COURSEWORK Question Paper: **Autumn Semester 2019**

Module Code:	ADipIT02
Module Title:	Object-Oriented Design and Programming
Module Leader:	**Rupak Koirala /Er. Raj Prasad Shrestha**

Coursework Type:	**Group work (3 or 4 students)**
Coursework Weight:	This coursework accounts for 60**%** of your final grade.
Submission Date:	**Friday of the week 13 on or before 7pm**
When Coursework is given out:	**Week 1**
Submission Instructions:	Submit the following to iAcademy RTE department before the deadline: • **Project report** • **Python source code (*.zip file)**
Warning:	iAcademy takes plagiarism very seriously. Plagiarised projects and reports will be awarded a mark of **zero (0)**.

Objectives

- To design a web application using Python programming language in Django framework.
- To gain hands-on experience on web development as applicable in software companies and/or industries.

Overview

Develop a web-based system in Python using Django framework meeting all the **requirements** specified below. You can come up with any new or innovative idea that you want your web application to deal with.

Web Project Requirements

1. Your web application **must** have <u>C</u>reate, <u>R</u>ead, <u>U</u>pdate, and <u>D</u>elete (CRUD) operations.
2. Your web application **must** have search functionalities, for instance, search for a specific record by tag like ID (Identification).
3. Data generated in RTE (Runtime Environment) **must** be saved into a relational database management system (RDBMS) using a domain-specific language like SQL or MySQL.
4. Your web application **must** have key features, such as, Django authentication and authorization.
5. Your web application **must** make use of relationships in Django models like one to many, many to many and one to one.
6. Your web application **must** be able to upload and download files like audio clips, documents, image, video clips, etc.
7. Your web application **must** provide login privileges to the administrator(i.e automatic admin interface).
8. Your Python code **must** be pushed into **Github** using **git push** command.
9. Your Python code **must** pass through written test cases for Django models.
10. Your web application **must** use Django REST (Representational State Transfer) framework for building web APIs (Application Programming Interfaces).
11. Your web APIs **must** have CRUD RESTtful APIs along with user authentication and permissions.
12. Your web APIs **must** be suitable to return both APIs style responses and regular HTML pages.
13. Your web APIs **must** feature data REST API pagination/paging, such as, manual pagination, sorting, and filtering.

14. Your application code **must** make use of all of the following:
    - Class-based views or function-based views
    - Attractive and interactive web page designs **(HTML/CSS/JavaScript)**
    - Template inheritance in Django
    - Static files
    - DRY(Don't Repeat Yourself) , KISS (Keep it simple, stupid) and YAGNI (You aren't gonna need it) principles of programming in software development

15. Your project report **must** contain
    - Abstract
    - Acknowledgement
    - Table of contents
    - List of figures
    - Project description and applications
    - A brief account on Software Development Life Cycle (SDLC) – the waterfall/incremental/agile model
    - Use case diagrams
    - Class diagrams
    - Sequence diagrams
    - Activity diagrams
    - Design patterns
    - Software architecture (3 layers/ 2 layers)
    - Software deployment
    - Backup and maintenance
    - Conclusion
    - References / Bibliography / Works cited
    - Statement of Contributions

The above mentioned project requirements are to be met through continuous assessment during the weeks **3, 6, 10 and 13**.

Note:
- Your project idea must be **unique** from others.
- Your project report **must not** be **plagiarized**. Failing to do so, all the project team members will be awarded a mark of **0 (zero)**.

Idea conflicts

- If three or more than three teams have the same project idea, for instance, four different project teams are willing to do a project on *Job Portal*, the project titles shall be assigned on a **first-come-first-serve** basis.

Assessment deliverables

Continuous Assessment	*Assessment focus*	*Submission deadlines*
Continuous assessment – I	• Project description • Use case, class, activity and sequence diagrams • Software Development Life Cycle (SDLC)	**Week 3 , Friday at 7:00 pm**
Continuous assessment – II	• Functional application with Django CRUD ORM, search functionality and Django models, relationships, test cases, and attractive/interactive web pages • Publication of Python source to **Github repo** • Software testing in Github repo with screenshots	**Week 6 , Friday at 7:00 pm**
Continuous assessment – III	• Login, logout, new account signup for normal user, Django admin dashboard, web page access	*Week 8 , Friday at 7:00 pm*

	and/or authorization feature, audio clips, documents, pictures, video clips, and other files upload and download facility • Publication of Python source to **Github repo** • Software testing in Github repo with screenshots • First draft of the project report	
Final Submission of the coursework (Integrating Continuous assessment I,II and III)	• Django RESTful CRUD APIs with user authentication and permissions, REST API pagination/paging, and return both APIs style responses and regular HTML pages. • Publication of Python source to **Github repo** • Final draft of the project report	*Week 12, Friday at 7:00 pm To RTE*

Note:

- ***Upon submission of the final project report, viva voce examination will be conducted for all the project team members.***
- ***The viva voce schedule will be brought to the notice of the project teams in due time to complete an overall project evaluation.***
- ***On the day of your viva voce examination, the project team must carry a hard copy of the final project report.***

Continuous Assessment process

1. Continuous assessment starts from **Week 3**.
2. Project requirements are to be submitted through **Google Classroom** in weeks to come.
3. Under the 'classwork' category as featured in Google Classroom, your lecturer/tutor will notify about Continuous assessment.

Penalties for late submission

Late submission of coursework shall lead automatically to the imposition of a penalty. Penalties shall be applied soon after the submission deadline is reached.

The penalty scheme is as follows:

- a deduction of 5 marks shall be imposed upon expiry of the submission deadline;
- a deduction of 10 marks shall be imposed on the next subsequent working day;

- Any piece of work submitted **3 or more** working days after the expiry of the submission deadline will not be marked, assigned **a mark of 0 (zero)** and considered to be a **non-submission**; and
- Any piece of work once considered to be a no-submission will automatically be awarded a mark of **0 (zero).**

Marking Scheme:

This coursework accounts for 60% of your total grade. The Python program shall account for 70 marks and the project report shall account for 30 marks.

Python program (70 marks)

Title	Marks	Comments
1. CRUD operations with database	/8	
2. Search functionalities	/5	
3. Authentication, authorization and file upload/download features	/5	
4. Model relationships (at least four)	/8	
5. Test cases(at least 5)	/5	
6. REST API CRUD	/10	
7. REST API Pagination/Paging	/5	
8. HTML pages (at least 5)	/7	
9. Programming styles • Use of programming principles • Use of meaningful variables/identifiers • Proper indentation • Clear-cut comments	/5	
10. Individual viva and contribution to the project	/12	

The marking scheme for the report shall be as follows:

Report (30 marks)

1. Format of report • Report title • Module title • Center name • Student names • Group name • Date of Submission	/1	
2. Abstract	/1	
3. Acknowledgement	/1	
4. Table of contents and list of figures	/1	
5. Project description and applications	/2	
6. Usecase/class/sequence/activity diagrams	/10	
7. Software architecture	/3	
8. Testing with screenshots	/5	
9. Software deployment	/3	
10. Conclusion	/2	
11. References	/1	

Important note:
This is a team work, so if any of your project team members fails to tell his/her contributions to the project in viva voce examination, certain marks will be deducted from your project report.