Cloud Pathway Project

Project Overview

You are to complete a set of assignments that you can use to demonstrate some cloud computing features to potential new users of cloud services such as AWS.

The assignments are listed below. Create an appropriate report or video for each task showing the results of its successful completion.

You must complete at least ten of the fifteen tasks.

Project Approach

This project aims to allow pod members to demonstrate Group skills in planning, task-sharing and supportive communication.

As a group, demonstrate how you have fulfilled the Participation and Interpersonal requirements while working on the project. This collaborative approach reflects the reality of working as an IT professional in Agile and Team-based environments. Most IT professionals work in teams, so achieving results as part of a team is a key learning outcome for the project.

Project Evaluation

The evaluation criteria are listed at the end of this document.

Project Assignment Tasks.

Complete 10 of 15 given tasks using Amazon Web Services.

Task 1: Set IAM User Account Password Requirements (10 marks)

Set password rules as follows:

- Passwords must contain a minimum of 10 characters
- Password must have a mix of uppercase and lowercase letters, at least one number and a special character.
- Users must change passwords every month,
- Passwords cannot be reused.
- All new users must change their password on the first login.

Provide a screenshot of these settings.

Task 2: Create Administration Users (with full Admin permissions) (10 marks)

Create two users with full administration permissions on your cloud infrastructure but without access to financial and payment details. Place these users in a group that gives them the required permissions.

Task 3: Create Billing Users (10 marks)

Create two users who do have access to financial and payment details. Place these users in a finance group which gives them the required permissions. These users should not have access to other features.

Task 4: Create Administration Users (with Limited Admin permissions) (10 marks)

Create two users who each have access to one or two services only.

Demonstrate how to do the above using the command-line interface.

Task 5: Create and configure a Linux Web Server WITHOUT using Managed Services. (10 marks)

Log in as one of the administration users and "spin up" a virtual server with Linux preinstalled.

Allow access to the website from any IP address. Limit admin (SSH) access to three specific IP addresses.

Take a snapshot of your server and store it in a location designed for long-term storage with infrequent access.

Task 6: Create a Windows SQL Server Database WITHOUT using Managed Services. (10 marks)

Logged in as one of the administration users "spin up" a virtual server with Windows Server preinstalled. When this server is ready, install a free version of the SQL Server RDBMS. Remotely access the server using Windows Remote Desktop, create a database with one table, and enter some data.

Configure your infrastructure to back up your database daily. Store your backups in S3

Task 7: Use Managed Services (10 marks)

I: Set up a MySQL or similar database using a managed service. Create a table and store some data in the database.

Or

II. Using managed services, deploy Linux or Windows Server with a WordPress instance. Learn how to add a post to WordPress.

Task 8: Deploy a Windows Virtual Desktop (10 marks)

Deploy a Windows virtual desktop for computers or handheld devices.

Task 9: Serverless Computing (10 marks)

Use Serverless computing functions such as AWS Lambda to return a message showing the current date and time.

Task 10: Create an Elastic Web Hosting Environment (10 marks)

In cloud computing, elasticity is "*the degree to which a system can adapt to workload changes by provisioning and de-provisioning resources automatically so that at any point in time the available resources match the current demand as closely as possible*".

Demonstrate elasticity through the simple example of a business that wants to run a website on an IaaS cloud. Typically, a single virtual machine is sufficient to serve all web users. However, the website might suddenly become popular due to a flash sale or special offers, and a single machine is no longer sufficient to serve all users.

Based on the number of web users simultaneously accessing the website and the web server's resource requirements, it might be that ten machines are needed. A flexible system should immediately detect this condition and provision nine additional machines from the cloud to serve all web users responsively.

When the website reverts to the average load, the ten machines currently allocated are mostly idle. A single server will be sufficient to serve the users accessing the website. An elastic system should immediately detect this condition and release unwanted machines.

Task 11: Create an Organisation (10 marks)

Create an organisation to manage several accounts with your chosen cloud services. You can collaborate with other students to achieve this or you can create multiple accounts.

Task 12: Chat Bot with Conversational Features (10 marks)

Set up a chatbot that can respond to simple voice commands.

Task 13: Sentiment Analysis (10 marks)

Use AWS/Azure to demonstrate simple sentiment analysis on text.

Task 14: Face Recognition (10 marks)

Use AWS/Azure AI-based services to create a demonstration of face or photo recognition.

Task 15: Speech to Text (10 marks)

Create a demonstration of Speech to Text services in AWS.

Project Evaluation Criteria

All assignments that are completed adequately with proper evidence will be scored from 1 to 10.

Your final mark will be based on your ten highest scores.