

1. (a) Use Google docs and create a document consisting of information about cloud computing. The document should include proper headings and page number. Store this document on the google drive and provide permission to view this document. 10
- (b) Create a list of cloud services provided by AWS. List the steps to setup an Elastic compute cloud (EC2) instance. 10

Creating a Google Docs Document on Cloud Computing

Open Google Docs:

- Go to [Google Docs](#) and click on “Blank” to create a new document.

Add Content to the Document:

Title: Cloud Computing

Headings and Content:

Introduction to Cloud Computing

- Cloud computing refers to the delivery of computing services over the internet (the cloud) to offer faster innovation, flexible resources, and economies of scale.

Types of Cloud Services

- **IaaS (Infrastructure as a Service):** Examples include AWS EC2, Google Compute Engine.
- **PaaS (Platform as a Service):** Examples include Google App Engine, Heroku.
- **SaaS (Software as a Service):** Examples include Google Workspace, Salesforce.

Benefits of Cloud Computing

- **Cost Efficiency:** Pay only for what you use.
- **Scalability:** Easily scale resources up or down.
- **Flexibility:** Access services from anywhere.
- **Security:** Advanced security features and compliance certifications.

Challenges of Cloud Computing

- **Downtime:** Risk of service outages.
- **Security:** Concerns over data privacy and security.
- **Compliance:** Ensuring compliance with regulations.
- **Cost Management:** Controlling the cost of cloud resources.

Page Numbers:

- Go to `Insert` -> `Page numbers` -> Choose the preferred format.

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AWS Services Overview

Compute Services

- **Amazon EC2 (Elastic Compute Cloud):** Scalable virtual servers for running applications.
- **AWS Lambda:** Serverless compute service that runs code in response to events.
- **Amazon ECS (Elastic Container Service):** Managed container orchestration service.
- **AWS Fargate:** Serverless compute engine for containers.

Storage Services

- **Amazon S3 (Simple Storage Service):** Scalable object storage for data backup and archiving.
- **Amazon EBS (Elastic Block Store):** Persistent block storage for EC2 instances.
- **Amazon Glacier:** Low-cost storage service for archival and long-term backup.

Database Services

- **Amazon RDS (Relational Database Service):** Managed relational database service supporting multiple engines.

- **Amazon DynamoDB:** Fully managed NoSQL database for fast and flexible performance.
- **Amazon Redshift:** Managed data warehouse for large-scale data analytics.

Networking Services

- **Amazon VPC (Virtual Private Cloud):** Isolated virtual network for your AWS resources.
- **AWS Direct Connect:** Dedicated network connection from your premises to AWS.
- **Amazon Route 53:** Scalable DNS and domain name registration service.

Security Services

- **AWS IAM (Identity and Access Management):** Manage user access and permissions to AWS resources.
- **AWS KMS (Key Management Service):** Manage and control encryption keys for data security.
- **AWS Shield:** DDoS protection for applications running on AWS.

Analytics Services

- **Amazon EMR (Elastic MapReduce):** Big data processing using Hadoop, Spark, and other frameworks.
- **Amazon Kinesis:** Real-time data processing and analytics.
- **AWS Glue:** Fully managed ETL (extract, transform, load) service for data preparation.

Developer Tools

- **AWS CodeDeploy:** Automated deployment of applications to various compute services.
- **AWS CodePipeline:** Continuous integration and delivery service for faster software releases.
- **AWS CodeBuild:** Fully managed build service for compiling code and running tests.

Machine Learning

- **Amazon SageMaker:** End-to-end machine learning service for building, training, and deploying models.
- **AWS Rekognition:** Image and video analysis service using machine learning.
- **AWS Lex:** Build conversational interfaces using voice and text with chatbot technology.

2. The following data was collected to predict the weight of a person from his/her height: 20

Height (cm)	160	155	175	163	171	183	159	162
Weight (Kg)	65	60	75	65	73	85	60	65

Use R programming to fit a linear regression line to predict the weight of a person using his/her height. Also, predict the weight of a person whose height is 165 cms.

```
# Define the data
height <- c(160, 155, 175, 163, 171, 183, 159, 162)
weight <- c(65, 60, 75, 65, 73, 85, 60, 65)

# Fit a linear regression model
model <- lm(weight ~ height)

# Print the summary of the model to see the coefficients
summary(model)

# Predict the weight for a height of 165 cm
new_height <- data.frame(height = 165)
predicted_weight <- predict(model, new_height)

# Print the predicted weight
cat("Predicted weight for a height of 165 cm:", predicted_weight, "Kg\n")

# Plot the data and the regression line
plot(height, weight, main = "Height vs Weight",
      xlab = "Height (cm)", ylab = "Weight (Kg)", pch = 19, col = "blue")
abline(model, col = "red")
```