

Web Application Frameworks

CS457

Fall 2024

Assignment # 1

Deadline: 13th December 2024 before 12:45

Note: This is an individual assignment. Name your zip file as WAF-A1-YourName.zip/rar. Submit your assignment in fs folder “WAF- F24-A1”. Cheating will be penalized. There is zero tolerance for cheating. Please follow the deadline. Submit it before the deadline. The deadline will not be extended. Please start from day 1.

Part-1 (Client Server Communication – Node / Express / MongoDB)

Create a NodeJS-based application that helps you explore different universities in the world.

- You can explore the following link for an API that provides universities’ data.
<https://github.com/Hipo/university-domains-list-api>
- Put <http://universities.hipolabs.com/search?country=Pakistan> in the browser and hit enter. What you will see in the browser window would be a JSON response from the API. Your task is to receive such JSON objects in NodeJS the environment and process them programmatically.
- Your task is to create a NodeJS-based application that will allow a user to:
 - Input a country name and see the list of the universities’ names and universities count in the country.
 - Input a university name and see the university’s web page address on the console.
 - Design simple html forms for both above given parts (I & II). Your html code should be in .html files which should be sent to the client (browser) against routepaths “/see_country_universities” and “/search_university” respectively.

You can display raw JSON responses on the browser window for both parts.

- Introduce database. Create a collection that will store the JSON information obtained from <http://universities.hipolabs.com/search?country=Pakistan> in a database and similarly store the records for each country at least 5 in separate collections. Write routes and try to write a proper script to automatically run code for different countries. Also store the information in a single collection. Perform the following CRUD operations:
 - Find Universities in capitals of five countries from a single collection and separate collections. Use routes to display the information.
 - Add at least five universities that is not present in the list for Pakistan.
 - Delete any university
 - Update information for universities

Part-2 (Using 3rd party APIs – NodeJS)

Create a NodeJS-based weather notification system (expected temperature of a day and possibility of rain). The system should send you an update after every 24 hours via SMS and email. The following steps should be carried out to complete the assignment.

- Collect the weather information from any of the publicly available weather APIs. The following are two recommendations:
<http://www.7timer.info/doc.php?lang=en> <https://m3o.com/weather>
- Make sure you get a JSON response against the API request. Process the data to extract information of your interest i.e., temperature and possibility of rain.
 - Use some Email and SMS API to generate the alert.
<https://rapidapi.com/sendgrid/api/sendgrid/> <https://rapidapi.com/d7admin/api/d7sms/>
- Configuring API tokens can be a little bit tricky. Make sure that you register with the API provider wherever required. They provide free tries for testing purposes which you can use to accomplish your assignment.

Note: For each of the parts (part-1 & part-2), do proper logging for whatever happens on runtime (e.g., errors, info messages). Your logs should display on the console and should be entered in log.txt file on the server side.