

**API Software Development**

**PUSL3111**

***Coursework***

***2021–2022***

Term: Term 2

Submission Deadline: TBA

Coursework Type: Group Assignment

Element of Assessment: C1

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**Coursework**

This coursework for PUSL3111 is worth 60% of the module marks and contains two deliverables: A working API web application and a report. You may form in to groups of maximum six members by yourself and enroll the groups in the DLE.

**A scenario for the project**

Sri Lanka Bureau of Foreign Employment (SLBFE) has a vision of making “Sri Lanka to be the best choice for competent human resources for overseas market.” The bureau is not only helping the public to work outside the country but also provide the companies to fine appropriate workers, monitor the wellbeing of the foreign employees, and handle family complains. The current web site has been out dated and the bureau is planning to open up their facilities so that the companies and other parties can use the large amount of data gathered over the years. SLBFE hired your team to develop a web API which can facilitate the below requirements.

1. Any citizen can become a member through a free online registration.
2. The citizens who seek jobs, must be able to update their qualifications and upload their birth certificates, CVs, copies of the passports through the system.
3. The bureau officers must be able to see and validate information provided by the job seekers.
4. The foreign companies should be able to find workers based on the qualifications.
5. The citizens who have gone for foreign employment must update their current location as soon as they visit the foreign company.
6. Any citizen can make a complaint and the bureau officers should be able to see the content and reply accordingly

**Deliverable 1**

Develop a RESTful API web application to address the above scenario. You should alter the path examples below according to the situation (e.g.: just like adding members [or in other words registering themselves]) but all the functional requirements must be satisfied. According to the scenario you should also **suggest** then **implement** APIs to address item (i) to (vii).

**Minimal Required APIs**

* POST /citizens

Citizens and officers can register themselves with details including a national ID, name, age, address, current location (latitude and longitude), profession, email, affiliation, password, etc.

* PUT /citizens/:nid

Job seekers should be able to update their qualifications and upload certificates.

* GET /citizens/:nid

Officers should be able to access any citizen’s information by their national id

* PUT /citizens/:nid

Officers should be able to verify the information

* GET /citizens/find(:qualifications)

Company officers should be able to find candidates based on qualifications

* DELETE /citizens/:nid

The SLBFE staff can deactivate an individual’s account if the citizen is deceased.

* GET /citizens/:nid/contacts

The SLBFE staff should be able to collect information about contacts of any citizen.

It is very important that your APIs work, the public interfaces you create should conform to industry good practices (security, paging, documentation, ease of understanding, etc.) for creating web APIs. The web API should be developed using **Java**, **C#**, **PHP,** **React JS,** or **Ruby on Rails**. The interface must use the **REST** architecture and deliver the data in both **XML** and **JSON** formats. You must also develop **two example client applications**, a mobile app and any other client such as a web application, standalone application, etc. that consume your own API.

**Deliverable 2**

Write a comprehensive report containing documentation for your API, tools and technologies, individual contributions, and certificates. You must also **include the controller classes as an appendix** of the report.

*API Documentation*

List down all the APIs in your project including the routes, parameters, and a description. For each and every method there must be supporting evidence such as screenshots of code and run-time results.

*Tools & Technologies*

Discuss why you have selected your platform and how you have tested your APIs before releasing to public.

*Individual Contribution*

Each and every member should **write a full page of his/her contribution**. All members must contribute development of the API. All members should attach evidence of the LinkedIn certificates/screenshots. Each and every member should follow the course "Introduction to Web APIs by Andrew Probert" in LinkedIn Learning Center and attach the certificate.

<https://www.linkedin.com/learning/introduction-to-web-apis/filter-response-with-parameters?u=26140778>

**Detailed Assessment Criteria**

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| --- | --- | --- | --- |
| **Category and Weighting** | **Criteria** | **Marks** | **LOs** |
| API Implementation **60%** | * API implemented and presented with appropriate documentation [implementing only the minimal requirement results half of the marks offered 40/2]. * Design clearly illustrated within the website documentation and clearly evident in architecture. * Developer resources for API conform to industry good practice. * Source code runs with test data. Data is inserted, edited and retrieved from the MySQL or any other database. * API conforms to RESTful principles | 40  20  10  20  10 | LO2 |
| Evaluation Report  **40%** | * Style of report is clear, professional and has a logically developed thread of argument throughout. * Appropriate academic and industry literature is used to support discussion. * Client application, tools & technique used for evaluation clearly described and illustrated. * Proper APIs documentation * Individual contribution | 20  20  20  20  20 | LO1  LO3 |

**Academic offences:**

(the following is a fragment of Section AST10.2 from https://www.plymouth.ac.uk/uploads/production/document/path/8/8388/Section\_D\_Assessment.pdf)

Academic offences occur when activity is undertaken which could confer an unfair advantage to any candidate(s) in assessment. The University recognises the following (including any attempt to carry out the actions described) as academic offences, regardless of intent:

1. Copying or paraphrasing of other people’s work or ideas into a submitted assessment without full acknowledgement (plagiarism).
2. Unauthorised collaboration of students (or others) in a piece of work (collusion).
3. Making false declarations in an attempt to obtain either modified assessment provisions or special consideration (e.g. of extenuating circumstances).
4. Persuading another member of the University or partner institution (student, staff, or other) to participate in any way in actions which would be in breach of these regulations.
5. Misrepresenting research outcomes and results.
6. Being party to any arrangement which would constitute a breach of these regulations.
7. The inclusion in a piece of assessed work (other than an examination or test) of material which is identical or substantially similar to material which has already been submitted for any other assessment within the University.
8. Any other activity which could confer an unfair advantage to any candidate(s).

For full details on the academic offences framework and procedures, consult Section AST10 from https://www.plymouth.ac.uk/uploads/production/document/path/8/8388/Section\_D\_Assessment.pdf

**Submission Type**

The report should be a PDF (preferred) or Word document. A zip file containing project work and the report should be uploaded to the Plymouth Digital Learning Environment (DLE).