**Assignment 1: Understanding Cloud Computing**

**1. Research Task: A brief report on the following cloud service models:**

• Infrastructure as a Service (IaaS): This model provides on-demand access to cloud-hosted physical and virtual servers, storage and networking resources. Customers can provision, configure and use these resources as if they were their own on-premises hardware. The cloud service provider manages and maintains the underlying infrastructure, while the customer is responsible for the operating system, applications and data. IaaS is suitable for customers who need a high level of control and flexibility over their cloud resources, and who want to avoid the cost and complexity of purchasing and managing their own hardware. Examples of IaaS providers are Amazon Web Services, Microsoft Azure, Google Cloud Platform and IBM Cloud.

• Platform as a Service (PaaS): This model provides on-demand access to a complete, ready-to-use, cloud-hosted platform for developing, running, maintaining and managing applications. Customers can use the platform's tools and services to create, test and deploy their own applications, without having to worry about the underlying infrastructure, operating system, middleware or runtime environment. PaaS is suitable for customers who want to focus on developing and deploying applications, and who want to benefit from the scalability, reliability and security of the cloud platform. Examples of PaaS providers are AWS Elastic Beanstalk, Microsoft Azure App Service, Google App Engine, IBM Cloud Foundry and Heroku

• Software as a Service (SaaS): This model provides on-demand access to ready-to-use, cloud-hosted application software. Customers can use the software via an internet connection and a web browser, without having to install, update or maintain anything on their own devices. The cloud service provider manages and maintains the software, as well as the underlying infrastructure, platform and data. SaaS is suitable for customers who want to access and use software applications that are fully functional, secure and up-to-date, and who want to pay only for what they use. Examples of SaaS providers are Google Workspace, Salesforce, Dropbox, Zoom, Slack and Netflix

**2. Practical Task: Steps I followed to create an instance on an AWS cloud platform.**

1. Open the Amazon EC2 console at <https://console.aws.amazon.com/ec2/>.
2. From the EC2 console dashboard, in the Launch instance box, I click on Launch instance.
3. Under Name and tags, for Name, I enter a descriptive name for your instance.
4. Under Application and OS Images (Amazon Machine Image), I do the following:
   1. Click on Quick Start, and then select Amazon Linux.
   2. From Amazon Machine Image (AMI), select an HVM version of Amazon Linux 2.
5. Under Instance type, I select t3.micro instance type, which is selected by default.
6. created paired key name.
7. Click on launch Instance.

**Assignment 2: Linux Commands Hands-on**

**1. Research Task:** A brief explanation of the following Linux commands:

• ls: This command lists the contents of a directory. You can use various options to customize the output, such as -l for a long listing format, -a for showing hidden files, and -h for human-readable file sizes.

• cd: This command changes the current working directory. You can use a relative or an absolute path as an argument, or use .. to go up one level, or use ~ to go to your home directory.

• pwd: This command prints the current working directory's path. You can use the option -P to show the physical path, without any symbolic links.

• touch: This command creates a new empty file.

• rm: This command deletes files or directories. You can use the option -r to recursively delete a directory and its contents, or use -i to prompt for confirmation before deleting each file.

• cp: This command copies files and directories. You can use the option -r to recursively copy a directory and its contents, or use -i to prompt for confirmation before overwriting an existing file.

• mv: This command moves or renames files and directories. You can use the option -i to prompt for confirmation before overwriting an existing file.

• cat: This command lists, combines, and writes a file's content as a standard output. You can use the option -n to number the output lines, or use -b to number only the non-blank lines.

• echo: This command prints any text that follows the command. You can use the option -n to suppress the newline at the end, or use -e to enable the interpretation of backslash escapes.

• man: This command accesses manual pages for all Linux commands. You can use the option -k to search for a keyword in the manual page names and descriptions.

• sudo: This command runs a command as a superuser, or another user specified by the option -u. You need to enter your password to use this command, unless you are in the sudoers file.

• apt-get: This command is a package manager for Debian-based Linux distributions. You can use it to install, update, remove, or search for software packages. Some common options are install, update, upgrade, remove, and search.

• chmod: This command modifies the read, write, and execute permissions of files and directories. You can use either symbolic or numeric modes to specify the permissions. For example, chmod u+x file adds execute permission for the user, while chmod 755 file sets the permissions to rwxr-xr-x.

• chown: This command changes the owner and group of files and directories. You can use the option -R to recursively change the ownership of a directory and its contents. For example, chown alice file changes the owner to alice, while chown alice:bob file changes the owner to alice and the group to bob.

**2. Practical Task:** After the installation was completed, I restarted the virtual machine and logged in with my username and password. I opened the terminal application and practiced the Linux commands that I researched. Here are some examples of the commands and their outputs:

# List the contents of the home directory



# Change the current working directory to the Downloads directory



# Print the current working directory's path



# Create a new empty file named test.txt



# Delete the file test.txt



# Copy the file test.txt from the Downloads directory to the Desktop directory



# Rename the file test.txt to test2.txt



#View the file test2.txt's content as a standard output



# Print any text that follows the command



# Access manual pages for the echo command

chima@chima:~/Downloads$ man echo

