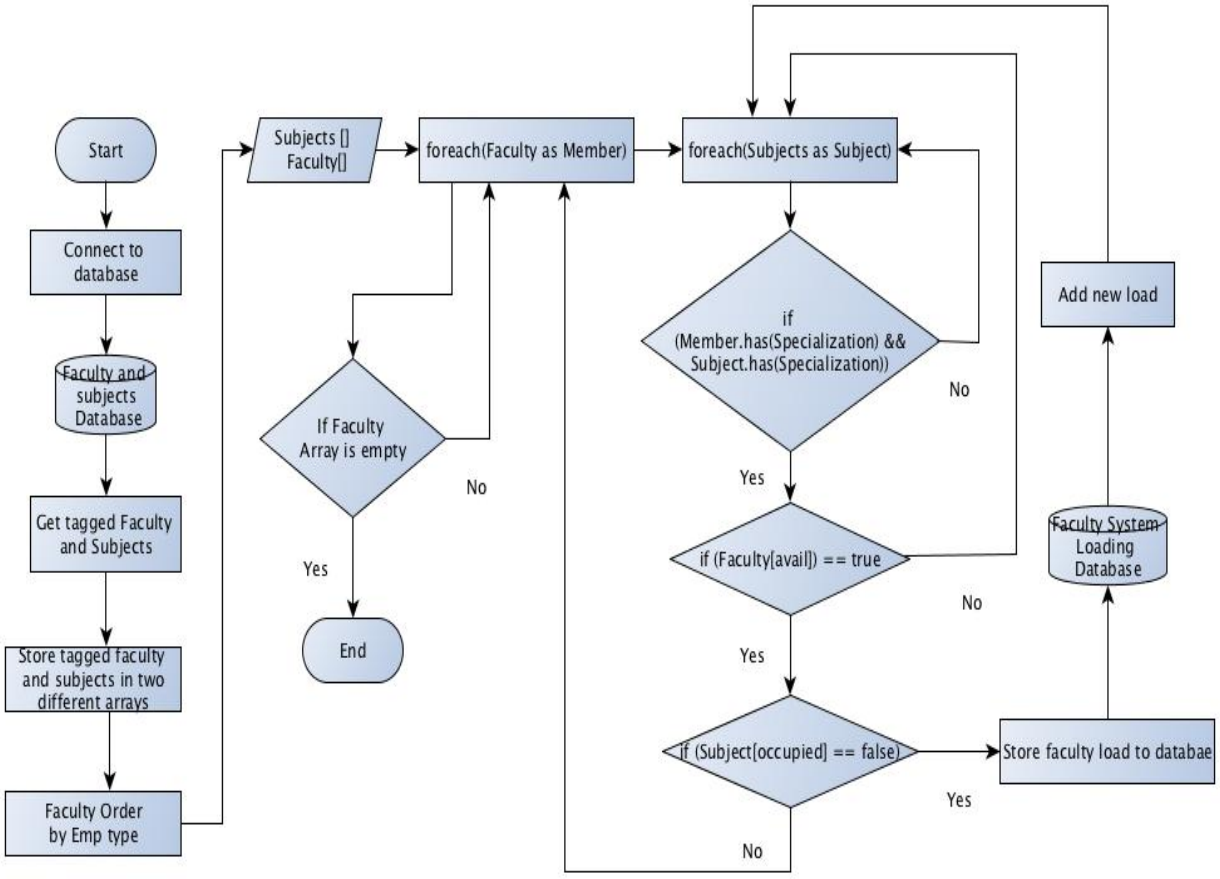
I. Design and Methodology

Agile Methodology

This is the methodology used in developing the Enhanced APC Faculty Loading System. The project team uses the Agile Development Methodology to assess the direction of a project throughout the development lifecycle. According to the research, the use of Agile Methodology will guarantee the quality of the system throughout the development life cycle. The project team could achieve this through regular cadences of work, known as sprints or iterations, at the end of which the project team will be able to present a potentially working system. Small incremental releases will be visible to the project team to identify any issues early and make it easier to respond to change. The clear visibility in agile development helps both client and project team to ensure that any necessary decisions can be taken at the earliest possible opportunity. The team goes through a series of iterations, analyzing, designing, developing and testing each feature in turn within the iterations. Each feature is taken from start to finish with an iteration, with the software being tested at the end of each iteration. Based on the Project Base Learning Track of the project members, there would be at least 3 iterations before the proposed system will be deployed and integrated in APC's Information System – Flavio. Each iteration covers 3 and a half months including the Alpha and Beta Testing.

Programming and Algorithm

The Program Head will be using the Faculty Loading Module which will be later incorporated in the Flavio Module. The module will provide suggested faculty schedules which is way faster than the current process. The algorithm of the module will use the matching criteria to generate the load of each faculty.

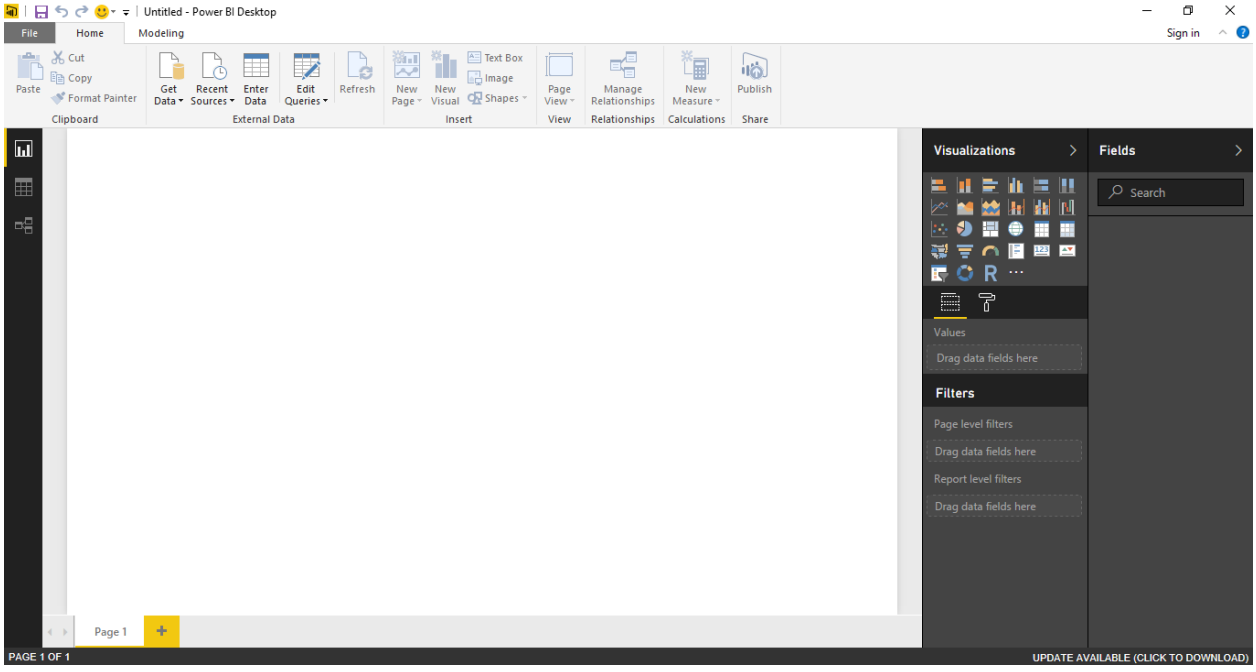


The system will first connect to the database of the Faculty and Subjects. If the system is done connecting to the database, it will retrieve and store the tagged faculty members and subjects for next term into two different arrays. The Faculty array's data will be sorted by the employee types, full-time and part-time. The system will set the data of the Faculty as Member and the data of Subjects as Subject. As for the matching of each faculty member to the subject, for each syntax will be used to map the data from the Faculty and Subject database which will be stored in the member and subject variable. The variables will now be conditioned, if the faculty has the specific specialization. The next process of the algorithm will now check for the availability of the faculty. Lastly, the algorithm will now check if the subject is occupied or not. The algorithm will end if the Faculty array is empty.

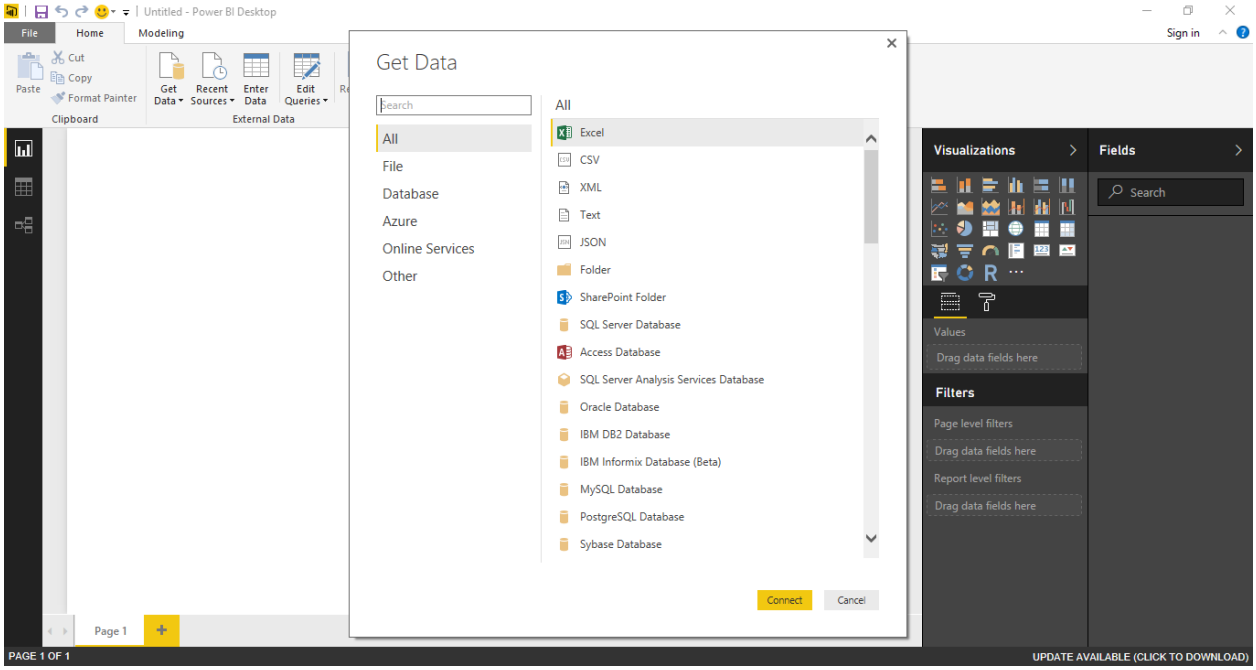
The Algorithm Specialization Database will be used. This Database contains the following:

1. Faculty table – This is the main table that has pre-defined values such as Programming, Network, Database Management and others (specialization), where the subjects will be matched.
2. Algorithm Connection to Specialization Database – The system will contain the information necessary to match the various criteria table.
3. Specialization – In terms of the back-end process, the algorithm will match with the faculty pre-defined values in which matched to the Algorithm Specialization Database.
4. Availability – The algorithm will determine the availability of each faculty, if the faculty is full-time or part-time. If full-time, the faculty can have any schedule. Otherwise, if part-time, the faculty will notify the Program Head of his/her availability.
5. Power Bi – This is used as the analytics report of the system. In which the Program head will see the percentage on how the Faculty member got the load.
6. Excel – This is where the output of the result of the algorithm will be placed which will be imported to the Power Bi for the descriptive analytics report.

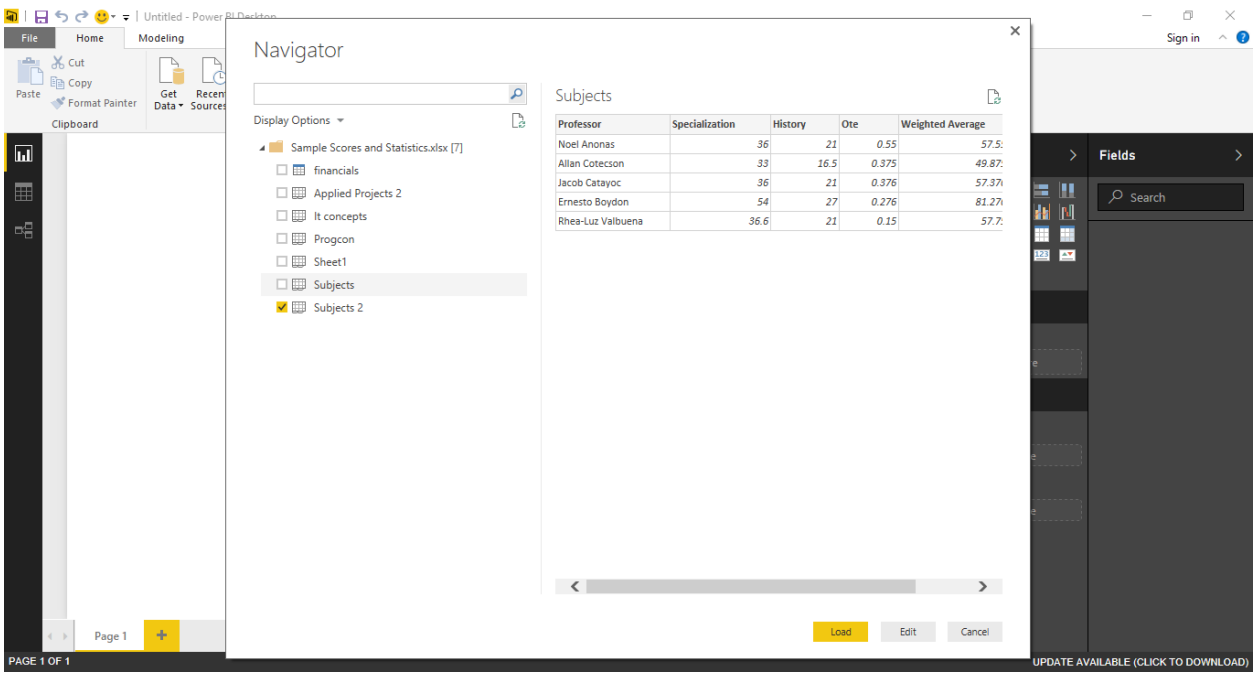
Power Bi Screenshots



Click on the get data to import your Excel Spreadsheet

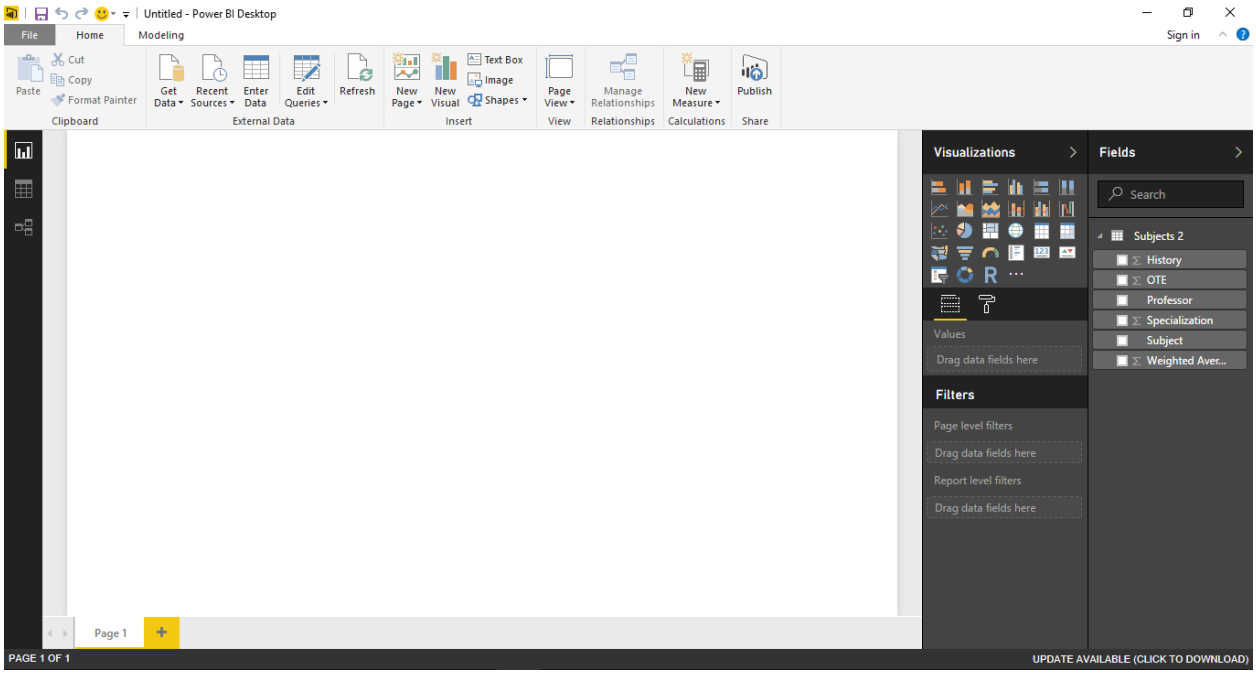


Then click on connect and find the Excel spreadsheet. Wait for the connection of Power Bi to the Excel File.

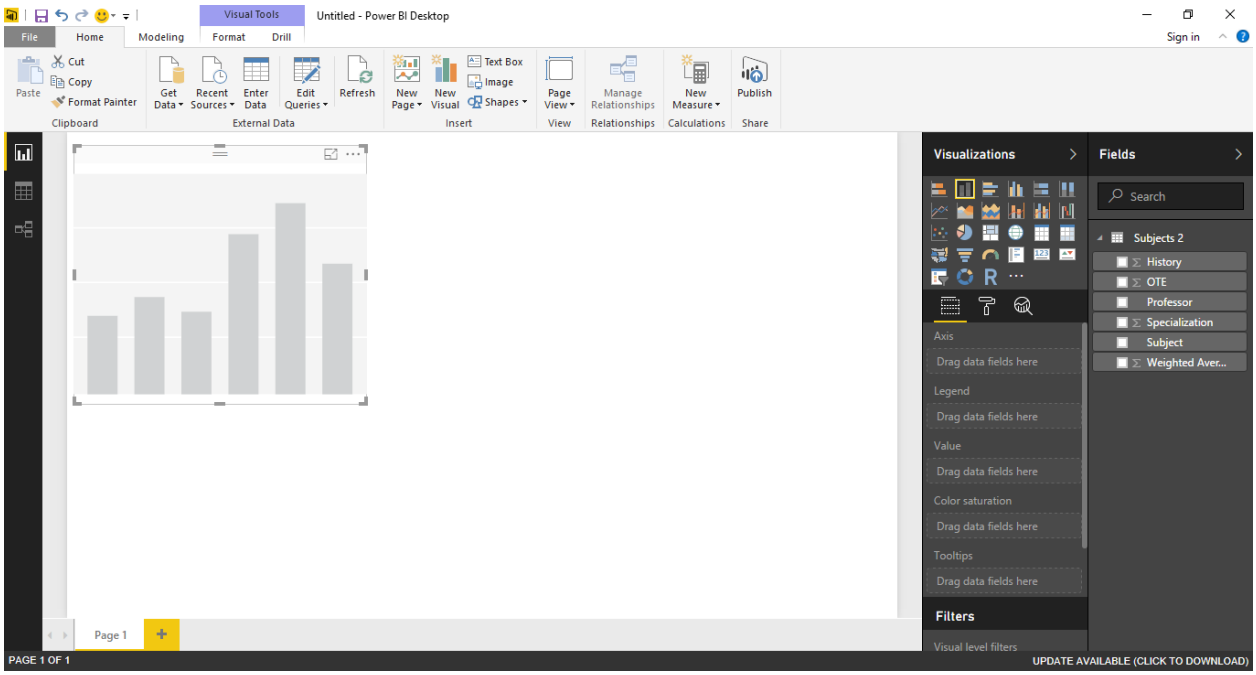


The right side section shows the file and the spreadsheets, you can include as many spreadsheets as you can. The left section shows the preview on what spreadsheet you

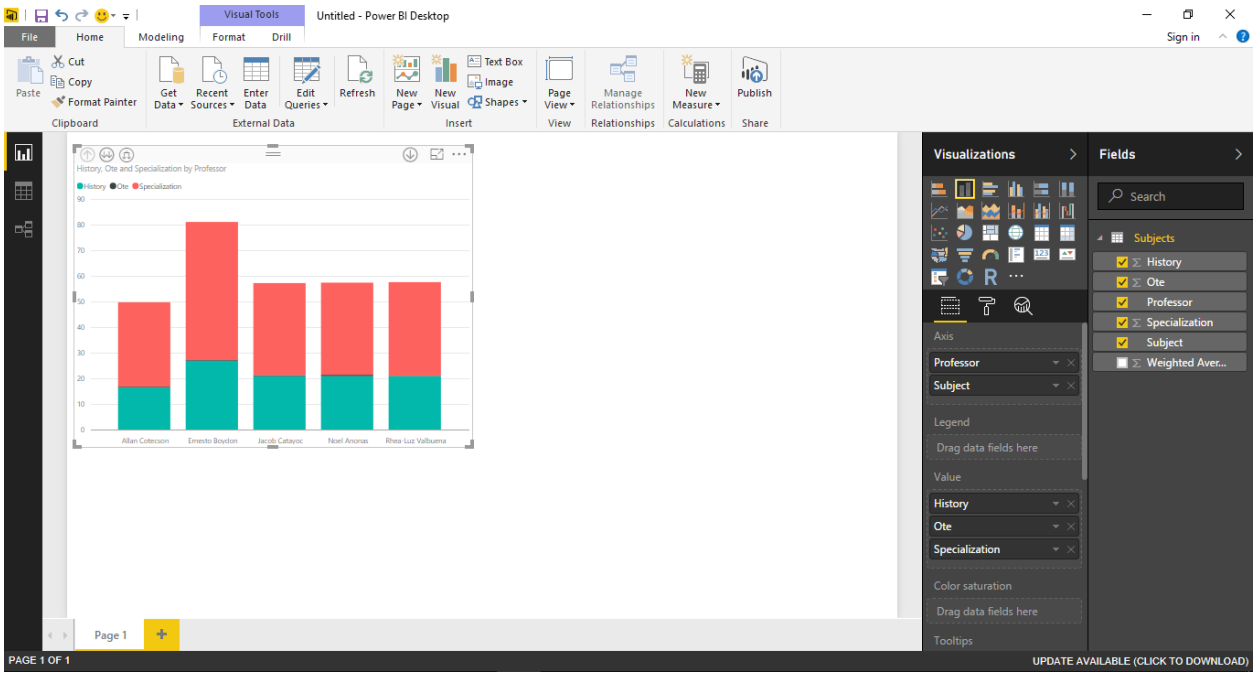
have chosen. If you have chosen your desired spreadsheets, click on load. Then wait for the connection to the Excel.



As you can see the spreadsheet in the excel file is imported to Power Bi.

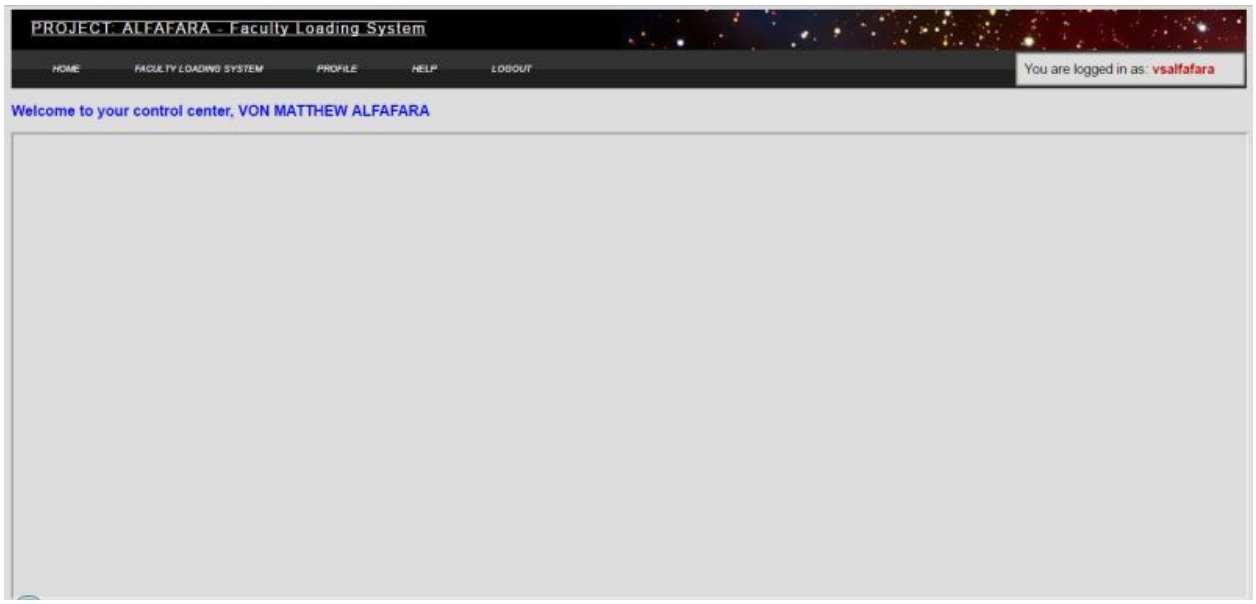


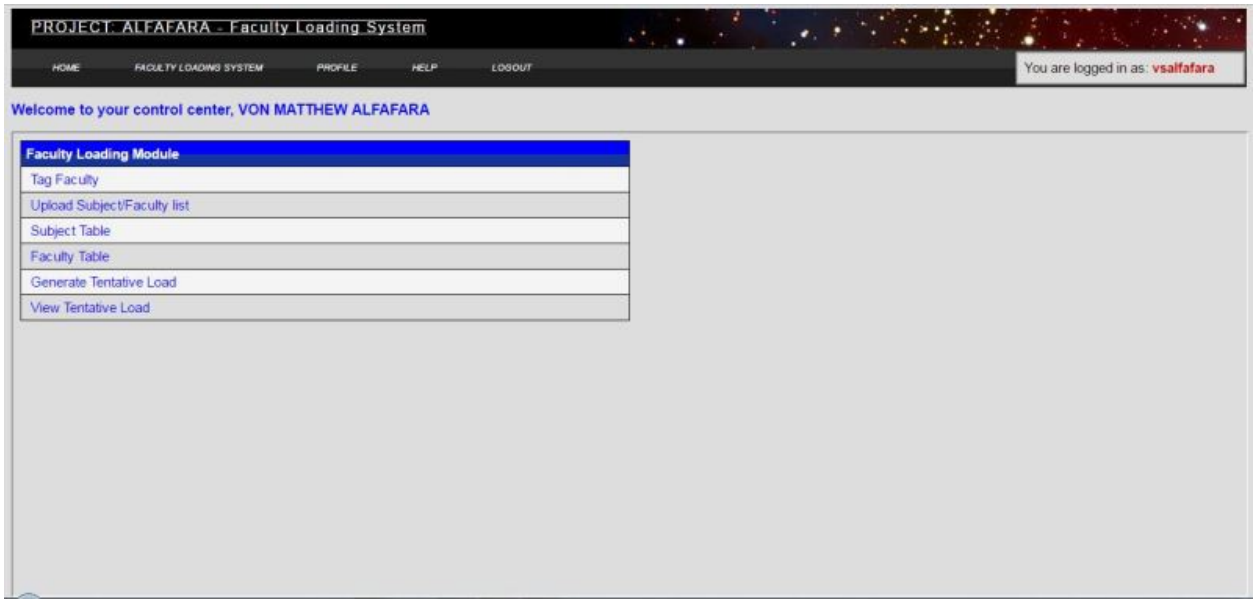
Now choose whatever Visualization you like for the descriptive analytics to be represented.

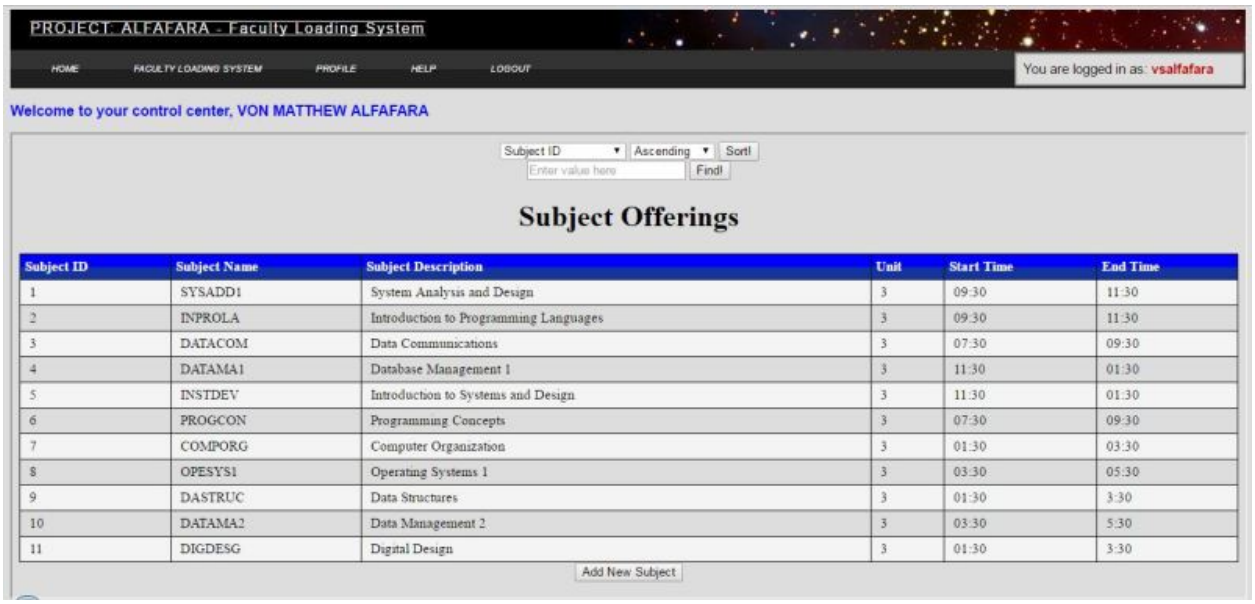


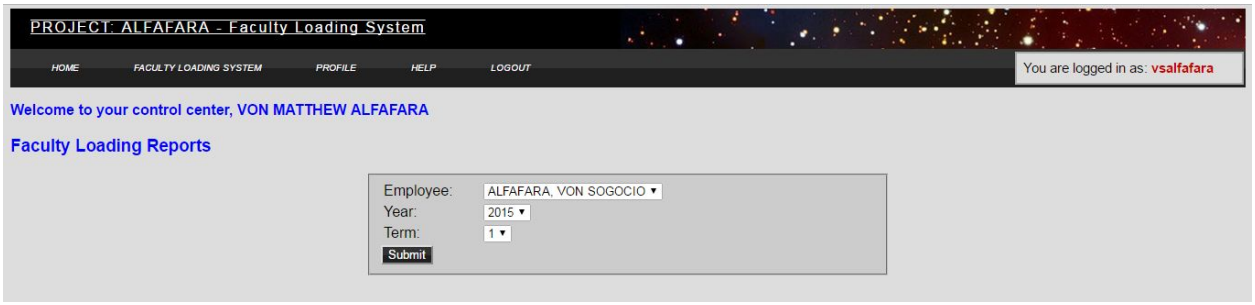
Now check on the fields to represent in the Visualizations. The program Head can now see the descriptive analytics on how the faculty got the load.

Faculty Loading System Screenshots


PROJECT: ALFAFARA - Faculty Loading System
HOME
FACULTY LOADING SYSTEM
PROFILE
HELP
LOGOUT
You are logged in as: vsalfafara
Welcome to your control center, VON MATTHEW ALFAFARA


PROJECT: ALFAFARA - Faculty Loading System
HOME
FACULTY LOADING SYSTEM
PROFILE
HELP
LOGOUT
You are logged in as: vsalfafara
Welcome to your control center, VON MATTHEW ALFAFARA
Faculty Loading Module
Tag Faculty
Upload Subject/Faculty list
Subject Table
Faculty Table
Generate Tentative Load
View Tentative Load





Asia Pacific College

Faculty Loading Per Instructor
School Year: 2015
Semester 1

Employee ID : **8**
Employee Name : **ALFAFARA, VON SOGOCIO**

TEACHING LOAD

Subject	Schedule	Section	Units
COMPORG	09:30 - 11:30	CSIT01	3.0
SYSADD1	11:30 - 01:30	CSIT01	3.0
INSTDEV	03:30 - 5:30	CSIT01	3.0
			Total number of units: 9.0