Assignment 1: Install Google App Engine. Create Hello World app and other simple web applications using Python/Java.

1. What is Google App Engine (GAE)?

Answer:
Google App Engine is a Platform-as-a-Service (PaaS) provided by Google that allows developers to build and host applications on Google's infrastructure. It supports several programming languages including Python and Java, and offers features like automatic scaling, versioning, and a fully managed environment.

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2. What steps did you follow to install and set up Google App Engine for Python/Java?

Answer:
For Python:

1. Installed Python and Google Cloud SDK.
2. Initialized SDK using gcloud init.
3. Created a new project on Google Cloud Console.
4. Wrote a simple Flask app (Hello World).
5. Created app.yaml for configuration.
6. Deployed using gcloud app deploy.

For Java:

1. Installed JDK and Eclipse/IntelliJ.
2. Installed Cloud Tools for Eclipse.
3. Created a Maven project.
4. Wrote a Servlet-based Hello World app.
5. Configured appengine-web.xml.
6. Deployed using Google Cloud SDK or Eclipse tools.

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3. What is the purpose of app.yaml in Python GAE deployment?

Answer:
app.yaml is the configuration file for App Engine applications. It defines the runtime environment, entry point, automatic scaling, handlers, and other settings required by the App Engine to run the app.

Example:

yaml

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```
runtime: python39

entrypoint: gunicorn -b :$PORT main:app
```

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4. What does the Hello World app in Python typically look like?

Answer:
A simple Flask-based Hello World app:

python

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```
from flask import Flask

app = Flask(__name__)


@app.route('/')

def hello():

    return 'Hello, World!'
```

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5. How do you deploy a Python app to App Engine?

Answer:

- Navigate to the project directory.
- Run gcloud app deploy.
- Wait for deployment to complete.
- Visit the deployed URL provided in the terminal.

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6. What is automatic scaling in App Engine?

Answer:
Automatic scaling adjusts the number of instances automatically based on the incoming traffic and load. This helps in cost and resource optimization without manual intervention.

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7. What are the benefits of using GAE for hosting web apps?

Answer:

- Managed environment (no server management).
- Easy deployment.
- Auto-scaling.

- Integrated with other Google Cloud services.
- Free tier available for small apps.

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8. What are some limitations of Google App Engine?

Answer:

- Limited control over infrastructure.
- Vendor lock-in.
- Certain usage quotas on free tier.
- Restricted runtime environment.

Would you like a similar set of questions and answers for the next assignment too?

4o

You said:

explain Platform-as-a-Service (PaaS)

ChatGPT said:

Explanation of Platform-as-a-Service (PaaS):

Platform-as-a-Service (PaaS) is a **cloud computing model** that provides developers with a **ready-to-use platform** for building, testing, deploying, and managing applications—**without dealing with the underlying infrastructure** (like servers, storage, and networking).

🔧 Key Features of PaaS:

- **Application hosting environment**
- **Development tools** and APIs
- **Database management systems**
- **Automatic scaling**
- **Middleware and runtime environments**
- **Built-in security and monitoring**

🧠 Simplified Analogy:

Think of PaaS like renting a fully furnished apartment:
You bring your stuff (code), and everything else (furniture, electricity, water, etc.) is already taken care of.

✅ Advantages of PaaS:

- No server management needed.
- Faster development and deployment.
- Built-in tools for testing, monitoring, and version control.
- Scales automatically with demand.
- Cost-effective for small-to-medium applications.

❌ Disadvantages of PaaS:

- Less control over the infrastructure.
- Potential **vendor lock-in**.
- Limited customization options.
- Dependency on the provider’s runtime and supported technologies.

🏢 Examples of PaaS:

- **Google App Engine**
- **Microsoft Azure App Services**
- **Heroku**
- **AWS Elastic Beanstalk**
- **IBM Cloud Foundry**

Would you like this as a short note format for printing or presenting too?

4o

You said:

explain cloud computing models

ChatGPT said:

Cloud Computing Models Explained

Cloud computing offers various service models that define the level of control and responsibility between the **cloud provider** and the **user**. The three main models are:

🧱 1. Infrastructure as a Service (IaaS)

🔹 **Definition:**

IaaS provides **virtualized computing resources** over the internet. It includes servers, storage, and networking but **leaves OS and application management to the user**.

🔹 **User Controls:**

- Operating System
- Applications
- Middleware
- Data

🔹 **Provider Manages:**

- Physical servers
- Virtualization
- Storage
- Networking

🔹 **Examples:**

- Amazon EC2
- Microsoft Azure VMs
- Google Compute Engine

🧰 2. Platform as a Service (PaaS)

🔹 **Definition:**

PaaS provides a **platform with tools** to develop, run, and manage applications **without managing infrastructure**.

🔹 **User Controls:**

- Applications
- Data

🔹 **Provider Manages:**

- Runtime
- Middleware
- OS
- Servers, Storage, and Networking

🔹 **Examples:**

- Google App Engine
- Heroku
- Microsoft Azure App Services

🧑‍💼 3. Software as a Service (SaaS)

🔹 **Definition:**

SaaS delivers **fully functional applications** over the internet. Users just **access the software**, without managing anything technical.

🔹 **User Controls:**

- Just the **application usage and configuration**

🔹 **Provider Manages:**

- Everything: app, OS, servers, storage, updates

🔹 **Examples:**

- Google Workspace (Docs, Gmail)
- Microsoft 365
- Dropbox
- Salesforce

🧮 Comparison Table

Feature	**IaaS**	**PaaS**	**SaaS**
User Manages	OS, apps, data	Apps, data	Only data & settings
Flexibility	High	Moderate	Low
Setup Time	Moderate	Fast	Very Fast
Example Use Case	Custom app hosting	Web app development	Business email & CRM

Would you like a diagram to go with this explanation?

4o

You said:

give answer based on viva

ChatGPT said:

Sure! Here's a **viva-style question and answer format** for **Cloud Computing Models**:

✅ Q1: What are the main cloud computing service models?

Answer:
The main cloud computing service models are:

1. **Infrastructure as a Service (IaaS)**
2. **Platform as a Service (PaaS)**
3. **Software as a Service (SaaS)**

✅ Q2: What is IaaS? Give an example.

Answer:
IaaS stands for **Infrastructure as a Service**. It provides virtualized hardware resources like servers, storage, and networking over the cloud. Users manage the operating system, applications, and data.
Example: Amazon EC2, Google Compute Engine.

✅ Q3: What is PaaS? Give an example.

Answer:
PaaS stands for **Platform as a Service**. It offers a complete platform for developing, testing, and deploying applications without worrying about the infrastructure. The cloud provider manages everything except the application and data.
Example: Google App Engine, Heroku.

✅ Q4: What is SaaS? Give an example.

Answer:
SaaS stands for **Software as a Service**. It delivers ready-to-use software applications over the internet. Users only access and use the software; everything else is managed by the provider.
Example: Gmail, Microsoft Office 365, Dropbox.

✅ Q5: Which model gives you the most control?

Answer:
IaaS gives the most control because the user manages the operating system, runtime, and applications.

✅ Q6: Which model is easiest to use for end users?

Answer:
SaaS is easiest because users don’t need to manage or install anything—just use the software via a web browser.

✅ Q7: Can you name one advantage of each model?

Answer:

- **IaaS:** High flexibility and control over the system.
- **PaaS:** Faster app development and deployment.
- **SaaS:** No installation or maintenance required.

Would you like a set of questions for deployment steps too?

4o

You said:

2Use GAE launcher to launch the web applications.

ChatGPT said:

Here are **viva-style questions and answers** based on the assignment:

🔧 Assignment 2: Use GAE Launcher to launch the web applications

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✅ Q1: What is Google App Engine (GAE) Launcher?

Answer:
Google App Engine Launcher is a GUI tool provided by Google as part of the Google Cloud SDK. It allows developers to create, test, and deploy Python web applications (especially with older Python versions like 2.7) on Google App Engine without using the command line.

✅ Q2: What are the main features of GAE Launcher?

Answer:

- Create new App Engine projects.
- Run applications locally for testing.
- Deploy apps to Google App Engine.
- View logs and manage app settings through a graphical interface.

✅ Q3: How do you launch a web application using GAE Launcher?

Answer:

1. Open GAE Launcher.
2. Click **File → Add Existing Application** or **New Application**.
3. Specify the path to your app directory (where app.yaml is located).
4. Click **Run** to launch the app locally.
5. Click **Browse** to view it in your browser.
6. To deploy, click **Deploy** and follow the instructions.

✅ Q4: What files are required for GAE Launcher to work?

Answer:

- main.py or app.py: The main Python application file.
- app.yaml: Configuration file for the App Engine runtime and settings.
- Any supporting files like templates, static files, etc.

✅ Q5: What is the purpose of running the app locally with GAE Launcher?

Answer:
Running the app locally allows the developer to **test and debug the application** before deploying it to the cloud. It ensures the app is working correctly in a development environment.

✅ Q6: Is GAE Launcher still commonly used? Why or why not?

Answer:
GAE Launcher was mainly used with Python 2.7 apps. It's now considered outdated, and **Google recommends using the command-line tools (gcloud)** for modern apps using Python 3+ or other runtimes. However, it's still useful for basic learning and legacy projects.

✅ Q7: Can you use GAE Launcher for Java applications?

Answer:
No, GAE Launcher primarily supports Python (especially 2.7). For Java apps, developers use **Eclipse with Google Cloud tools** or the **gcloud CLI**.

Would you like a short demo script of the main.py and app.yaml to go with this?

4o

You said:

4. Find a procedure to transfer the files from one virtual machine to another virtual machine.

ChatGPT said:

Here are **viva-style questions and answers** based on:

📁 Assignment 4: Procedure to transfer files from one virtual machine to another virtual machine

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✅ Q1: How can you transfer files from one virtual machine (VM) to another?

Answer:
Files can be transferred between VMs using tools like **SCP (Secure Copy Protocol)**, **rsync**, **SFTP**, or **shared cloud storage**. SCP is the most commonly used method for direct VM-to-VM file transfer over SSH.

✅ Q2: What is SCP, and how does it work?

Answer:
SCP (Secure Copy Protocol) is a command-line tool used to securely transfer files between hosts on a network using **SSH (Secure Shell)**. It ensures encrypted file transfer.

✅ Q3: What is the basic command to copy a file from one VM to another using SCP?

Answer:

bash

CopyEdit

```
scp /path/to/local/file username@destination_vm_ip:/path/to/remote/directory
```

Example:

bash

CopyEdit

```
scp myfile.txt user@192.168.1.10:/home/user/
```

To copy from remote to local:

bash

CopyEdit

```
scp user@192.168.1.10:/home/user/myfile.txt /local/destination/
```

✅ Q4: What are the prerequisites for using SCP between two VMs?

Answer:

- Both VMs must be accessible over the network.
- **SSH server** must be running on the destination VM.
- The **source VM must have SSH access** to the destination (username/password or key).
- You must have **firewall rules** set to allow port 22.

✅ Q5: How can you use SSH keys for passwordless file transfer?

Answer:

1. Generate a key pair on the source VM using ssh-keygen.
2. Copy the public key to the destination VM using:

bash

CopyEdit

```
ssh-copy-id user@destination_ip
```

3. Now you can use scp without entering the password each time.

✅ Q6: Can you transfer entire directories using SCP?

Answer:
Yes. Use the -r option to recursively copy a directory:

bash

CopyEdit

```
scp -r myfolder user@destination_ip:/home/user/
```

✅ Q7: What are alternatives to SCP for transferring files between VMs?

Answer:

- **rsync:** Faster for incremental file syncing
- **SFTP:** Secure file transfer using FTP over SSH
- **Google Cloud Storage / AWS S3 / Azure Blob:** Use shared cloud storage
- **NFS / SMB shares:** For persistent shared folders

Would you like the steps specifically for VMs hosted on Google Cloud or any other platform?

4o

You said:

Design and develop custom Application (Mini Project) using Salesforce Cloud.

ChatGPT said:

Here's a **viva-style Q&A guide** for the assignment:

☁️ Assignment 5: Design and Develop a Custom Application (Mini Project) Using Salesforce Cloud

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✅ Q1: What is Salesforce Cloud?

Answer:
Salesforce Cloud is a **cloud-based Customer Relationship Management (CRM)** platform that provides tools to build and manage customer-focused applications. It offers products like Sales Cloud, Service Cloud, and **Salesforce Platform (PaaS)** for custom app development.

✅ Q2: What tools does Salesforce provide for custom app development?

Answer:

- **App Builder:** Drag-and-drop interface for building apps.
- **Lightning Components:** Custom UI elements.
- **Apex:** Salesforce's backend programming language.
- **Visualforce:** For custom front-end pages.
- **SOQL:** Salesforce Object Query Language to access records.

✅ Q3: What mini project did you develop on Salesforce Cloud?

Answer:
(*Sample Answer*)
I developed a **Student Feedback Management System** using Salesforce. It allows students to submit feedback on courses and faculty, and lets admins view and respond to feedback.

✅ Q4: What objects did you create in your custom Salesforce app?

Answer:
I created custom objects such as:

- **Student__c**
- **Course__c**

- **Feedback__c** (with fields like Rating, Comments, Date, etc.)

✅ Q5: What is the difference between Standard and Custom Objects in Salesforce?

Answer:

- **Standard Objects** are built-in (e.g., Accounts, Contacts).
- **Custom Objects** are user-defined and created to fit specific application needs.

✅ Q6: What is a Trigger in Salesforce?

Answer:
A **Trigger** is an Apex script that runs before or after events like insert, update, or delete on a Salesforce object. It automates processes such as validation or notification.

✅ Q7: How did you deploy your application?

Answer:
I used Salesforce's **Developer Edition** to build and test the app. Deployment was done using **Change Sets** or by packaging the app and installing it into another org.

✅ Q8: What is a Lightning App?

Answer:
A Lightning App is a custom application built on the Salesforce Lightning Experience that bundles components, objects, and tools for specific business needs.

✅ Q9: What challenges did you face during development?

Answer:
Common issues include:

- Field-level security and permissions
- Apex governor limits
- Deployment errors due to missing dependencies

✅ Q10: What are the benefits of building apps on Salesforce Cloud?

Answer:

- No infrastructure management
- Secure, scalable, and fast development

- Built-in CRM features
- Point-and-click tools (low code)
- Integration with other services

Would you like a sample app idea with object schema and field list to include in your project report?

4o

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