Skill 53: Cloud Computing

IndiaSkills 2024

Test Project - State-Level Competition

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Preface

Cloud Raiser

Cloud Raiser is a new cutting-edge platform designed to push the boundaries of cloud computing expertise, paving the way for the next generation of competition at World Skills. It is set to take center stage at the WorldSkills 2024 competition at Lyon, France, offering a dynamic and challenging environment for participants to showcase their mastery of Amazon Web Services (AWS).

Cloud Raiser has been meticulously crafted to evaluate and elevate the skills of competitors, providing a stage where cloud architects, troubleshooters, and quest seekers can shine.

Cloud Raiser Modules

1. Well-Architecting
    - Purpose

      The Well-Architecting module within Cloud Raiser focuses on the art of crafting robust and efficient AWS solutions.

    - Competitor's Task

      Competitors are tasked with designing and implementing AWS architectures that adhere to best practices and principles.

    - Key Points
        - Evaluation based on AWS Well-Architected Framework.
        - Emphasis on scalability, reliability, security, performance, and cost optimization.
        - Demonstration of expertise in AWS services and architecture design.

2. Troubleshooting
    - Purpose

      The Troubleshooting module challenges participants to identify and rectify issues within pre-configured AWS projects or modules.

    - Competitor's Task

      Competitors must showcase their ability to diagnose, fix, and optimize existing AWS architectures.

    - Key Points
        - Evaluation of problem-solving skills within AWS environments.
        - Requires quick thinking and adept issue identification.
        - Judges assess the effectiveness of troubleshooting and architectural improvements.
        - Focus on debugging, optimization, and AWS troubleshooting techniques.
3. Cloudy-Questing
    - Purpose

      Cloudy-Questing draws inspiration from AWS Quest modules, putting participants' knowledge and application of AWS services to the test.

    - Competitor's Task

      Competitors embark on a journey of solving a series of AWS-related challenges and quests.

    - Key Points
        - Comprehensive assessment of AWS skills and concepts.
        - Tasks encompass deploying applications, configuring AWS services, and tackling real-world scenarios.
        - Encourages practical, hands-on experience with AWS.
        - Provides a gamified platform for demonstrating problem-solving abilities.

Eligibility for WSC 2024

The competitor should be born on or after 1st January 1999

Test Project

This Test Project is designed to align with the "Cloudy-Questing" Module of the Cloud Raiser platform that is proposed for WorldSkills 2024.

Background

Intergalactic Marketplace

The year is 2121 and interplanetary trading is as busy as it can get. Earth as we know today is . The flora and fauna has diversified and your task is to be a seller of these exotic items in the interplanetary market.

- The following are the 10 special items you can place the order, to your warehouse on Earth:

`Orriz Nectar`
`Randolite Bark`
`Jenkomeryon Leaf`
`Afistase Fruit`
`Cabardson Seed`
`Hickmonium Berry`
`Soipruolite Pollen`
`Wheeleaon Root`
`Friotaug Stem`
`Poif Flower`

- Your job is to:
    1. Collect the requirements (orders) from alien agents and list the items in a well-formed format.
    2. Validate the order and procure a order signature

3. Store the order details along with the order signatures

Your Responsibility

You need to build a mechanism to do your job seamlessly, by leveraging the power of cloud computing.

Task 1

Build a static webpage hosted on Amazon S3 through which your alien customers can place the intergalactic market orders.

- The user is taken to the *point of sale* where the order can be captured and placed.
- The order page needs to list all the 10 items and *capture the quantities of each items*
- Submit each order to a pre-built API that will validate and give you an order signature if the order request is valid.
- Store the valid orders, timestamp, order signature, and other related information in a database.

Task 2

In this task, you need to build a webpage that gives an:

- Overview of all the orders places, the total number of items and total individual items that were part of the orders.
- View the real-time orders and the statistics related to your order

General Guidelines

- Create a well-defined database and table structure
- Use security best practices for networking environment of your website
- Ensure credentials are stored according to security best practices. **Never store passwords in databases!**
- Use the principle of least privilege to grant granular permissions at every stage of your test project

Navigating the Quest

Helper APIs

- API 1: This helper API is designed to validate the order details. It is also designed to provide the user with specific error messages depending on the order request data.
- Use the error messages as clues to build upon reliable and fault-tolerant solutions.
- The items order JSON should be sent as a POST request body to the API.

```
POST https://<API_ENDPOINT>
```

API Request

- **`items`** and **`agent`** are the two mandatory properties. The **`items`** should be a collection of item names and their respective quantity.
- The items order should be a well-defined JSON as in the following example:

```
{
  "items":{
    "Poif Flower":10,
    "Afistase Fruit": 5
  },
  "agent": "Juno"
}
```

API Response

- The API returns a JSON response with the key “result”.
- An example of a `200 OK` response is as follows:

```
{
  "result":"58d65F/IvAShpDwrsVE9xsmI8qspu1Qg7gW9j6Ss4g/qfsY7l+t2IL\
    OZS/vBlS+XcEQgUOV1pT1L8NSLu0ewvET+cKQ388QlAdc1JBjPMPPOUQASNDuD\
    1evZplbavgHmmvUnbvN2f4K46XLLrb4d0EjoWsJUPre2xBXfXoKc5iAhDq0R8z\
    +YXIryKwUO+s2THSaspywrmnI7thHZxE8cOdQlA1GTVi5pHIdd1vPPTNOF119n\
    vW4gk5AO588A6+XjhxjjG2Y8lSWNhQbSRMExGjMIaXdIr4mT3HZ9ZpV8PB5Ow5g\
    A3g1eWF036LTQ7QUj5ACGlJkac5S/1JGKcws="
}
```

Database Structure

ID	Timestamp	OrderData	OrderSignature
1	2024-01-16-11:45:33	{orderData 1 (json)}	{orderSignature 1}
2	2024-01-16-11:48:20	{orderData 2 (json)}	{orderSignature 2}

Resources

Access to AWS

You will receive the credentials from the competition Jury after the briefing.

Presentations

Each competitor has to complete the day wise presentations in the given format.

Do's & Don'ts

System Access and Usage

- **External Website Access:** Participants are strictly prohibited from accessing external websites, with non-compliance leading to immediate disqualification.
- **Sandbox Environment:** Participants must maintain the integrity of the sandbox environment. Do not terminate or exit the environment during or after the competition.
- **Software Installation:** Only install software that has been pre-approved by the competition organizers.
- **Application and OS Settings:** Do not alter or customize settings of any applications or operating systems provided for the competition.
- **Hardware Modifications:** Any form of hardware modification or alteration is strictly prohibited.

Additional Guidelines

- **AWS Documentation:** Access to AWS Documentation is permitted and recommended for reference and guidance.
- **Originality of Work:** All submissions must be the original work of the participating individual or team. Any form of plagiarism will result in disqualification.
- **Adherence to Timelines:** All tasks and challenges must be completed within the specified timeframes.
- **Professionalism:** Maintain a professional demeanor at all times. Respectful communication and conduct are expected throughout the competition.

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