

CS 496/522 Cloud Computing

Programming Assignment 2

Due Date: Friday April 21, 2023

Make sure your answers are legible (submission in pdf); using Latex is encouraged. Succinct, but complete answers are encouraged.

Use the AWS account you have been given within the Learner Lab course on AWS Academy to create an e-commerce web-application that contains a front-end webpage (written using PHP, HTML, etc.) and a backend relational database (SQL), which stores the data regarding the application. The application will need an EC2 instance running a webserver and an RDS instance running a database the webserver can access.

- You need to create a Virtual Private Cloud (VPC) with private and a public subnets. The RDS instance will be placed on the private subnet; the EC2 instance with the webserver will be placed on the public subnet.
- You need to provide access paths such that the only way to access the RDS database is through the webserver (i.e., only the webserver IP is allowed to send messages to the server and the server only responds to the webserver). The webserver is accessible publicly.
- You need to create a relational SQL database. The database will contain one table for the products, one table for the user's credentials, and another table for the products that the user has bought (which helps build preferences).
 - *Product Table*: Product ID (Primary Key); Name; Description; Manufacturer Name; Inventory Count.
 - *User Table*: User ID Primary Key; User Name; User Password (no need to encrypt); User Preferences (VARCHAR 20; fill with some fake information).
 - *Products Bought Table*: User ID, Product ID (Primary Key); User Name; Product Name; Quantity; Date of Purchase.
- You need to create a web page that allows you to view the contents of the table; delete entries from the table using user and product ID; and add entries to the tables as well. You can use any front end language, such as PHP, Javascript, or Python. The language should allow you to send SQL commands to the back-end database from the user inputs in the website.

You need to create everything in your AWS space. Creation of the overall set-up [**20 points**], Database Instance in RDS [**30 points**]; creation of the front-end and webserver of your choice [**30 points**], When you submit your assignment on Canvas, please also have a README file for me to enable and test your assignment. Also submit a design document (please submit on Canvas) [**20 points**]. REMEMBER, cite all sources of code you borrowed from “anywhere” and all tutorials you used in your README.