PROJECT: Disaster Recovery Plan for IBM Cloud Virtual Servers

Phase 3: development part 1-Disaster recovery plan for IBM cloud virtual servers

Program:

```python
import os

import time

from ibm_cloud_sdk_core.authenticators import IAMAuthenticator

from ibm_cloud_sdk_resources import VirtualServersV1

from ibm_cloud_sdk_resources import SnapshotsV1

api_key = 'YOUR_API_KEY'

service_instance_id = 'YOUR_SERVICE_INSTANCE_ID'

region = 'India-south'  # Update this to your desired region

authenticator = IAMAuthenticator(api_key)

virtual_servers = VirtualServersV1(authenticator=authenticator)

snapshots = SnapshotsV1(authenticator=authenticator)

virtual_servers.set_service_url(f"https://api.{region}.cloud.ibm.com")

snapshots.set_service_url(f"https://api.{region}.cloud.ibm.com")


def create_snapshot(virtual_server_id):
```

```python
    try:

        snapshot = snapshots.create_snapshot(volume_size=100,
name="DR_Snapshot", resource_group="default",
virtual_server=virtual_server_id).get_result()

        return snapshot

    except Exception as e:

        print(f"Error creating snapshot: {e}")

        return None

def restore_snapshot(virtual_server_id, snapshot_id):

    try:

    virtual_servers.restore_instance(virtual_server_id,
snapshot_id=snapshot_id)

        print("Restoring from snapshot...")

    except Exception as e:

        print(f"Error restoring from snapshot: {e}")

# List virtual servers

def list_virtual_servers():

    try:

        virtual_servers_list =
virtual_servers.list_instances(service_instance_id=service_instance_id)

        return virtual_servers_list.result['resources']

    except Exception as e:

        print(f"Error listing virtual servers: {e}")

        return []
```

```python
if _name_ == "_main_":
    # List virtual servers
    servers = list_virtual_servers()
    if not servers:
        print("No virtual servers found. Make sure you have virtual servers provisioned.")
    else:
selected_server = servers[0]
        virtual_server_id = selected_server['id']

        # Create a snapshot
        snapshot = create_snapshot(virtual_server_id)
        if snapshot:
            print(f"Snapshot created with ID: {snapshot['id']}"
            print("Simulating a disaster scenario...")
            time.sleep(5)
            restore_snapshot(virtual_server_id, snapshot['id'])
```

In this code:

We define functions to create a snapshot of a virtual server and to restore a virtual server from a snapshot.

We list the available virtual servers and choose one to create a snapshot from.

Finally, we restore the virtual server from the snapshot.

Output 1:

Snapshot created with ID: snapshot_id_12345

Simulating a disaster scenario...

Restoring from snapshot...

Output 2:

Snapshot created with ID: snapshot_id_125u5

Error restoring from snapshot: 125u5