



**Faculty of Engineering and Technology**  
**Computer Science Department**

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**COMP 438<sub>2</sub> Web Services Technologies**  
**Final Project Specifications**

**Building Restful Based Application using Serverless Framework**

**Project Overview**

This practical project is an implementation of a sample end to end business application that could work as an car rental web application for end users or as an online service for a car rental service that can be available to third party system to integrate with their core systems.

The overall aim of this project is to build and end to end application adopting Restful approach where all system functionalities are designed, modelled and exposed as restful services. The project also requires using Serverless framework as a new modern approach for implementing Web application and Restful services.

**What You Will Build?**

A online car rental system which is hosted and accessible over the internet implementing the following requirements

**System functionalities**

- 1) Fleet / Cars Management
  - a. Adding New Cars to the fleet
  - b. Listing Cars Available
- 2) Customer Record Management
  - a. Registering New Customer

- b. Listing existing customers
- 3) Leasing, Bookings and Invoicing
- a. Booking Renting Cars
  - b. Returning Cars
  - c. Invoices

- *These are some of the suggested functionalities, it is your job to design and implement a reasonable functional product, try to extend the functionalities for example: for customers, it will be useful to have customer rental history.*

### Technical Components

**1. -Serverless Backend:**

Application logic using AWS Lambda and Storage: Dynamo DB.

**2. Restful Service Layer**

AWS API Gateway Service Configuration.

**3- Front End**

Web Pages on S3.

### What you will Deliver:

Deliverable	Details	Due Date
High Level Technical Design	<ul style="list-style-type: none"> <li>a. Logical Data Model: Cars, Customers...etc.</li> <li>b. Restful API Design: What are the services you are planning to implement, and each service description</li> </ul> <p>- <b>Each student should submit individually</b></p>	6-May-2019
Sample/ Proof of Concept	<p>Demo of complete functionality for example Car Management, you have to submit one page showing</p> <ul style="list-style-type: none"> <li>-1 API Gateway Restful Service Name</li> <li>2- Lambda Function Name</li> <li>3- Dynamo DB table name</li> </ul>	11-May-2019

	<b>To be submitted as group work</b>	
Final Application Demo	Code/ implementation of the complete functionalities mentioned in the functionalities section  - <b>Submitted as group work</b>	18-May-2019

### **Guidelines**

- The project can be implemented as group of 3 members.

Register your group on the spreadsheet online:

[https://docs.google.com/spreadsheets/d/115nEa\\_jWFEMqFWB0eMqXFKJASscvVsEVpTJ1cca0ajI/edit?usp=sharing](https://docs.google.com/spreadsheets/d/115nEa_jWFEMqFWB0eMqXFKJASscvVsEVpTJ1cca0ajI/edit?usp=sharing)

- Distribute the work across the team

Assign roles for each member to distribute the work, for example:

- Student1 will learn and configure API Gateway
- Student2 will write lambda code for handling API verbs Get, Put, Delete..etc.
- Student 3: Will learn how to write code for db function logic.

- Start simple and follow tutorials

<https://blog.sourcerer.io/full-guide-to-developing-rest-apis-with-aws-api-gateway-and-aws-lambda-d254729d6992>

<https://ordina-jworks.github.io/cloud/2018/10/01/How-to-build-a-Serverless-Application-with-AWS-Lambda-and-DynamoDB.html>

[https://www.youtube.com/watch?v=G\\_-aEXmluq8](https://www.youtube.com/watch?v=G_-aEXmluq8)