**AWS Hackathon Platform**

**Overview**

This project automates the provisioning and management of a hackathon environment for 500 participants using AWS services. It includes VM creation, instance management, bulk email distribution, and absentee tracking.

**Features**

* **Automated VM Deployment**: Creates 500 virtual machines using AWS EC2 launch templates.
* **Instance Management**: Lists, renames, and tracks instances.
* **Data Export**: Extracts and stores instance details in CSV format.
* **Bulk RDP File Distribution**: Downloads and distributes RDP files.
* **Email Automation**: Sends VM credentials to participants via AWS SES.
* **Absentee Handling**: Identifies and stops instances of absent participants.

**Steps Performed**

**1. Create 500 VMs using AWS Launch Template**

* Utilizes EC2 launch templates to provision instances efficiently.
* Configures security groups and IAM roles.

**2. List All Instances**

* Retrieves running EC2 instances and extracts details.
* Filters instances based on platform and naming conventions.

**3. Rename Unnamed Instances**

* Checks for instances without a Name tag.
* Assigns default names (e.g., Instance1, Instance2).

**4. Export Instance Data to CSV**

* Saves InstanceID and InstanceName of newly created instances to new\_instances.csv.
* Stores all instance details in all\_instances.csv.

**5. Download RDP Files for Filtered Instances**

* Filters instances based on naming conventions.
* Generates and stores RDP file paths in attachment.csv.

**6. Generate Email Data Files**

* Creates mainsheet.csv with Email, InstanceID, and InstanceName.
* Prepares Email\_data.csv for bulk email distribution.

**7. Send Bulk Emails**

* Uses AWS SES to send VM credentials and RDP details to participants.

**8. Identify and Handle Absentees**

* Tracks participants who did not log in.
* Saves absentee data and stops their instances to optimize resources.

**9. Stop Instances of Absentees**

* Filters out instances belonging to absentee participants.
* Stops the identified instances to save resources.

**Prerequisites**

* AWS account with EC2, S3, and SES access.
* Python 3.x and AWS SDK (boto3).
* Configured AWS CLI with necessary permissions.

**Setup Instructions**

**1. Clone the Repository**

git clone https://github.com/your-repo/hackathon-platform.git

cd hackathon-platform

**2. Configure AWS Services**

* Install AWS CLI.
* In VS Code, run the following command:
* aws configure
* Enter the AWS Access Key, Secret Key, default region, and output format when prompted.
* Create an S3 bucket for storing participant details.
* Set up IAM roles and policies.
* Verify email domain in AWS SES for bulk email sending.

**3. Run Scripts**

**List Instances**

python list\_instances.py

**Rename Instances**

python rename\_instances.py

**Export Data to CSV**

python export\_instances.py

**Send Emails**

python send\_emails.py --input Email\_data.csv

**Stop Absentee Instances**

python stop\_absentees.py --input absentees.csv

**Security Considerations**

* Apply least privilege principle to IAM roles.
* Encrypt sensitive data in S3.
* Enable AWS CloudWatch for monitoring.