"Academic Sessions Schedule made easy!"

CSE100 Project Report

Team Members:

AU2240098   : Zeel Rajodiya
AU2220187   : Tanisha Kanade
AU2220100   : Vinisha Kankariya

Background And motivation

The background and motivation behind creating the course directory combinator can be traced back to the challenges faced by students while trying to create their course schedules for the upcoming semester. Each semester, as students at Ahmedabad University, we're required to prepare an academic session schedule for ourselves from a plethora of courses. The process of selecting courses and creating a schedule can be time-consuming and complex. Once the Course Registration begins, students spend hours to come up with a timetable that fulfills their requirements(in terms of total course credits, timings, required core courses etc.). By the time they're done with chalking up a tentative schedule and begin to register, the intake is full. So now, they'll have to repeat the entire process, search for other sections that don't clash with the previous courses, compromise their preferences and select courses that do not interest them. Not only is this process time-consuming, but instills/fosters a feeling of irritation and exhaustion.Students end up not exploring all the possible options available to them to choose from and create a schedule that's fatiguing/ overtiring for them. Our motivation as students at the aforementioned university is to ease the process and make it hassle free, to promote good time-management skills and increase productivity amongst the students.

Purpose or objective

Its main goal is to help students save time by generating all possible combinations of sections of their selected courses that do not have any time clashes. This can help students quickly identify viable schedules and avoid the tedious process of manually checking for conflicts and trying out different section combinations. This tool can be highly useful for students who want to plan their schedules ahead of time and avoid last-minute scrambling during the registration period.

Overall, the purpose behind creating the course directory combinator is to help students make the most out of their university experience by simplifying the course selection and scheduling process. By providing a tool that streamlines these processes, students can focus on learning and pursuing their academic goals without unnecessary stress and frustration. Our Web app will automate the task of permuting the final timetable. As a user, you'll have to select courses that interest you and sit back and

relax! Our system will fabricate all possible combinations for you to choose from, keeping in mind that there is no clash between any of the courses and make you fall in love with it.

Methodology (Methods, Data)

The initial step is to gain access to the current semester Course Directory.
To make our project re-usable over each semester, we gained access to the University Course Directory and downloaded its HTML source code using chrome's developer tools.
This file was then parsed, and the data was dumped into a text file using beautifulsoup4 python library.
Further, the data in the text file was cleaned, and the potential courses were added into a new json file. By converting it into json, it's easier to process and understand the data of the available courses and other nuances like course code, level, name, credits, faculties, semester, prerequisite, description etc.
After the data was processed, we created the UI using ReactJs and deployed the project on the internet using hosting service provided by vercel.com

Important methods that we implemented are listed below:

- getWinter() // returns the json object of winter semester
- getMonsoon() // returns the json object of monsoon semester
- checkForTimeConflict(course1Time: string[], course2Time: string[]) // checks for the time conflict between course1 and course2
- checkForDateConflict(course1Date: string[], course2Date: string[]) // checks for the date conflict between course1 and course2
- getDateandTimeOfCourse(code: string, section: number) // returns the schedule of the course according to its course code
- checkForConflict(code1:string,section1:number,code2:string,section2:number) // checks whether the courses of code1 and code2 have clashes
- generatePossibleCombinations(Codes: string[]) // generates all the combinations of the courses. Here Codes is a list of course codes. E.g. Codes = ["ENR100","CSE108","ENR102"]
- search(query: string) // searches through the whole directory.
- sumCredits(selected: string[]) // sums the credits that user has selected.

Here's the visual representation of the how data was transformed:

HTML that was extracted from the AURIS.

```
EFB602,[Graduate Master's]
New Venture Creation
1.5
Pratik Ghoda
Monsoon
PREQ_OR,EFB203 Business Designing and Planning/EFB203 Business Plan

The idea of creating a new venture is far more complicated than just having
,View/Print Outline,
None

,Section 1  [First Quarter]  ,Tue [13:00 to 14:30]
                                             [01-08-2022 to 16-09
                                             [01-08-2022 to 16-09

ECO510,[Graduate Master's]
Environmental and Resource Economics
3
Supratim Das Gupta
```
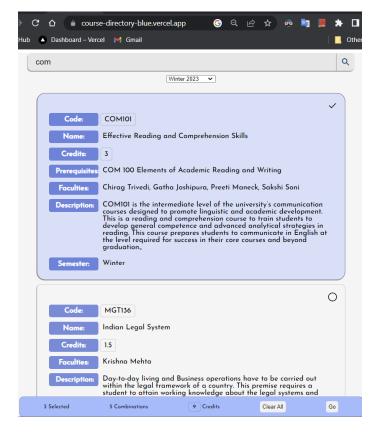
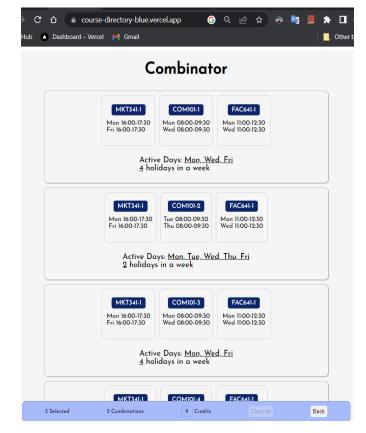Using BeautifulSoup, we converted the HTML into plain text.

```
"Code": "EFB602",
"Level": "Graduate Master's",
"Name": "New Venture Creation",
"Credits": "1.5",
"Faculties": [
    "Pratik Ghoda"
],
"Semester": "Monsoon",
"Prerequisite": "EFB203 Business Designing and Planning/EFB203 Business Plan"
"Description": "The idea of creating a new venture is far more complicated tha
"Sections": {
    "1": {
        "Tue": [
            [
                "13:00",
                "14:30"
            ],
            [
                "01-08-2022",
                "16-09-2022"
            ]
        ],
        "Thu": [
            [
                "13:00",
                "14:30"
            ],
            [
                "01-08-2022",
                "16-09-2022"
            ]
        ]
    }
}
```

By performing few python operations, we converted the text into a well structured JSON.

Results and Discussion

The current Web App prepared by our team gives the user an interactive graphical interface to interact with. Users can select the courses, and then give them a list of possible Academic Sessions Schedule to choose from. Furthermore, it has enhanced features like 'total credits used' and 'total number of days in week you'll have to attend college', helping users optimize their time and get the best of both the worlds- preferred courses with maximum holidays. Don't believe us?

Check out the live demo at https://course-directory-blue.vercel.app/

[Course Explorer]

[Combinator]

Conclusion (Or Outcome)

Finally, we've cracked the path to your happiness. No more wasting hours to prepare a compromised timetable. With 'Academic Sessions Schedule made easy!', you can prepare the best timetable within seconds and save yourself from the inconvenience of researching through the Course Directory. And the best part is yet to come! We've designed the software in such a way that we can add new Course Directories to our system with the increment of each semester and you'll be able to process data according to the current Winter/Monsoon/Summer courses.