

| | |
|-----------------|--|
| Ex. No:1 | INSTALL VIRTUALBOX/VMWARE WORKSTATION |
| Date: | |

AIM

Find procedure to Install Virtualbox/VMware Workstation with different flavours of linux or windows OS on top of windows7 or 8.

PROCEDURE

Step 1- Download Link

Link for downloading the software is <https://www.vmware.com/products/workstation-pro/workstation-pro-evaluation.html>. Download the software for windows. Good thing is that there is no signup process. Click and download begins. Software is around 541 MB.

Step 2- Download the installer file

It should probably be in the download folder by default, if you have not changed the settings in your browser. File name should be something like VMware-workstation-full-15.5.1-15018445.exe. This file name can change depending on the version of the software currently available for download. But for now, till the next version is available, they will all be VMware Workstation 15 Pro.

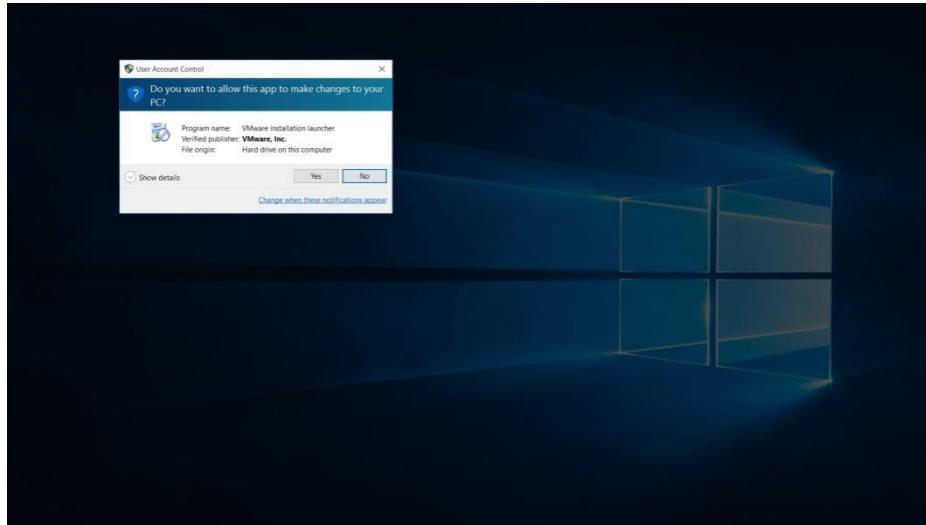
Step 3- Locate the downloaded installer file

For demonstration purpose, I have placed the downloaded installer on my desktop. Find the installer on your system and double click to launch the application.

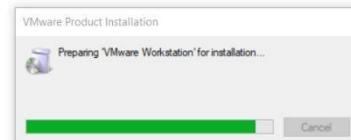
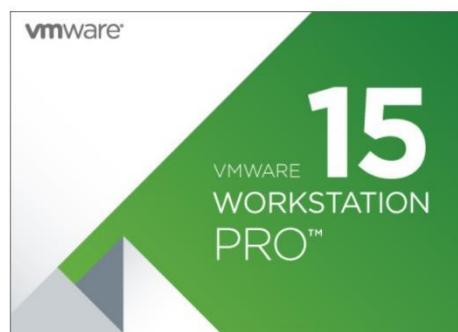


Step 4- User Access Control (UAC) Warning

Now you should see User Access Control (UAC) dialog box. Click yes to continue.



VMware Workstation 12 Pro installer windows 10 UAC screenshot
Initial Splash screen will appear. Wait for the process to complete.



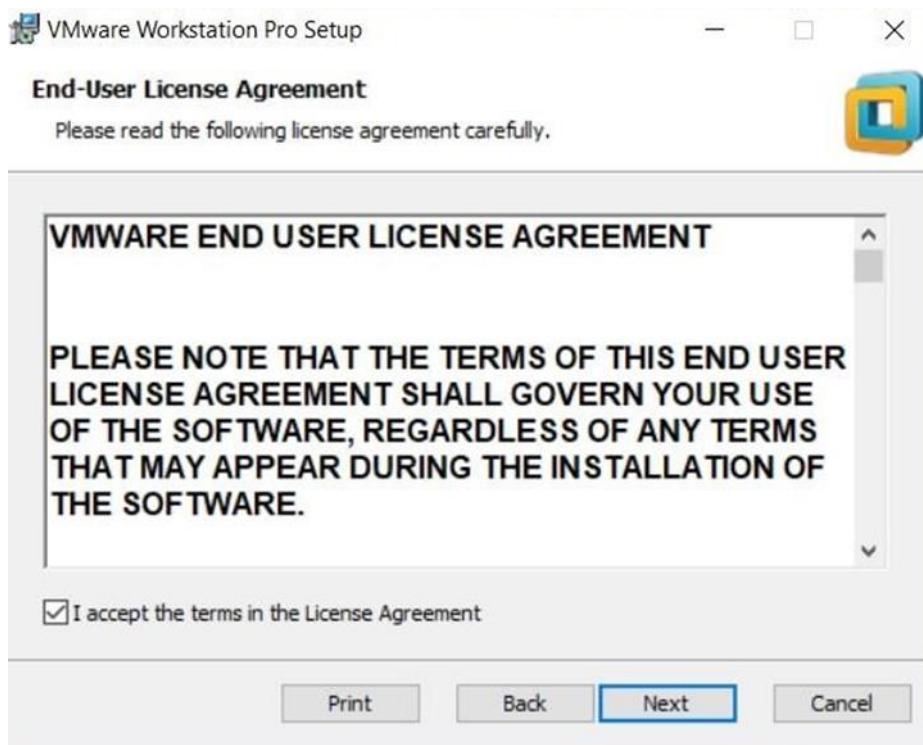
Step 5- VMware Workstation Setup wizard

Now you will see VMware Workstation setup wizard dialog box. Click next to continue.



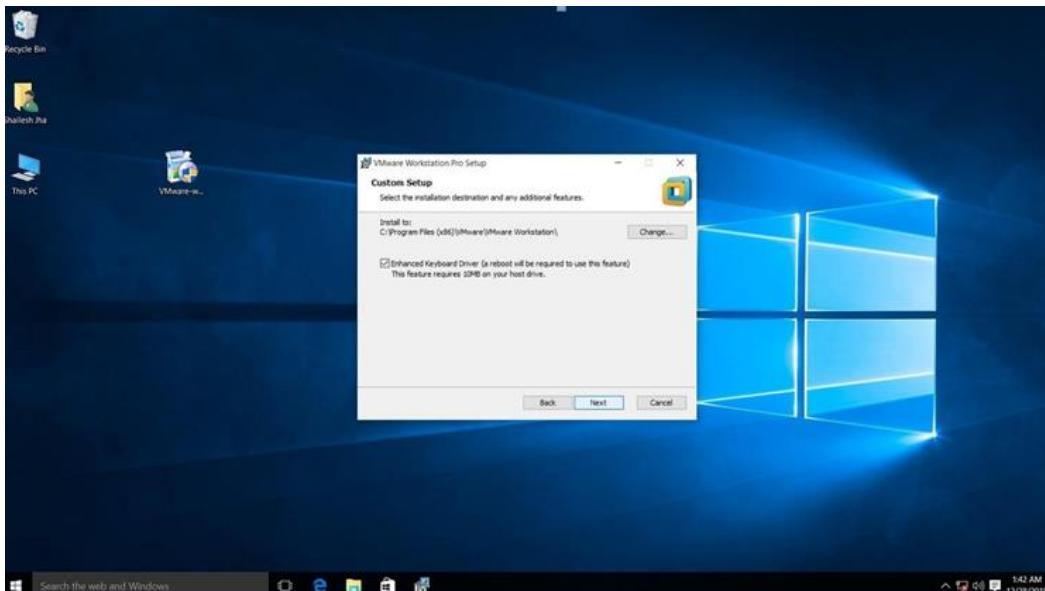
Step 6- End User Licence Agreement

This time you should see End User Licence Agreement dialog box. Check “I accept the terms in the Licence Agreement” box and press next to continue.



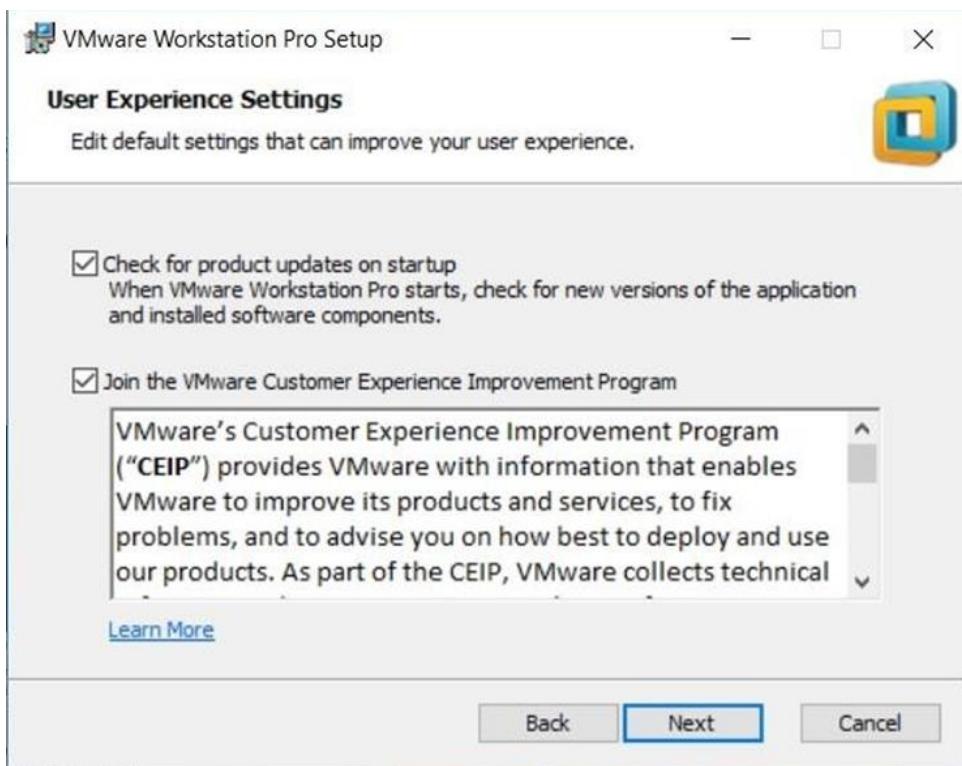
Step 7- Custom Setup options

Select the folder in which you would like to install the application. There is no harm in leaving the defaults as it is. Also select Enhanced Keyboard Driver check box.



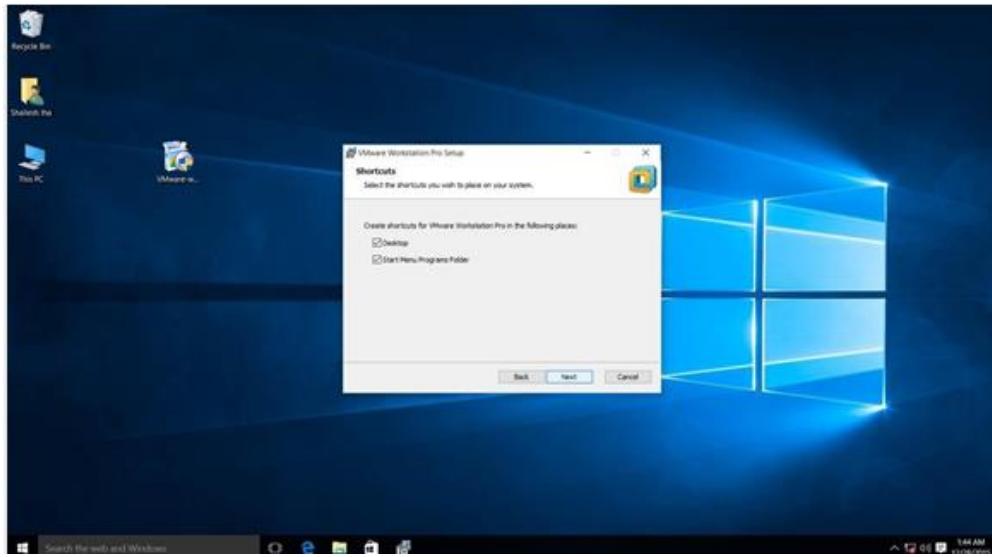
Step 8- User Experience Settings

Next you are asked to select “Check for Updates” and “Help improve VMware Workstation Pro”. Do as you wish. I normally leave it to defaults that is unchecked.



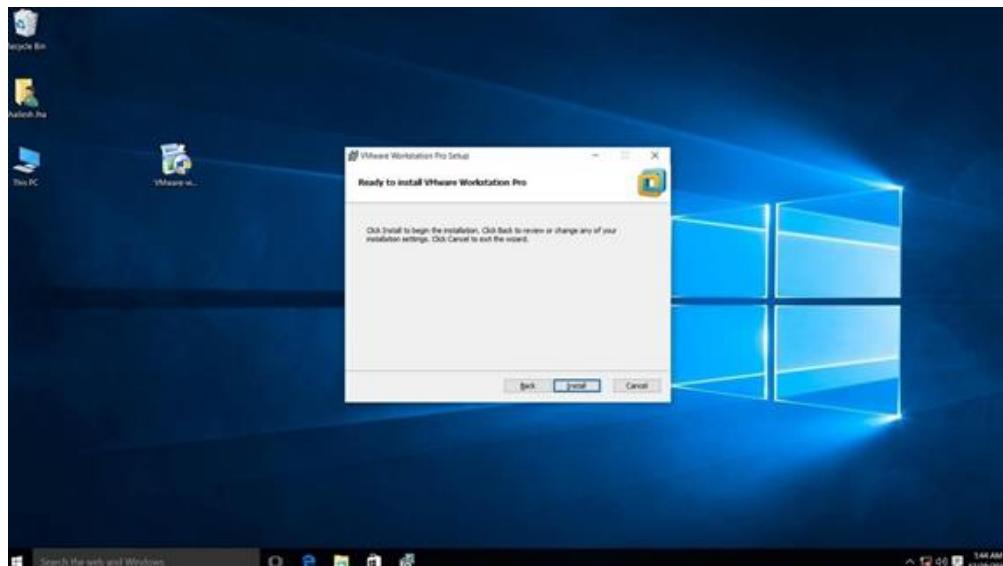
Step 9- Application Shortcuts preference

Next step is to select the place you want the shortcut icons to be placed on your system to launch the application. Please select both the options, desktop and start menu and click next.

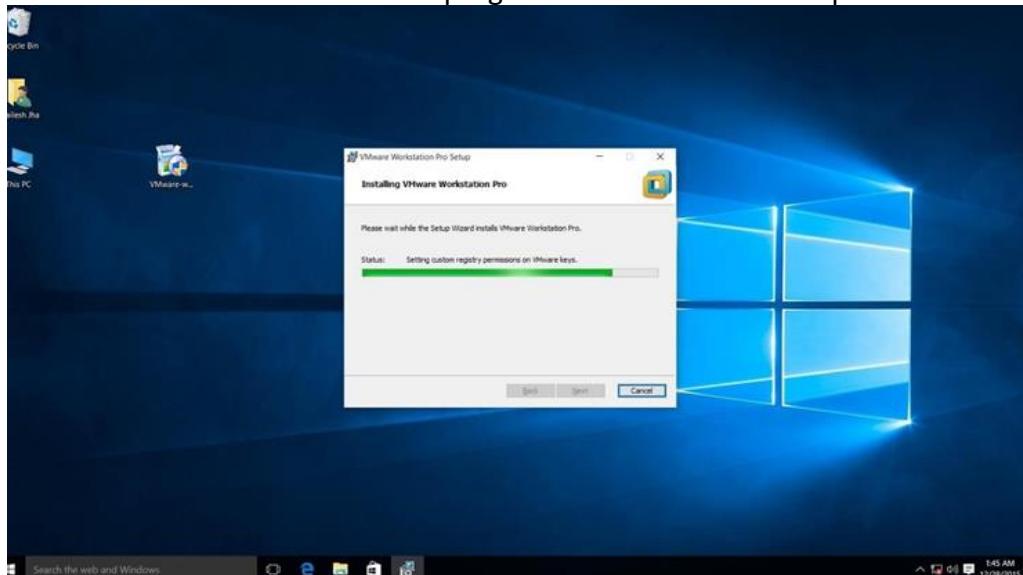


Step 10- Installation begins

Now you see the begin installation dialog box. Click install to start the installation process.



Below screenshot shows Installation in progress. Wait for this to complete.



At the end you will see installation complete dialog box. Click finish and you are done with the installation process. You may be asked to restart your computer. Click on Yes to restart.



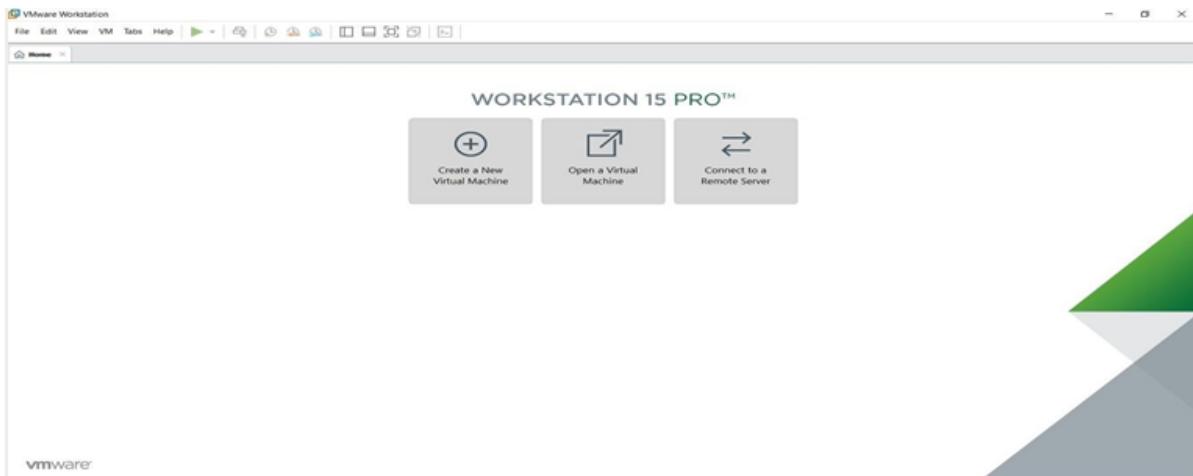
Step 11- Launch VMware Workstation

After the installation completes, you should see VMware Workstation icon on the desktop. Double click on it to launch the application.



Step 12- Licence Key

If you see the dialog box asking for licence key, click on trial or enter the licence key. Then what you have is the VMware Workstation 15 Pro running on your windows 10 desktop. If don't have the licence key, you will have 30 days trial.



Step 13- At some point if you decide to buy

At some point of time if you decide to buy the Licence key, you can enter the Licence key by going to **Help->Enter a Licence Key**

You can enter the 25 character licence key in the dialog box shown below and click OK. Now you have the licence version of the software.

Key

RESULT

Thus the procedure to run the virtual machine of different configuration.

INSTALL VIRTUALBOX/VMWARE WORKSTATION
PART- B SCL WORKSHEET

Worksheet No : 1

Date:

| | | | | |
|------------|---|--------------------------|-------------------------|-------------------|
| 1. | In how many parts we can broadly divide the architecture of the Cloud? | | | |
| Ans: | a) 3 | b)2 | c)5 | d)4 |
| 2. | The backend is commonly used by the _____ | | | |
| Ans: | | | | |
| 3. | Which one of the following refers to the user's part of the Cloud Computing system? | | | |
| Ans: | a) front end | b) back End | c) Management | d) Infrastructure |
| 4. | Which one of the following can be considered as the example of the Front-end? | | | |
| Ans: | a) AWS | b) Google Compute Engine | c) web browser | d) Cisco Metapod |
| 5. | Which of the following provides the Graphic User Interface (GUI) for interaction with the cloud? | | | |
| Ans: | a Application | b) Client | c)Client Infrastructure | d) Server |
| 6. | Choose the correct IaaS provider among the following? | | | |
| Ans: | a) EC1 | b) EC10 | c) EC2 | d) Hybrid |
| 7. | How many types of services are there those are offered by the Cloud Computing to the users? | | | |
| Ans: | a) 5 | b) 3 | c) 8 | d) 1 |
| 8. | Identify among the components which are known as a hypervisor. | | | |
| Ans: | | | | |
| 9. | _____refers to network or internet? | | | |
| Ans: | | | | |
| 10. | What are the 2 benefits of cloud computing? | | | |
| Ans: | | | | |
| 11. | List out the computing environments | | | |
| Ans: | | | | |
| 12. | What are the different data types used in cloud computing? | | | |
| Ans: | | | | |

INSTALL VIRTUALBOX/VMWARE WORKSTATION
PART – C INFERENCE AND APPLICATIONS

| INFERENCE | |
|---------------------|---|
| 1. | What have you inferred from this experiment? |
| Ans: | |
| APPLICATIONS | |
| 2. | What is a Cloud Technology? |
| Ans: | |

| ASSESSMENT | | | |
|--------------------------|--|--|-----|
| Name of the Student | | Name of the facilitator | |
| Register Number | | Comments : | |
| Year/ Semester | | Marks (5+3+2) | /10 |
| Signature of the student | | Signature of the facilitator with date | |

| | |
|-----------------|---|
| Ex. No:2 | INSTALL A C COMPILER IN THE VIRTUAL MACHINE CREATED USING VIRTUAL BOX AND EXECUTE SIMPLE PROGRAMS. |
| Date: | |

AIM

Install a C compiler in the virtual machine created using virtual box and execute simple programs.

PROCEDURE

INSTALL VIRTUALBOX:

1. Visit <http://www.virtualbox.org/wiki/downloads>
2. Download VirtualBoxplatform packages for your OS
3. Open theInstallationPackagebydoubleclicking



4. Click continue and finishin stalling VirtualBox
5. When finished installation, closethewindow

DOWNLOAD LINUX:

1. Visit the page <http://www.ubuntu.com/download/ubuntu/download>
2. Choose the Latest version of Ubuntu and 32-bit and click "Start Download"

1 Download Ubuntu

Click the big orange button to download the latest version of Ubuntu. You will need to create a CD or USB stick to install Ubuntu.

Our long-term support (LTS) releases are supported for three years on the desktop. Perfect for organisations that need more stability for larger deployments.

Download options

- Ubuntu 11.04 – Latest version
- 32-bit (recommended)

Download started
Ubuntu 11.04
32-bit

Direct url for this download

Additional options

If you're running Windows

Other ways to get Ubuntu

Order CDs >

Ubuntu Server >

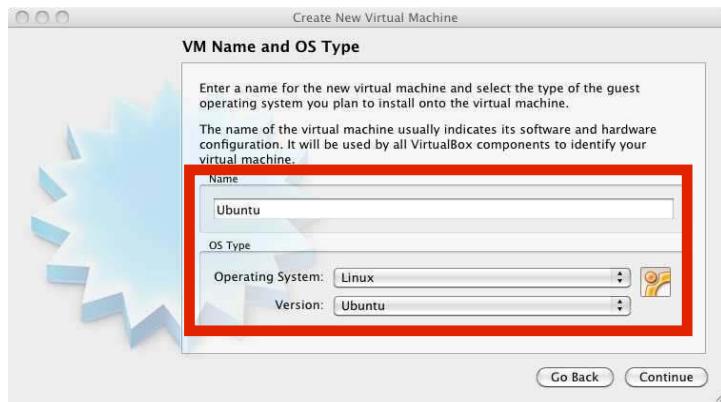
Downloaded by Gouri Brothwanger

INSTALL LINUX USING VIRTUAL BOX:

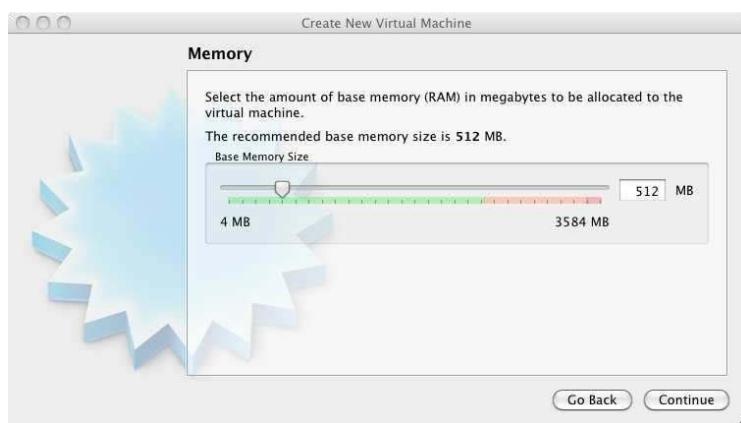
1. RunVirtualBox bydouble-clicking the icon
2. Click “New” button on the top leftcorner



3. Click “Continue” on the pop-upwindow
4. Type VM name, select “Linux” for the OS and choose “Ubuntu” for the version.



5. Choose the amount of memory to allocate (I suggest choosing between 512 MB to 1024MB)
6. Click Continue or Next



7. Choose create a new virtual harddisk
8. Click Continue or Next



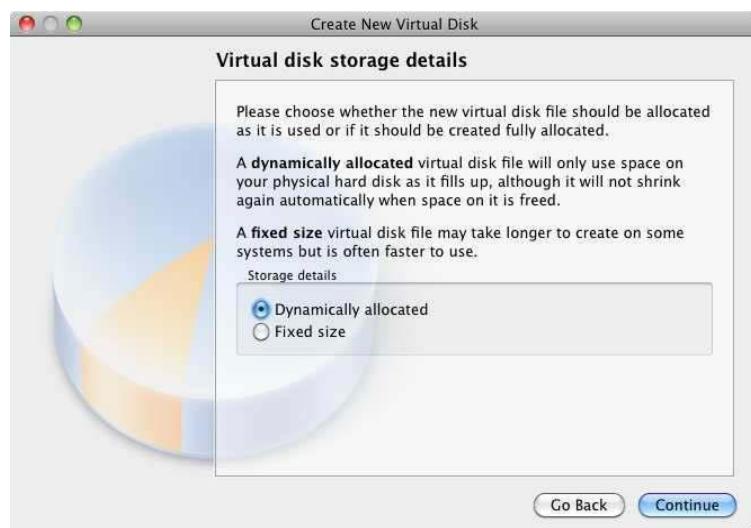
9. Choose VDI (VirtualBox Disk Image)

10. Click Continue orNext



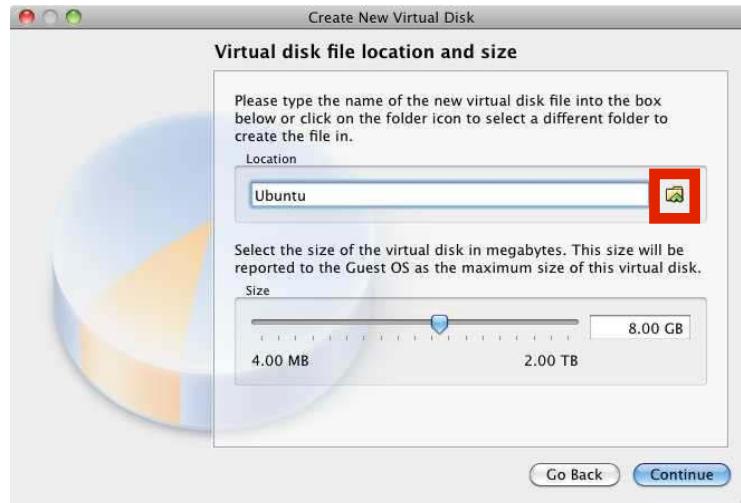
11. Choose "DynamicallyAllocated" click continue.

This way, the size of your Virtual Hard Disk will grow as you use

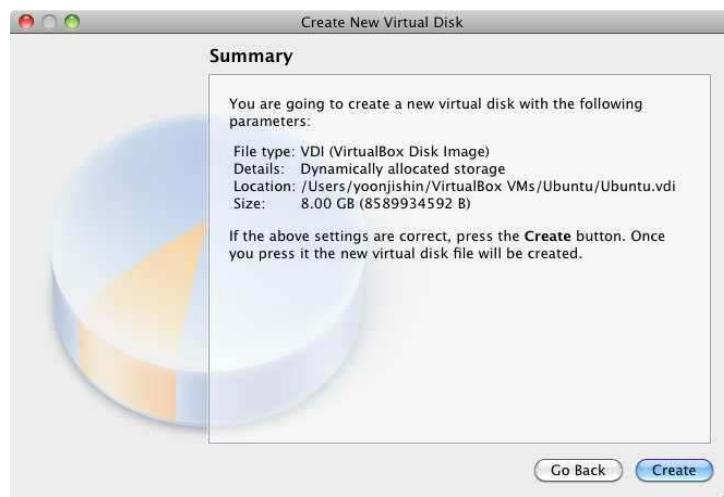


12. Click the folder icon and choose the ubuntu iso file you downloaded.

13. Select the size of the Virtual Disk (I recommend choosing 8 GB) and click continue

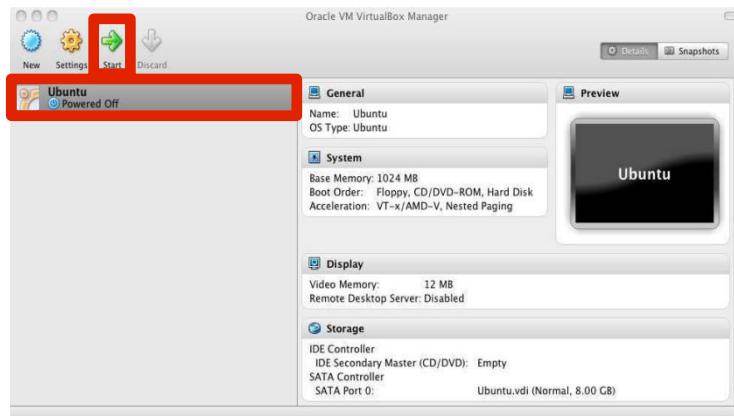


14. Click Create



RUNNING LINUX:

1. Choose Ubuntu from left column and click Start



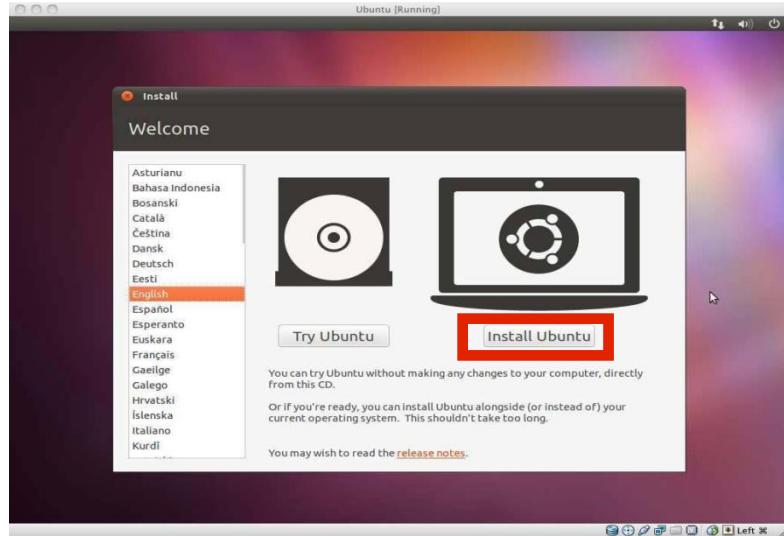
2. Click continue on pop-upwindow



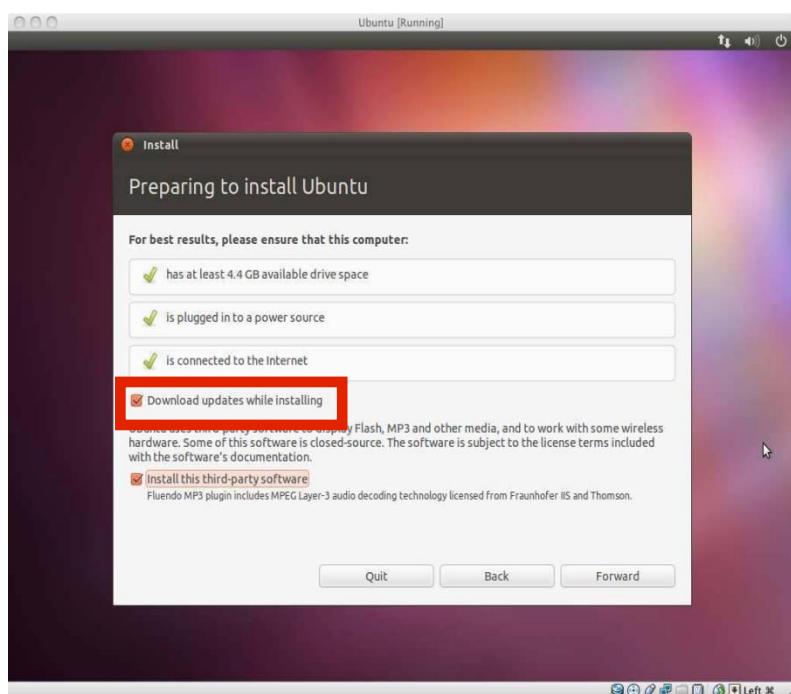
3. Click the folder icon and choose the ubuntu iso file you downloaded and click continue and start



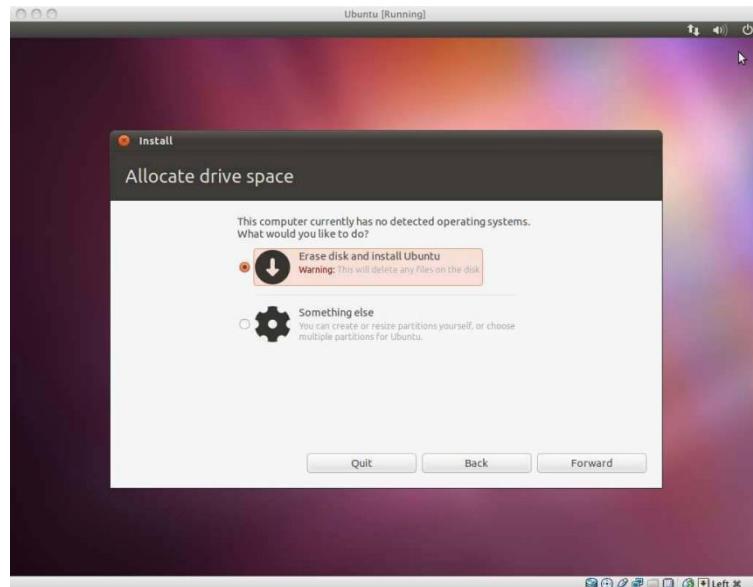
4. Click Install Ubuntu



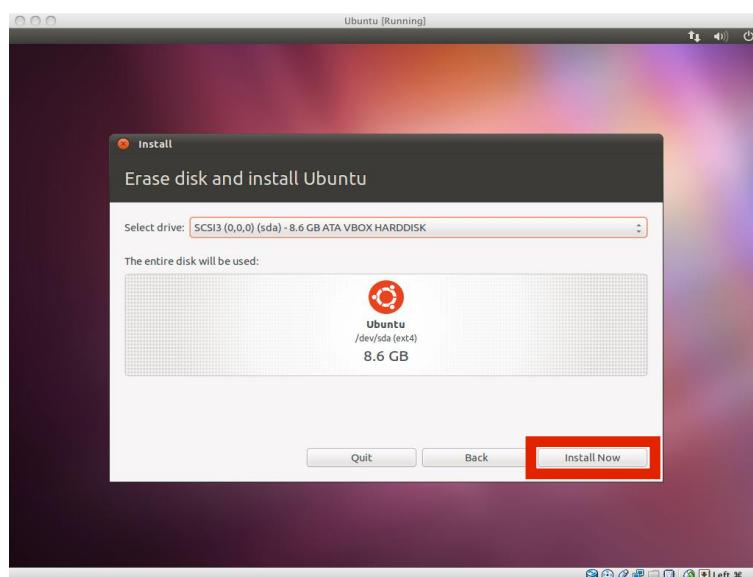
5. Check “Download updates” and click Forward



6. Choose “Erase disk and install Ubuntu” and click Forward
(Don’t worry, it won’t wipe your computer)

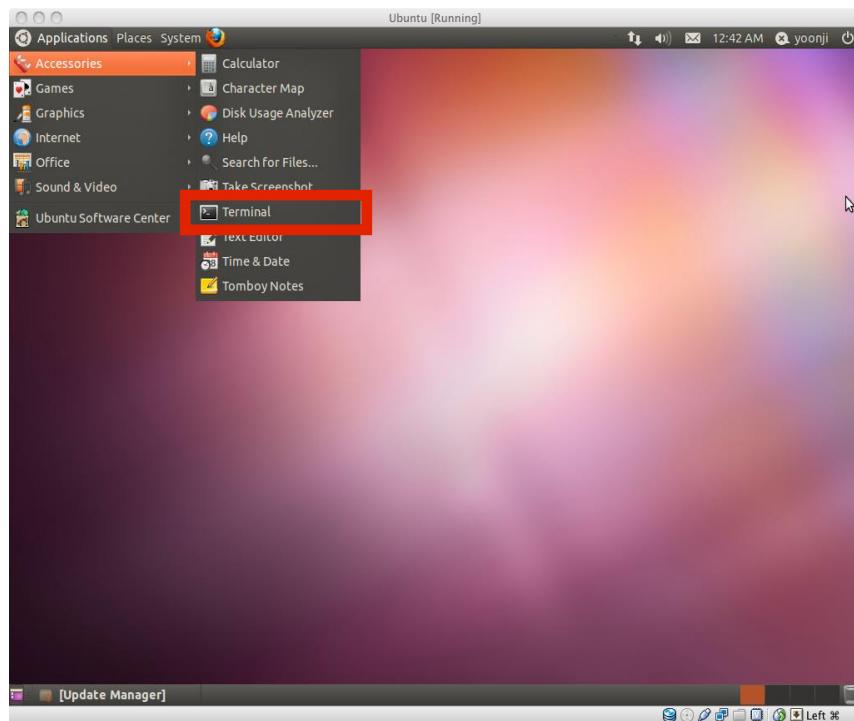


7. Click "Install Now" and wait. Maybe grab a snack
8. When finished, click Restart and press Enter.

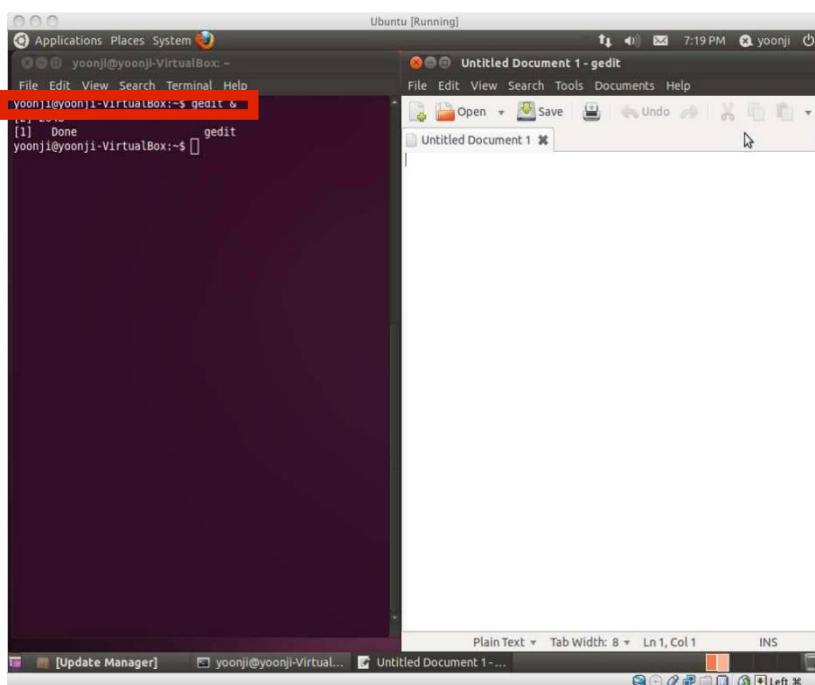


C PROGRAMMING ON LINUX:

1. Open Terminal (Applications-Accessories-Terminal)

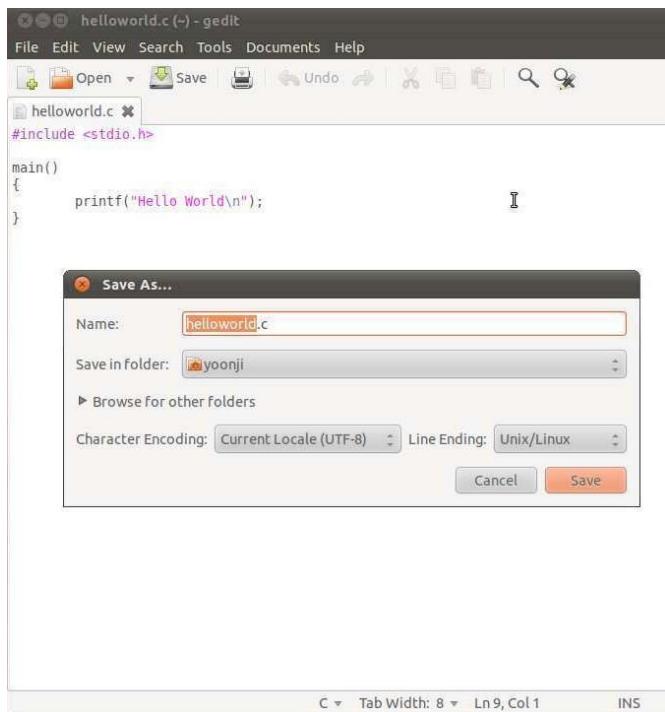


2. Open gedit by typing “gedit &” on terminal (You can also use any other Text Editor application)



3. Type the following on gedit(or any other texteditioe)

```
#include<stdio.h>
Main()
{
    printf("hello wold\n");
}
```



4. Save this file as "helloworld.c"
5. Type "ls" on Terminal to see all files under current folder
6. Confirm that "helloworld.c" is in the current directory. If not, type cd DIRECTORY_PATH to go to the directory that has "helloworld.c"
7. Type "gcc helloworld.c" to compile, and type "ls" to confirm that a new executable file "a.out" is created

```
yoonji@yoonji-VirtualBox:~$ ls  
Desktop Downloads helloworld.c Pictures Templates  
Documents examples.desktop Music Public Videos  
yoonji@yoonji-VirtualBox:~$ gcc helloworld.c  
yoonji@yoonji-VirtualBox:~$ ls  
a.out Documents examples.desktop Music Public Videos  
Desktop Downloads helloworld.c Pictures Templates  
yoonji@yoonji-VirtualBox:~$
```

8. Type "./a.out" on Terminal to run the program
9. If you see "Hello World" on the next line, you just successfully ran your first C program!
10. Try other codes from "A Shotgun Introduction to C" on professor Edwards's webpage. You can also find many C programming guides online. (just google it!)

Enjoy :)

```
yoonji@yoonji-VirtualBox: ~
File Edit View Search Terminal Help
yoonji@yoonji-VirtualBox:~$ ls
Desktop Downloads helloworld.c Pictures Templates
Documents examples.desktop Music Public Videos
yoonji@yoonji-VirtualBox:~$ gcc helloworld.c
yoonji@yoonji-VirtualBox:~$ ls
a.out Documents examples.desktop Music Public Videos
Desktop Downloads helloworld.c Pictures Templates
yoonji@yoonji-VirtualBox:~$ ./a.out
Hello World
yoonji@yoonji-VirtualBox:~$
```

RESULT

Thus the simple C programs executed successfully.

**INSTALL A C COMPILER IN THE VIRTUAL MACHINE CREATED USING VIRTUAL BOX AND
EXECUTE SIMPLE PROGRAMS**
PART- A SCL WORKSHEET

Worksheet No : 2

Date:

| | | | | |
|-------------|--|---|--|---|
| 1. | What are the three main types of cloud computing services? | | | |
| Ans: | a) Infrastructure as a Service, Platform as a Service, and Software as a Service | b) Infrastructure as a Service, Program as a Service, and Software as a Service | c) Infrastructure as a Service, Platform as a Program, and Software as a Service | d) Infrastructure as a Service, Platform as a Program, and Software as a Solution |
| 2. | What is the benefit of using cloud computing? | | | |
| | | | | |
| 3. | What is virtualization? | | | |
| Ans: | a) The process of creating a virtual version of something, such as a computer system | b) The process of securing data stored in the cloud | c) The process of analyzing data to identify patterns and insights | d) The process of automating repetitive tasks using software tools |
| 4. | What is the main benefit of using serverless computing? | | | |
| Ans: | a) Cost savings | b) Increased scalability | c) Improved security | d) Faster processing |
| 5. | What is a virtual private cloud? | | | |
| Ans: | A type of cloud computing that allows users to create a private, isolated section of the public cloud. | | | |
| 6. | The largest provider of _____ CRM software is Salesforce.com. | | | |
| Ans: | a) SaaS | b) CaaS | c) IaaS | d) PaaS |
| 7. | The Amazon Machine Images are basically virtual appliances that are packaged for running on the _____ nodes grid. | | | |
| Ans: | a) Ken | b) Ben | c) Zen | d) Xen |
| 8. | Choose the one which is a potent technology for cloud-building. | | | |

| | | | | |
|-------------|--|-------------------------|--------------------------|-------------------------|
| Ans: | a) I HyperCube | b) vCube | c) vSphere | d) All of the above |
| 9. | Which one out of the following is available both as the commercial version and open source? | | | |
| Ans: | a) ZenOSS | b) SiteUpTime | c) Zabbix | d) All of the above |
| 10. | Which of the following was one of the top 5 cloud applications in 2010? | | | |
| Ans: | a) Cloud backup | b) Web applications | c) Business applications | d) All of the mentioned |
| 11. | _____ can keep land costs modest and occupation unobtrusive | | | |
| Ans: | Data centers | | | |
| 12. | Which of the following benefit is related to creates resources that are pooled together in a system that supports multi-tenant usage? | | | |
| Ans: | a) On-demand self-service | b) Broad network access | c) Resource pooling | d) All of the mentioned |

**INSTALL A C COMPILER IN THE VIRTUAL MACHINE CREATED USING VIRTUAL BOX AND
EXECUTE SIMPLE PROGRAMS**
PART – B INFERENCE AND APPLICATIONS

| | |
|---------------------|--|
| INFERENCE | |
| 1. | What have you inferred from this experiment? |
| Ans: | |
| APPLICATIONS | |
| 1. | Who are the Cloud Consumers in a cloud ecosystem? |
| Ans: | |

| | | | |
|--------------------------|--|--|-----|
| ASSESSMENT | | | |
| Name of the Student | | Name of the facilitator | |
| Register Number | | Comments : | |
| Year/ Semester | | Marks (5+3+2) | /10 |
| Signature of the student | | Signature of the facilitator with date | |

Ex. No:3**CREATE AN WORD DOCUMENT OF YOUR CLASS TIME TABLE AND STORE LOCALLY AND ON THE CLOUD WITH DOC,AND PDF FORMAT****Date:****AIM**

Implement program on SaaS to Create an word document of your class time table and store locally and on the cloud with doc, and pdf format.

PROCEDURE**STEPS:**

Use www.zoho.com and docs.google.com, In with Google Docs, you can create and edit text documents right in your web browser—no special software is required. Even better, multiple people can work at the same time, you can see people's changes as they make them, and every change is saved automatically.

To work with zoho cloud and Google cloud we need to sign in in those clouds by using Gmail-id. In zoho cloud, on left corner there will be create button.

Click on that. It will show you options like word, ppt,

CREATE TIMETABLE IN A NEW DOCUMENT:

1. Click on file new blank document.
2. Go to 'Insert' in your Word document. Then, click on the button that says 'Table', then just go down to 'Insert Table'.
3. Look for a little box with a choice of columns and rows. Plan the table based on your hours
4. Then go 'Layout' and click 'Merge Cells'.
5. Write the days of the week in each cell. You should leave the very first cell because you will be putting each hour of your day in that column.
6. Fill all the cells in the timetable with the desired subjects and labs.
7. Save the file with timetable.doc.
8. Click on file download as doc to download as word document
9. Click on file download as PDF to download as PDF document.

OUTPUT:

The screenshot shows a Zoho Writer document titled "vanicsea - Writer". The document contains a table representing a weekly class timetable. The table has 7 rows (days of the week) and 8 columns (time slots). The columns are labeled as follows: 8:10am--9:00am, 9:00am--9:50am, 9:50am--10:40am, 10:40am--11:10am, 11:10am--12:00pm, 12:00pm--12:50pm, and 12:50pm--1:40pm. The table data is as follows:

| days | 8:10am--9:00am | 9:00am--9:50am | 9:50am--10:40am | 10:40am--11:10am | 11:10am--12:00pm | 12:00pm--12:50pm | 12:50pm--1:40pm |
|------|----------------|----------------|-----------------|------------------|------------------|------------------|-----------------|
| mon | GCC | SPM | ML | L | IS | MS | IS |
| tue | GCC | MAD | LAB | U | SPM | GCC | MAD |
| wed | MS | ML | MAD | N | GCC | MAD | LAB |
| thu | SPM | GCC | ML | C | IS | MAD | MS |
| fri | MS | MAD | SPM | H | GCC | MS | ML |
| sat | IS | GCC | ML | BREAK | SPM | MAD | IS |

RESULT

Thus the program to find the factorial of number is verified and output is executed successfully.

PROGRAMS ON SAAS
PART- B SCL WORKSHEET

Worksheet No : 3

Date:

| | | | | |
|-------------|--|-----------------|-------------------------|-------------------------|
| 1. | QPS stands for? | | | |
| Ans | Query per second | | | |
| 2. | Choose the most important use of cloud computing. | | | |
| Ans | a) Data privacy | b) Data storage | c) security | d) All the above |
| 3. | Which of the following is one of the unique attributes of Cloud Computing? | | | |
| Ans: | a) utility type of delivery | b) elasticity | c) low barrier to entry | d) all of the mentioned |
| 4. | Cloud computing presents new opportunities to _____. | | | |
| Ans: | users and developers | | | |
| 5. | Applications that work with cloud computing that have low margins and usually low risk are _____. | | | |
| Ans: | a)high touch | b) low touch | c) moderate touch | d) all of the mentioned |
| 6. | Which of the following is one of the unique attributes of Cloud Computing? | | | |
| Ans: | | | | |
| 7. | Cloud computing presents new opportunities to _____. | | | |
| Ans: | | | | |
| 8. | Which layer Cloud is PaaS? | | | |
| Ans: | a)2 | b)4 | c)3 | d)8 |
| 9. | State whether true or false: Is google docs a type of cloud computing?. | | | |
| Ans: | a)True | b)False | | |
| 10. | What does the term “elasticity” in cloud computing refer to? | | | |
| Ans: | | | | |
| 11. | Which are examples of SaaS cloud computing. | | | |
| Ans: | | | | |
| 12. | Applications that work with cloud computing that have low margins and usually low risk are _____. | | | |
| Ans: | a) high touch | b) low touch | c) moderate touch | d) all of the mentioned |

PROGRAMS ON SAAS

PART – C INFERENCE AND APPLICATIONS

| INFERENCE | |
|--------------|---|
| 1. | What have you inferred from this experiment? |
| Ans: | |
| APPLICATIONS | |
| 1. | What is the platform as a service? |
| Ans: | |

ASSESSMENT

| | | | |
|--------------------------|--|--|-----|
| Name of the Student | | Name of the facilitator | |
| Register Number | | Comments : | |
| Year/ Semester | | Marks (5+3+2) | /10 |
| Signature of the student | | Signature of the facilitator with date | |

| | |
|------------------|---|
| Ex. No: 4 | CREATE A SPREAD SHEET WHICH CONTAINS EMPLOYEE SALARY INFORMATION |
| Date: | |

AIM

Create a spread sheet which contains employee salary information and calculate gross and total salary using the formula

DA=10% OF BASIC ;HRA=30% OF BASIC;

PF=10% OF BASIC IF BASIC<=3000, 12% OF BASIC IF BASIC>3000

TAX=10% OF BASIC IF BASIC<=1500,

=11% OF BASIC IF BASIC>1500 AND BASIC<=2500,

=12% OF BASIC IF BASIC>2500

NET_SALARY=BASIC_SALARY+DA+HRA-PF-TAX

PROCEDURE

If you're accustomed to creating your spreadsheets using an office suite or software like Microsoft Excel, you won't have any issue in creating a Google Spreadsheet. Google Spreadsheet works the same as Excel, and you can do most of the important spreadsheet tasks with it. You can use Google Spreadsheet directly from your web browser or from its mobile app.

1. Sign into Google Sheets. Visit docs.google.com/spreadsheets and sign in with your Google or Gmail account. Your Gmail account gives you free access to Google Sheets.
2. View your existing sheets. Upon logging in, you will be brought to the main directory. If you already have existing spreadsheets, you can see and access them from here.
3. Create a new spreadsheet. Click the large red circle with a plus sign on the lower right corner. A new window or tab will be opened with the web-based spreadsheet.
4. Name the spreadsheet. "Untitled spreadsheet" appears on the top left corner. This is the current name of the spreadsheet. Click on it, and a small window will appear. Type in the name of the spreadsheet here, and click the "OK" button. You will see the name immediately change.
5. Work on the spreadsheet. You can work on Google Sheets much like how you would work on Microsoft Excel. There's a header menu and a toolbar with functions very similar to those of Microsoft Excel.
 - A) calculate gross and total sal using the formula
 - B) DA=10% OF BASIC
 - C) HRA=30% OF BASIC
 - D) PF=10% OF BASIC IF BASIC<=3000
 - E) 12% OF BASIC IF BASIC>3000
 - F) TAX=10% OF BASIC IF BASIC<=1500
 - G) =11% OF BASIC IF BASIC>1500 AND BASIC<=2500
 - H) =12% OF BASIC IF BASIC>2500

I)(use www.zoho.com and docs.google.com)
J) NET SALARY=BASIC SALARY+DA+HRA-PF-TAX

6. There's no need to save with Google Sheets as everything you do is automatically saved at regular intervals.

7. Exit the spreadsheet when you're finished. If you're done with your current document, you can just simply close the window or tab. Everything is saved automatically. You can access your document from Google Sheets or Google Drive.

8. Click on file to download as word document
9. Click on file to download as PDF document

OUTPUT:

Zoho Signin.com - Yoho Docs - Employee Salary - Zoho

Last modified at Jul 25

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P |
|----|---------------|------|------|-----|-----|-----|--------|---|---|---|---|---|---|---|---|---|
| 1 | Employee name | BS | HRA | DA | PF | TAX | SALARY | | | | | | | | | |
| 2 | RAVI | 5000 | 1500 | 600 | 600 | 600 | 5800 | | | | | | | | | |
| 3 | VIHAAN | 6000 | 1800 | 600 | 720 | 720 | 6960 | | | | | | | | | |
| 4 | SUHAASS | 4500 | 1350 | 450 | 540 | 540 | 5220 | | | | | | | | | |
| 5 | PRIYA | 3000 | 900 | 300 | 300 | 360 | 3540 | | | | | | | | | |
| 6 | SARAVI | 7000 | 2100 | 700 | 840 | 840 | 8120 | | | | | | | | | |
| 7 | VANNIMI | 2000 | 600 | 200 | 200 | 200 | 2300 | | | | | | | | | |
| 8 | VANITHA | 3500 | 1050 | 350 | 420 | 420 | 4060 | | | | | | | | | |
| 9 | KEERTHI | 6700 | 2010 | 670 | 804 | 804 | 7772 | | | | | | | | | |
| 10 | BHAVANI | 7300 | 2190 | 730 | 876 | 876 | 8468 | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | |

Sheet1

Here is your Smart Chat (Ctrl+Space)

I'm Cortana, Ask me anything.

RESULT

Thus the above program to implement vector method was verified and output is executed successfully.

CREATE A SPREAD SHEET
PART- B SCL WORKSHEET

| Worksheet No : 4 | | | | Date: |
|-------------------------|--|-------------------------|-----------------------------------|-------------------------|
| 1. | SaaS Stands for? | | | |
| Ans: | a) Software-as-a-Service | b) Server-as-a-Software | c) Storage-as-a-Service | d) None of the above |
| 2. | A _____ is an application that can display a Web page that shows data and supports features from two or more sources. | | | |
| Ans: | a)workspace | b) workload | c) mashup | d)Multitenant |
| 3. | SaaS does not necessarily mean that the software is? | | | |
| Ans: | a) dynamic | b) static | c) sololithic | d) diolithic |
| 4. | Which of the following SaaS platform is with an exposed API? | | | |
| Ans: | a) salesforce.com | b) amazon.com | c) filpkart.com | d) None of the above |
| 5. | SaaS can be accessed globally over the Internet, most often in a browser. | | | |
| Ans: | a)True | b)False | | |
| 7. | Which of the following are issues associated with SaaS? | | | |
| Ans: | a) Modest software tools | b)Network dependence | c)Centralized management and data | d)Multitenant solutions |
| 8. | Write down some applications of SaaS. | | | |
| Ans: | | | | |
| 9. | Write down the characteristic of SaaS. | | | |
| Ans: | | | | |
| 10. | SaaS supports multiple users and provides a shared data model through _____ model. | | | |
| Ans: | a)single-tenancy | b)multi-tenancy | | |
| 11. | The customer is responsible only for his interaction with the platform. | | | |
| Ans: | a) True | b) False | | |
| 12. | Which of the following can be considered PaaS offering? | | | |
| Ans: | a) Google Maps | b) Google Earth | | |

CREATE A SPREAD SHEET
PART – C INFERENCE AND APPLICATIONS

| | |
|---------------------|---|
| INFERENCE | |
| 1. | What have you came to know about this program? |
| Ans: | |
| APPLICATIONS | |
| 2. | What is an API Gateway? |
| Ans: | |

| | | | |
|--------------------------|--|--|-----|
| ASSESSMENT | | | |
| Name of the Student | | Name of the facilitator | |
| Register Number | | Comments : | |
| Year/Semester | | Marks (5+3+2) | /10 |
| Signature of the student | | Signature of the facilitator with date | |

| | |
|-----------------|-------------------------------|
| Ex. No:5 | PPT ON CLOUD COMPUTING |
| Date: | |

AIM

Prepare a ppt on cloud computing –introduction , models, services ,and Architecture.

PROCEDURE

Step 1: Login with your gmail id, at <http://docs.google.com/>

Step 2: Once you login, you will have a workspace area to work with your documents, spreadsheets and presentations. Just below the logo, you will find the “Create New” button, when you click on that, you will have all the available options. Select Presentation there.

Step 3: Now you have an empty presentation being created in your workspace. The look and feel doesn't look like a web application at all!

Step 4: You can goto the Format Menu item and change the presentation Theme or Background. There are lots of templates and themes available!

Step 5: As you would do on any desktop office client, you can click on the new slide button, and select the Slide Design.

Step 6: If you need to insert a drawing, Shape or an Image, You can goto the Insert Menu item and select the same. Once you select image, You have options to select the image as a URL image or even a web upload!

Step 7: If you need to insert Tables to your slide deck, you can use the Table Menu item, and select the number of Rows and Columns.

Step 8: Following the above steps prepare presentation on cloud computing.

Step 9: You can now share the presentation through email attachment, give a link to the presentation.. so that one can watch it online in Google Docs and even Embed this presentation to your website too..!

Step 10: Click on file download as ppt to download as word document.

Step 11: Click on file download as PDF to download as PDF document.

OUTPUT:



RESULT

Thus the program to display total marks of 5 students using student class is executed successfully and output is verified

PPT ON CLOUD COMPUTING
PART- B SCL WORKSHEET

Worksheet No : 5

Date:

| | | | | |
|-----------|---|-------------------------------------|----------------------------------|------------------------------------|
| 1. | Which organization supports the development of standards for the cloud computing? | | | |
| Ans: | a) Stateless | b) OCC (Open Cloud Consortium) | c) OMG (Object Management Group) | d) IEEE |
| 2. | Which of the following service is used for backing up a licensed computer? | | | |
| Ans: | a) Carbonite | b) CarbonT | c) Karbonite | d) All of above |
| 3. | The process of converting Cipher text data to Plaintext data is known as? | | | |
| Ans: | a) Encoding | b) Encryption | c) Decryption | d) All of above |
| 4. | _____ computing refers to applications and services that run on a distributed network using virtualized resources. | | | |
| Ans: | a) Soft | b) Parallel | c) Distributed | d) Cloud |
| 5. | Which is not true about Docker Hub? | | | |
| Ans: | a) It's a totally private repository | b) It gives access to Docker images | c) The Hub is a network service | d) Docker Hub is a network storage |
| 6. | The characteristic of something having been provided by an authorized source in the context of security is known as? | | | |
| Ans: | a) Integrity | b) Authenticity | c) Availability | d) Consistency |
| 7. | Soft computing represents a real paradigm shift in the way in which systems are deployed | | | |
| Ans: | a) True | b) False | | |
| 8. | Cloud computing is an abstraction based on the notion of pooling physical resources and presenting them as a _____ resource. | | | |
| Ans: | a) Cloud | b) Real | c) Virtual | d) All of the above |
| 9. | In this type of cloud, an organization rents cloud services from cloud providers on-demand basis. | | | |
| Ans: | a) Public | b) Hybrid | c) Private | d) Protected |

| | | | | |
|------------|--|-------------------------------|------------------------|---------------------|
| 10. | Which among the following is a type of computing which is a form of self-managing systems? | | | |
| Ans: | a) Mobile Computing | b) Home-based Cloud Computing | c) Autonomic Computing | d) Jungle Computing |
| 11. | _____ is used to transmit structured data over network? | | | |
| Ans: | JSON & XML | | | |
| 12. | _____ as a utility is a dream that dates from the beginning of the computing industry itself. | | | |
| Ans: | | | | |

PPT ON CLOUD COMPUTING
PART – C INFERENCE AND APPLICATIONS

| | |
|---------------------|---|
| INFERENCE | |
| 1. | What have you inferred from this experiment? |
| Ans: | |
| APPLICATIONS | |
| 1. | What is meant by Edge Computing? |
| Ans: | |

ASSESSMENT

| | | | |
|--------------------------|--|--|-----|
| Name of the Student | | Name of the facilitator | |
| Register Number | | Comments : | |
| Year/ Semester | | Marks (5+3+2) | /10 |
| Signature of the student | | Signature of the facilitator with date | |

| | |
|-----------------|--|
| Ex. No:6 | CREATE HELLO WORLD APP AND OTHER SIMPLE WEB APPLICATIONS USING PYTHON/JAVA. |
| Date: | |

AIM

To Install Google App Engine. Create hello world app and other simple web applications using python/java.

PROCEDURE

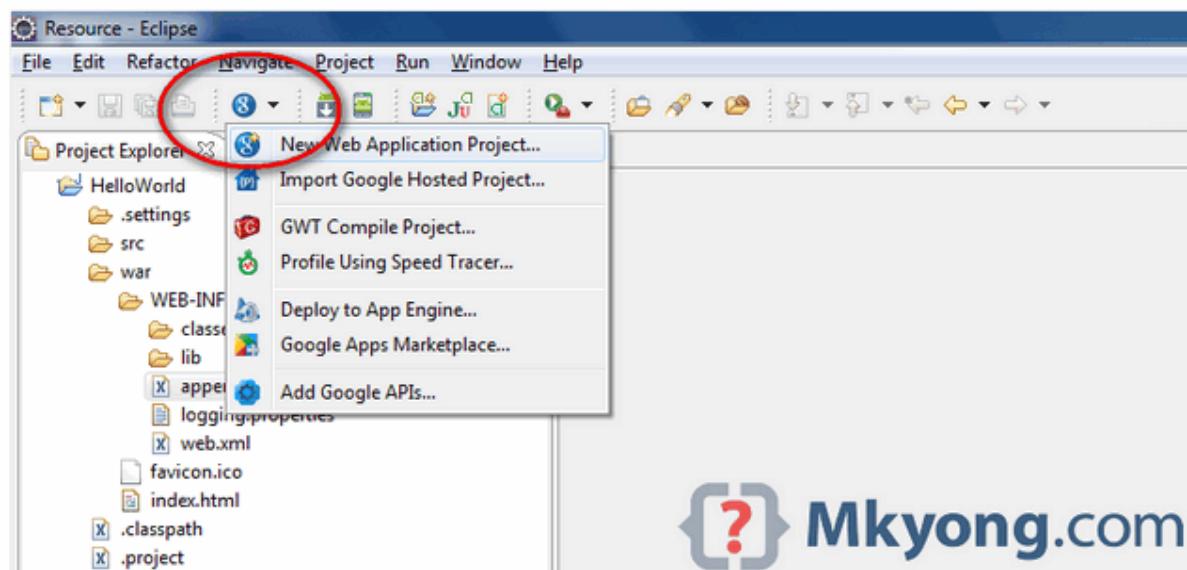
1. Install Google Plugin for Eclipse

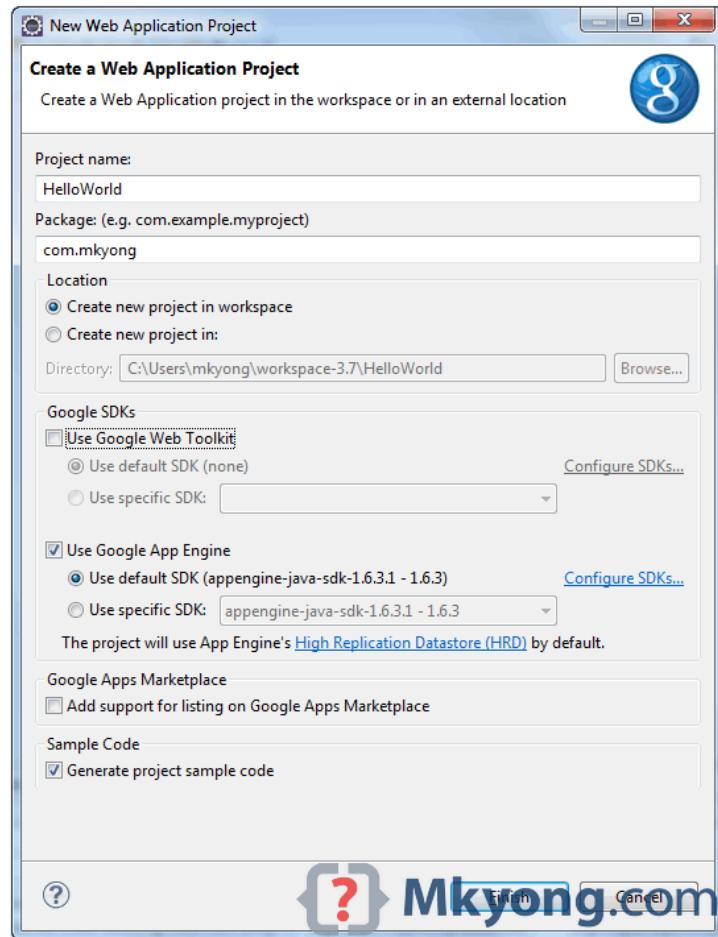
Read this guide – how to install Google Plugin for Eclipse. If you install the Google App Engine Java SDK together with “Google Plugin for Eclipse”, then go to step 2, Otherwise, get the Google App Engine Java SDK and extract it.

2. Create New Web Application Project

In Eclipse toolbar, click on the Google icon, and select “New Web Application Project...”

Figure – New Web Application Project

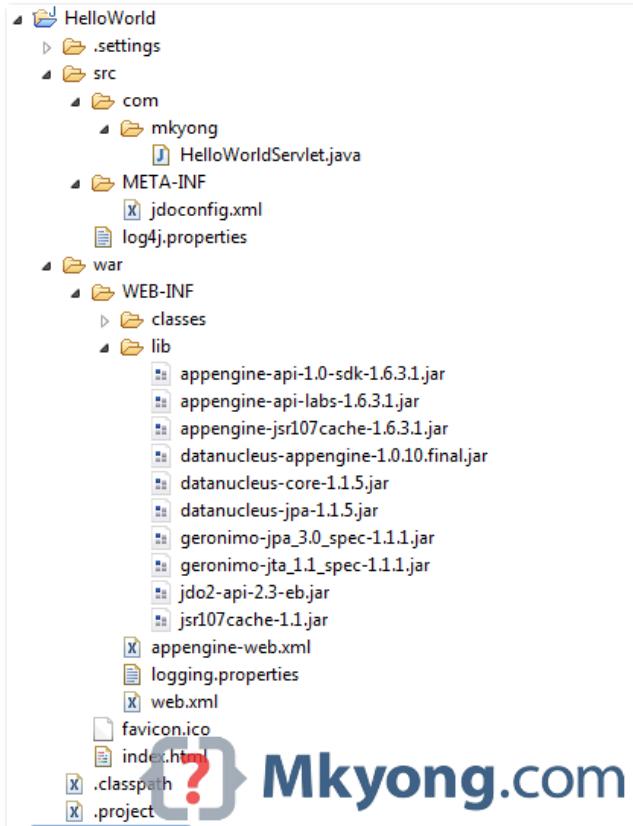




Click finished, Google Plugin for Eclipse will generate a sample project automatically.

3. Hello World

Review the generated project directory.



Nothing special, a standard Java web project structure.

```

HelloWorld/
src/
...Java source code...
META-INF/
...other configuration...
war/
...JSPs, images, data files...
WEB-INF/
...app configuration...
lib/
...JARs for libraries...
classes/
...compiled classes...

```

Copy

The extra is this file “appengine-web.xml”, Google App Engine need this to run and deploy the application.

File : appengine-web.xml

```

<?xml version="1.0" encoding="utf-8"?>
<appengine-web-app xmlns="http://appengine.google.com/ns/1.0">
<application></application>
<version>1</version>
<!-- Configure java.util.logging -->
<system-properties>

```

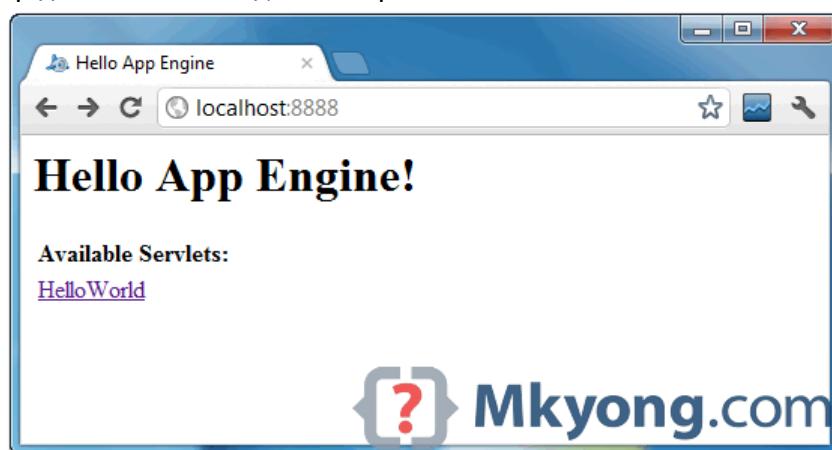
```
<property name="java.util.logging.config.file" value="WEB-INF/logging.properties"/>
</system-properties>
</appengine-web-app>
Copy
```

4. Run it local

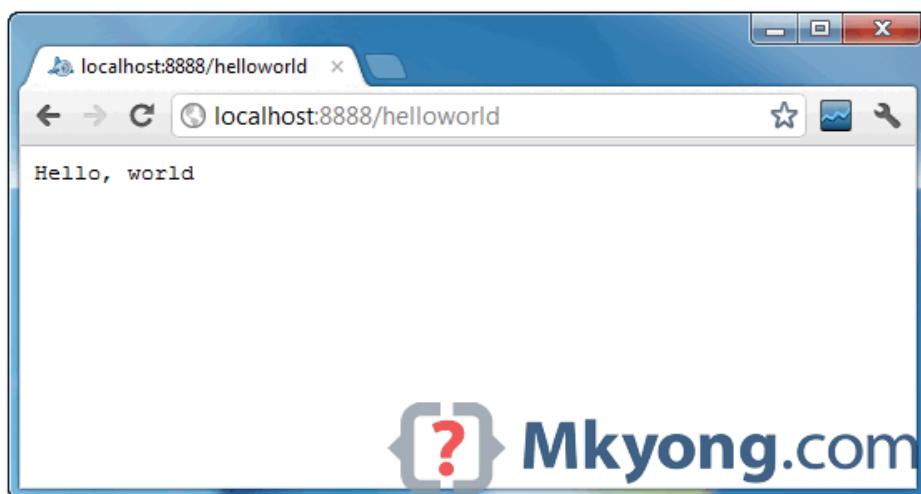
Right click on the project and run as “Web Application”.

Eclipse console :

```
//...
INFO: The server is running at http://localhost:8888/
30 Mac 2012 11:13:01 PM com.google.appengine.tools.development.DevAppServerImpl
start
INFO: The admin console is running at http://localhost:8888/_ah/admin
Copy
Access URL http://localhost:8888/, see output
```



and also the hello world servlet – <http://localhost:8888/helloworld>



5. Deploy to Google App Engine

Register an account on <https://appengine.google.com/>, and create an application ID for your web application.

In this demonstration, I created an application ID, named “mkyong123”, and put it in appengineweb.xml.

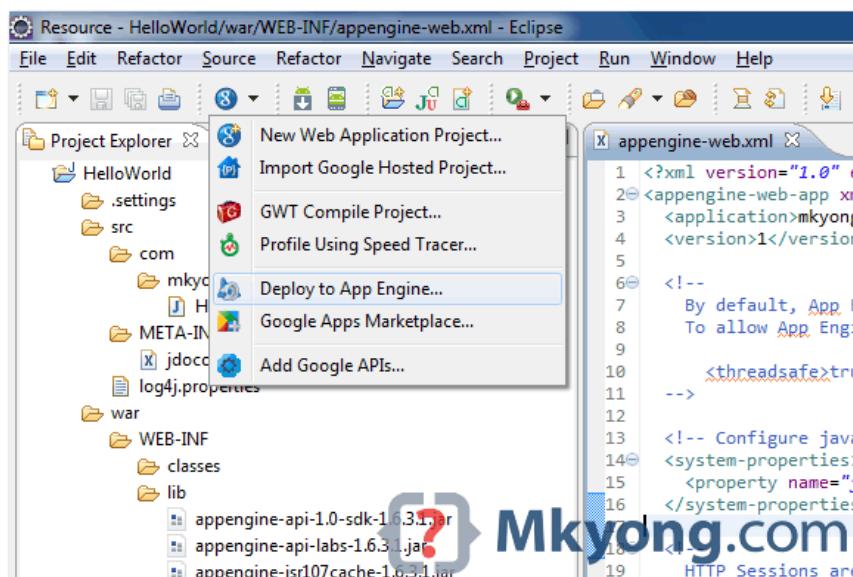
File : appengine-web.xml

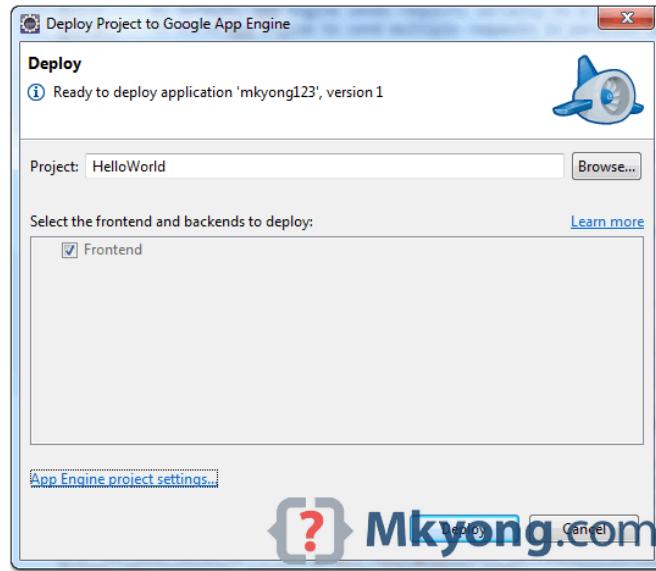
```
<?xml version="1.0" encoding="utf-8"?>
<appengine-web-app xmlns="http://appengine.google.com/ns/1.0">
<application>mkyong123</application>
<version>1</version>
<!-- Configure java.util.logging -->
<system-properties>
<property name="java.util.logging.config.file" value="WEB-
INF/logging.properties"/>
</system-properties>
</appengine-web-app>
```

Copy

To deploy, see following steps:

1. Click on GAE deploy button on the toolbar.





2. If everything is fine, the hello world web application will be deployed to this URL – <http://mkyong123.appspot.com/>



RESULT

Thus the program to read a string and check whether palindrome is verified and output is executed successfully.

GOOGLE APP ENGINE
PART- A SCL WORKSHEET

Worksheet No : 6

Date:

| | | | | |
|------------|--|---|--|---------------------|
| 1. | What is true about PaaS? | | | |
| Ans | a) PaaS tool is a fully integrated development environment. | b) PaaS systems support standards such as HTML, JavaScript, or other rich media technologies. | c) PaaS offers the runtime environment for applications. | d) All of the above |
| 2. | Which of the following are benefit of PaaS? | | | |
| Ans | a) Lower administrative overhead | b) Lower total cost of ownership | c) More current system software | d) All of the above |
| 3. | Which of the following is associated with considerable vendor lock-in? | | | |
| Ans | a) PaaS | b) SaaS | c) IaaS | d) DaaS |
| 4. | _____ type of PaaS includes on-demand scaling and application security? | | | |
| Ans | | | | |
| 5. | _____ type of PaaS allows to customize the existing SaaS platform? | | | |
| Ans | | | | |
| 6. | The stand-alone PaaS works as an independent entity for a specific function. It does not include licensing or technical dependencies on specific SaaS applications. | | | |
| Ans | a) True | b) False | | |
| 7. | _____ support standards such as HTML, JavaScript, or other rich media technologies | | | |
| Ans | | | | |
| 8. | Google's App Engine platform is IaaS offering | | | |
| Ans | a) True | b) False | | |
| 9. | _____ offers the runtime environment for applications. | | | |
| Ans | a) SaaS | b) PaaS | c) IaaS | |
| 10. | _____ is Cloud Platform by Amazon? | | | |
| Ans | a) AWS | b) Cloudera | c) Azure | d) none |

| | | | |
|------------|--|-------------------|--------------------|
| 11. | Identify the most basic level of storage. | | |
| Ans | | | |
| 12. | What are the three types of PaaS? | | |
| Ans | a)Public as PaaS | b)Private as PaaS | c)Hybrid as PaaS |
| | | | d>All of the above |

GOOGLE APP ENGINE
PART – B INFERENCE AND APPLICATIONS

| INFERENCE | |
|---------------------|---|
| 1. | What have you inferred from this experiment? |
| Ans: | |
| APPLICATIONS | |
| 1. | What are Cloud-Native Applications? |
| Ans: | |

| ASSESSMENT | | | |
|--------------------------|--|--|-----|
| Name of the Student | | Name of the facilitator | |
| Register Number | | Comments : | |
| Year/ Semester | | Marks (5+3+2) | /10 |
| Signature of the student | | Signature of the facilitator with date | |

| | |
|------------------|--------------------------------|
| Ex. No:7a | GENERATE N EVEN NUMBERS |
| Date: | |

AIM

To Write a Google app engine program to generate n even numbers and deploy it to google cloud.

PROCEDURE

1. Start the program in notepad
2. Import the required packages
3. Declare the required variables
4. Perform the given operations
5. Save it as file name .java
6. Using command prompt compile and run the program by java c. file name.java
7. Display the result

PROGRAM

even.php

```

<html>
<head>
<title>ODD NUMBERS</title>
</head>
<body>
<font size=5>display N odd numbers</font>
<form action="odd.php" method="post">
<br>
ENTER FIRST NUMBER:<input type="text" name="t1">
</br><br>
ENTER SECOND NUMBER:<input type="text" name="t2"><br>
<input type="submit" value="SUBMIT" name="submit">
<?php
if(isset($_POST["submit"]))
{
$n1=$_POST["t1"];
$n2=$_POST["t2"];
echo "even numbers between" . $n1. "and" . $n2. "are";
for($i=$n1;$i<=$n2;$i++)
{
    if($i%2==0)
        echo $i;
        echo " ";
}
}?
}>
```

```
</form>
</html>
```

app.yaml

```
runtime: php55
api_version: 1
threadsafe: true
handlers:
- url: /.*
  script: even.php
```

OUTPUT:

```
Enter first number:1
Enter second number :10
Erven numbers between 1 and 10 are 2,4,6,8,10
```

RESULT

Thus the program to create a class with following data members output was verified and executed successfully.

| | |
|------------------|------------------------------|
| Ex. No:7b | MULTIPLY TWO MATRICES |
| Date: | |

AIM

To Google app engine program multiply two matrices.

PROCEDURE

1. Start the program in notepad
2. Import the required packages
3. Declare the required variables
4. Perform the given operations
5. Save it as file name .java
6. Apply in the formula area = $3.14 * \text{radius} * \text{radius}$
7. Using command prompt compile and run the program by java c. file name.java
8. Display the result

PROGRAM

Multiply.php

```

<html>
<head>
<title>Matrix</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
</head>
<body>
<?
if(!isset($_POST["step"]))
{
echo "<form action=\"".$_SERVER['PHP_SELF']."' method='post'>";
echo "<input type='hidden' name='step' value='1'>";
echo "Set ordo matriks <br>";
echo "<input type='text' name='baris' size='3'> x <input type='text' name='kolom' size='3'>";
echo " <input type='submit' value='Next'>";
echo "</form>";
}
else
{
$step=$_POST["step"];
$baris=$_POST["baris"];
$kolom=$_POST["kolom"];
if($step==1)
{
echo "<p>Order matrik $baris x $kolom</p>";

```

```

echo "<form action=\"".$_SERVER['PHP_SELF']."' method='post'>";
echo "<input type='text' name='step' value='2'>";
echo "<input type='text' name='kolom' value='".$kolom."'";
echo "<input type='text' name='baris' value='".$baris."'";
echo "<table cellpadding='5' border='1'>";
echo "<tr>";
for($a=1;$a<=2;$a++)
{
echo "<td>";
echo "<table cellpadding='3' border='1'>";
for($i=1;$i<=$baris;$i++)
{
echo "<tr>";
for ($j=1;$j<=$kolom;$j++){
echo "<td><input type='text' name='".$a-$i-$j' size='3'></td>";
}
echo "</tr>";
}
echo "</table>";
echo "</td>";
}
echo "</tr>";
echo "</table>";
echo " <input type='submit' value='Multiply'>";
echo "</form>";
}
if($step==2)
{
echo "<p>Order matrik $baris x $kolom</p>";
echo "<table cellpadding='5' border='1'>";
echo "<tr valign='top'>";
for($a=1;$a<=2;$a++)
{
echo "<td>";
echo "<table cellpadding='3' border='1'>";
for($i=1;$i<=$baris;$i++)
{
echo "<tr>";
for ($j=1;$j<=$kolom;$j++)
{
echo "<td>".$_POST[$a."-".$i."-".$j]."</td>";
}
echo "</tr>";
}
echo "</table>";
echo "</td>";
}
echo "<td><p>Result :</p>";
echo "<table cellpadding='3' border='1'>";

```

```

for($i=1;$i<=$baris;$i++)
{
echo "<tr>";
for ($j=1;$j<=$kolom;$j++)
{
echo "<td>";
echo $_POST["1-".$i."-".$j] * $_POST["2-".$i."-".$j];
echo "</td>";
}
echo "</tr>";
}
echo "</td>";
echo "</tr>";
echo "</table>";
}
}
?>
</body>
</html>

```

App.yaml

```

runtime: php55
api_version: 1
threadsafe: true
handlers:
- url: /.*
script: multiply.php

```

OUTPUT:

Google app engine program to multiply two matrices has executed successfully.

RESULT

Thus the program that accepts radius of circle from command line and display its area is verified and output is executed successfully.

| | |
|-------------------|---|
| Ex. No: 7c | DISPLAY NTH LARGEST NO FROM THE GIVEN LIST |
| Date: | |

AIM

To Write a Google app engine program to display nth largest no from the given list of numbers and deploy it into google cloud

PROCEDURE

1. Start the program
2. Import the required packages
3. Create one main class called base and create subclasses called two wheeler,bike
4. Declare the required variables in main class and in sub classes
5. Create objects for the classes in the main class
6. Get the values from the user for variables
7. Display the above result
8. Stop the program

PROGRAM

Large.php

```

<html>
<head>
<title>Find Largest & Smallest numbers in an Array - PHP Programming</title>
</head>
<body>
<h3>PHP Program to find Largest in a Array by </h3>
Enter the Numbers separated by Commas <br /> (eg: 12,23,56)
<br /><br />
<form method="post">
<input type="text" name="numbers"/>
<button type="submit">Check</button>
</form>
</body>
</html>
<?php
if($_POST)
{
//get the post value from form
$n = $_POST['numbers'];
//separate the numbers and make into array
$Array = explode(',',$n);
//assign the first value of the above array for the Largest & Smallest variables
$max = $Array[0];
for ($i = 1; $i <= $n; $i++)
{

```

```
if ($Array[$i] > $max)
$max = $Array[$i];
}
echo "largest element in an array is $max";
}
?>
```

app.yaml

```
runtime: php55
api_version: 1
threadsafe: true
handlers:
- url: /.*
script: Large.php
```

OUTPUT:

PHP Program to find Largest in a Array by 12, 23, 56
First largest element in an array is 56

RESULT

Thus the program to implement multilevel inheritance is executed successfully and output is verified.

GOOGLE APP 3
PART- A SCL WORKSHEET

Worksheet No : 7c

Date:

| | | | | |
|-------------|--|---|--|---|
| 1. | What are the three main types of cloud computing services? | | | |
| Ans: | a) Infrastructure as a Service, Platform as a Service, and Software as a Service | b) Infrastructure as a Service, Program as a Service, and Software as a Service | c) Infrastructure as a Service, Platform as a Program, and Software as a Service | d) Infrastructure as a Service, Platform as a Program, and Software as a Solution |
| 2. | What is the benefit of using cloud computing? | | | |
| Ans: | a) Cost savings and scalability | b) Increased security and data privacy | c) Better performance and faster processing | d) More control over hardware and software resources |
| 3. | What is virtualization? | | | |
| Ans: | a) The process of creating a virtual version of something, such as a computer system | b) The process of securing data stored in the cloud | c) The process of analyzing data to identify patterns and insights | d) The process of automating repetitive tasks using software tools |
| 4. | What is the main benefit of using serverless computing? | | | |
| Ans: | a) Cost savings | b) Increased scalability | c) Improved security | d) Faster processing |
| 5. | What is a virtual private cloud? | | | |
| Ans: | | | | |
| 6. | The largest provider of _____ CRM software is Salesforce.com. | | | |
| Ans: | a) SaaS | b) CaaS | c) IaaS | d) PaaS |
| 7. | The Amazon Machine Images are basically virtual appliances that are packaged for running on the _____ nodes grid. | | | |
| Ans: | a) Ken | b) Ben | c) Zen | d) Xen |

| | | | | |
|-------------|--|-------------------------|--------------------------|-------------------------|
| 8. | Choose the one which is a potent technology for cloud-building. | | | |
| Ans: | a) HyperCube | b) vCube | c) vSphere | d) All of the above |
| 9. | Which one out of the following is available both as the commercial version and open source? | | | |
| Ans: | a) ZenOSS | b) SiteUpTime | c) Zabbix | d) All of the above |
| 10. | Which of the following was one of the top 5 cloud applications in 2010? | | | |
| Ans: | a) Cloud backup | b) Web applications | c) Business applications | d) All of the mentioned |
| 11. | _____ can Keep land costs modest and occupation unobtrusive | | | |
| Ans: | | | | |
| 12. | Which of the following benefit is related to creates resources that are pooled together in a system that supports multi-tenant usage? | | | |
| Ans: | a) On-demand self-service | b) Broad network access | c) Resource pooling | d) All of the mentioned |

GOOGLE APP 3
PART – B INFERENCE AND APPLICATIONS

| INFERENCE | |
|---------------------|---|
| 1. | What have you inferred from this experiment? |
| Ans: | |
| APPLICATIONS | |
| 1. | How does the Monitoring Agent monitor the cloud usage? |
| Ans: | |

| ASSESSMENT | | | |
|--------------------------|--|--|-----|
| Name of the Student | | Name of the facilitator | |
| Register Number | | Comments : | |
| Year/ Semester | | Marks (5+3+2) | /10 |
| Signature of the student | | Signature of the facilitator with date | |

CREATING AND INHERITING THE CLASS
PART- B SCL WORKSHEET

Worksheet No : 8

Date:

| | | | | |
|------------|--|---------------------|----------------------|--------------------------|
| 1. | A service that concentrates on hardware follows the _____ as a Service model. | | | |
| Ans: | | | | |
| 2. | Which of the following is the most complete cloud computing service model? | | | |
| Ans: | a) PaaS | b) IaaS | c) CaaS | d) SaaS |
| 3. | _____ can be accessed globally over the Internet, most often in a browser. | | | |
| Ans: | | | | |
| 4. | Which of the following aspect of the service is abstracted away? | | | |
| Ans: | a) Data escrow | b) User Interaction | c) Adoption drivers | d) None of the mentioned |
| 5. | Which keyword should be used to declare static variables? | | | |
| Ans: | a) static | b) stat | c) common | d) const |
| 6. | Which of the following aspect of the service is abstracted away? | | | |
| Ans: | | | | |
| 7. | Which of the following SaaS platform is with an exposed API? | | | |
| Ans: | a) salesforce.com | b) amazon.com | c) flipkart.com | |
| 8. | SaaS software is not customizable | | | |
| Ans: | a) True | b) False | | |
| 9. | Which of these data types is used to store command line arguments? | | | |
| Ans: | a) Array | b) Stack | c) String | d) Integer |
| 10. | SaaS supports multiple users and provides a shared data model through _____ model. | | | |
| Ans: | a) single-tenancy | b) multi-tenancy | c) multiple-instance | d) all of the mentioned |
| 11. | Open source software used in a SaaS is called _____ SaaS. | | | |
| Ans: | | | | |
| 12. | The componentized nature of SaaS solutions enables many solutions to support a feature called _____ | | | |
| Ans: | a) workspace | b) workloads | c) mashups | d) all of the mentioned |

CREATING AND INHERITING THE CLASS
PART – C INFERENCE AND APPLICATIONS

| | |
|---------------------|---|
| INFERENCE | |
| 1. | What have you inferred from this experiment? |
| Ans: | |
| APPLICATIONS | |
| 1. | What is the cloud usage monitor? |
| Ans: | |

| | | | |
|--------------------------|--|--|-----|
| ASSESSMENT | | | |
| Name of the Student | | Name of the facilitator | |
| Register Number | | Comments : | |
| Year/Semester | | Marks (5+3+2) | /10 |
| Signature of the student | | Signature of the facilitator with date | |

Ex. No: 9

BLOGSPOT / COLLABORATING VIA WIKIS

Date:

AIM

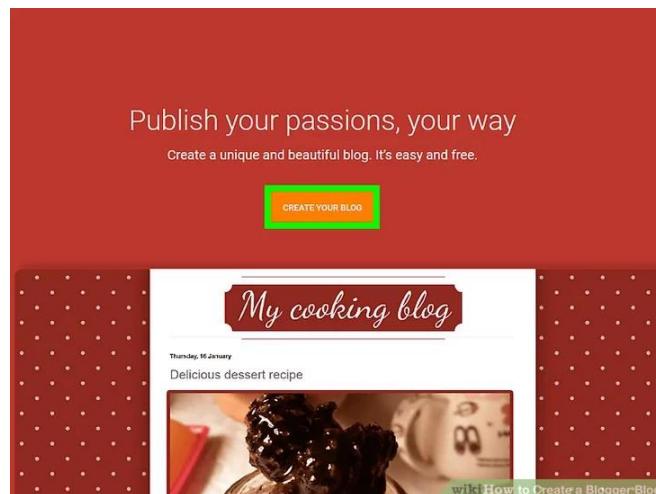
To Implement web services by creating your Blogspot and collaborating via wikis.

PROCEDURE

1. Sign in to Blogger.
2. On the left, click the Down arrow ▾.
3. Click **New blog**.
4. Enter a name for your blog.
5. Click **Next**.
6. Choose a blog address or URL.
7. Click **Save**.
8. At the top left, select a Layout.
9. You can Add, remove and edit gadgets on your blog. Click and drag to rearrange gadgets. To change columns and widths, use the Theme Designer.
10. From the gadget menu select the wiki pedia gadget.
11. Click save.
12. You can see the widget updated message.
13. At the bottom left, select a view blog you can see your collaborative blog.

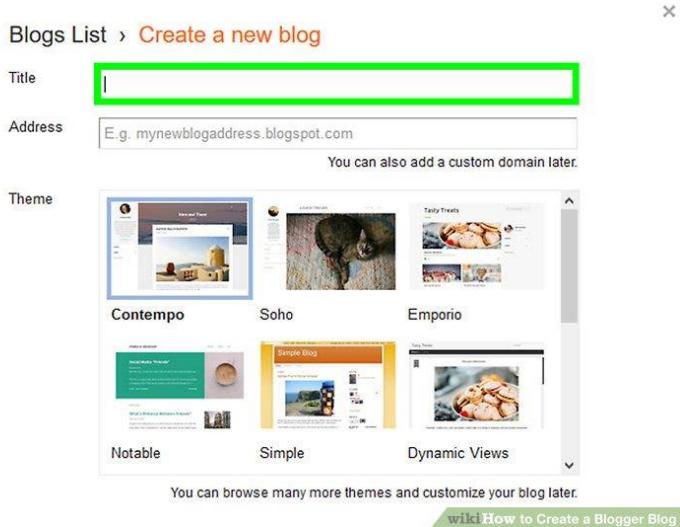
Step1: Open Blogger in your internet browser. Type <https://www.blogger.com> into the address bar, and press ↵ Enter or ↲ Return on your keyboard.

Step2: Click the CREATE YOUR BLOG button. This is an orange button in the middle of the page. It will prompt you to sign in with your Google account.



Step 3: Sign in with your Google account. You will need to use your Google account to sign in and use Blogger.

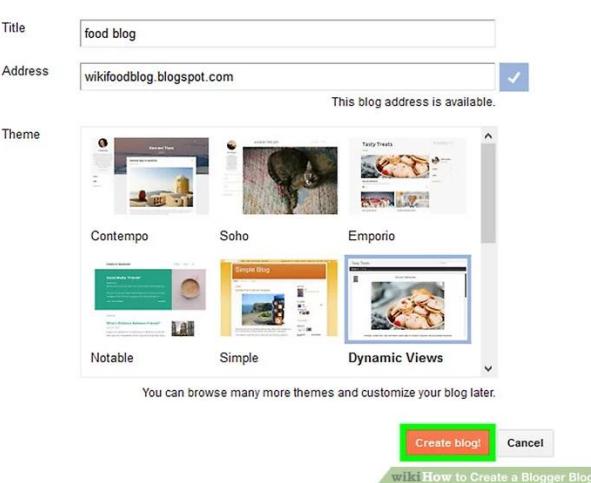
Step 4: If you don't automatically see this window, click the orange CREATE NEW BLOG button in the middle.



Step 5: As you type, available URL addresses will show up on a drop-down list. You can click an address here to select it.

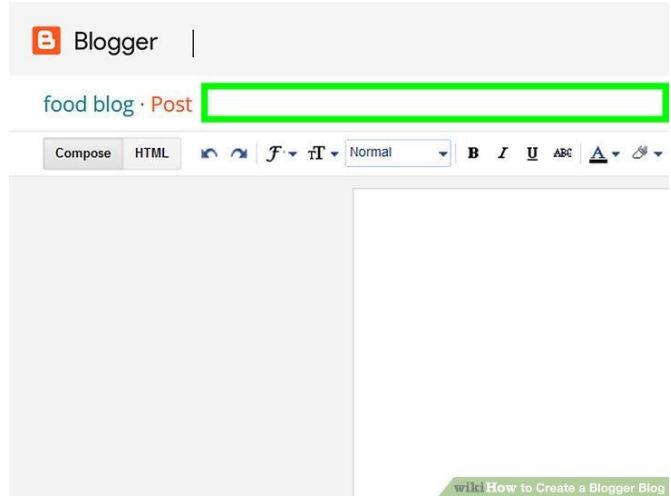
Step 6: Select a theme for your blog page. Scroll down the blog themes in the "Theme" box, and click the one you want to use.

Step 7: Click the Create blog button. This is an orange button on the bottom-right of the pop-up window. It will create your new blog, and take you to your blog's admin dashboard.



Step 8: Click the New post button. This is an orange button near the upper-left corner of your blog's admin dashboard. It will open Blogger's text editor, and allow you to compose your new post.

Step 9: Enter a title into the "Post title" field. Click this text field next to your blog's name at the top, and type your new post's title here.

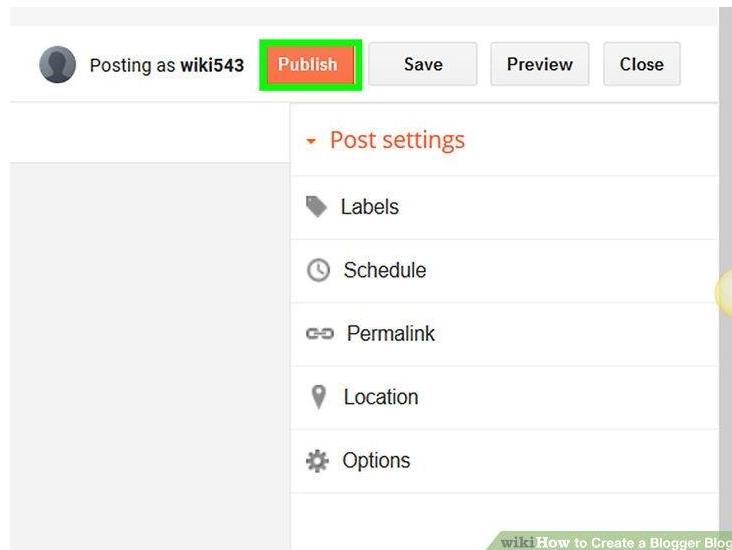


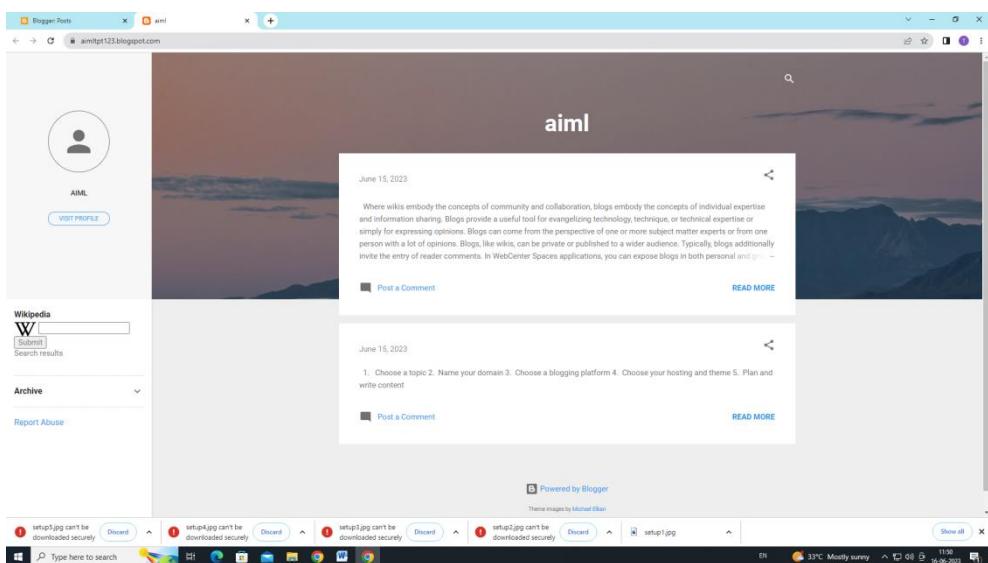
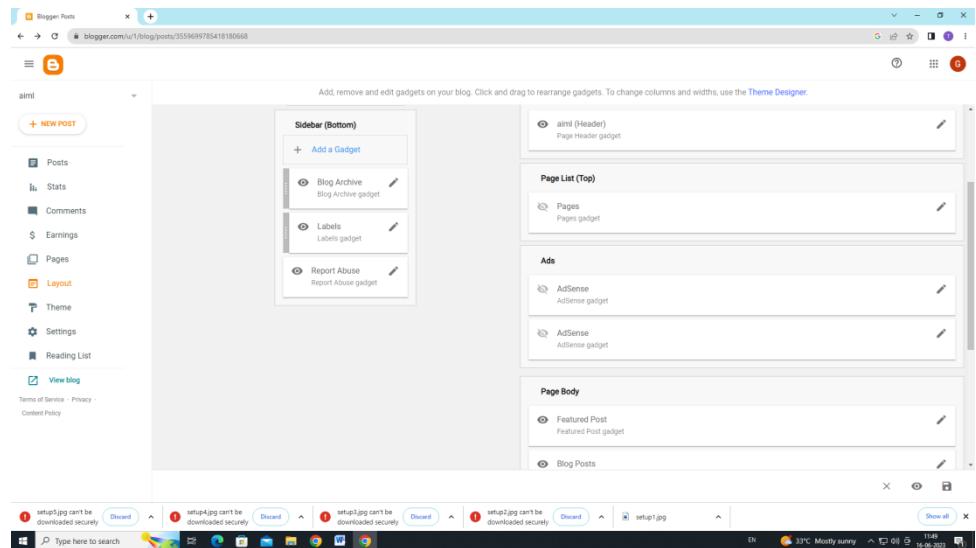
Step 10: Write your blog post. Type your blog post in Blogger's text editor as you would in a typical text editor, such as Word or Google Docs.

Step 11: Click Post settings on the right (optional). This is an orange drop-down menu below the Publish button near the top-right.

Step 12: Click the Preview button (optional). This button is near the upper-right corner of the page. It will open a preview of your new post on a new page.

Step 13: Click the Publish button. This is an orange button near the upper-right corner. It will publish your new post on your blog.





RESULT

Thus the was program to create a own exception subclass that throw exception if the given number is not in a range of numbers is verified and output is executed successfully.

EXCEPTION HANDLING
PART- B SCL WORKSHEET

Worksheet No : 9

Date:

| | |
|------------|--|
| 1. | _____ is the "creation of a virtual (rather than actual) version of something, such as a server, a desktop, a storage device, an operating system or network resources". |
| Ans: | |
| 2. | The machine on which the virtual machine is going to create is known as _____ and that virtual machine is referred as a _____. |
| Ans: | |
| 3. | _____ <i>is directly installed on the hardware system</i> is known as hardware virtualization. |
| Ans: | |
| 4. | _____ is mainly used for testing the applications on different platforms of OS. |
| Ans: | |
| 5. | _____ is done because a single physical server can be divided into multiple servers on the demand basis and for balancing the load. |
| Ans: | |
| 6. | _____ is the <i>process of grouping the physical storage from multiple network storage devices so that it looks like a single storage device</i> . |
| Ans: | |
| 7. | _____ is the process of retrieve data from various resources without knowing its type and physical location where it is stored. |
| Ans: | |
| 8. | TIBCO helps administrators and users to create a data virtualization platform for accessing the multiple _____. |
| Ans: | |
| 9. | It provides a builtin _____ engine to combine non-relational and un-structured data sources. |
| Ans: | |
| 10. | _____ provides various technologies such as scalable, multi-user, and standards-based data access to access data from multiple data services. |
| Ans: | |
| 11. | _____ is one of the best data virtualization tools which allows organizations to minimize the network traffic load and improve response time for large data |

| | |
|------------|---|
| | sets. |
| Ans: | |
| 12. | Data virtualization plays a very important role in the field of healthcare. Data virtualization plays a very important role in the field of _____. |
| Ans: | |

EXCEPTION HANDLING
PART – C INFERENCE AND APPLICATIONS

| INFERENCE | |
|---------------------|---|
| 1. | What have you inferred from this experiment? |
| Ans: | |
| APPLICATIONS | |
| 1. | What are cloud-enabling technologies? |
| Ans: | |

| ASSESSMENT | | | |
|--------------------------|--|--|-----|
| Name of the Student | | Name of the facilitator | |
| Register Number | | Comments : | |
| Year/ Semester | | Marks (5+3+2) | /10 |
| Signature of the student | | Signature of the facilitator with date | |

| | |
|-------------------|---|
| EX. NO: 10 | INSTALL OPENSTACK AND USE IT AS INFRASTRUCTURE AS A SERUCTURE AS A SERVICE AND TECHNOLOGY OWN CLOUD. |
| DATE: | |

AIM

To install Openstack and use it as infrastructure as a seructure as a service and technology own cloud.

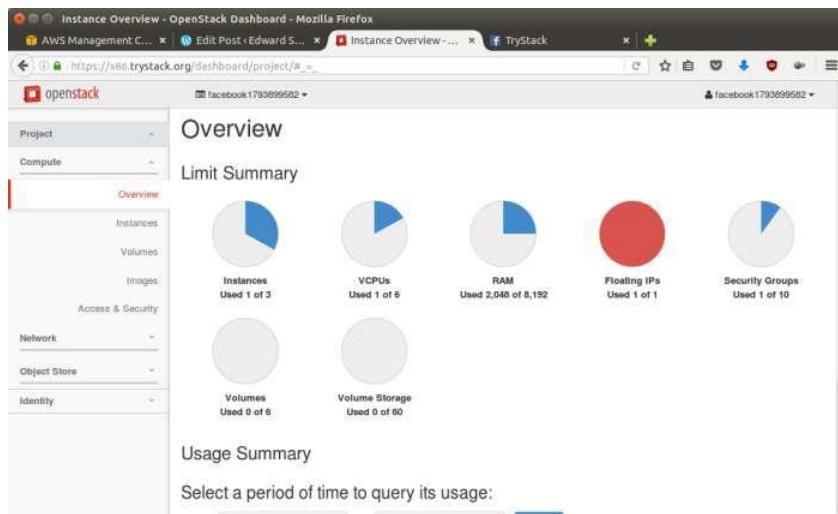
PROCEDURE

OpenStack is an open-source software cloud computing platform. OpenStack is primarily used for deploying an infrastructure as a service (IaaS) solution like Amazon Web Service (AWS). In other words, you can make your own AWS by using OpenStack. If you want to try out OpenStack, TryStack is the easiest and free way to do it.

In order to try OpenStack in TryStack, you must register yourself by joining TryStack Facebook Group. The acceptance of group needs a couple days because it's approved manually. After you have been accepted in the TryStack Group, you can log in TryStack.

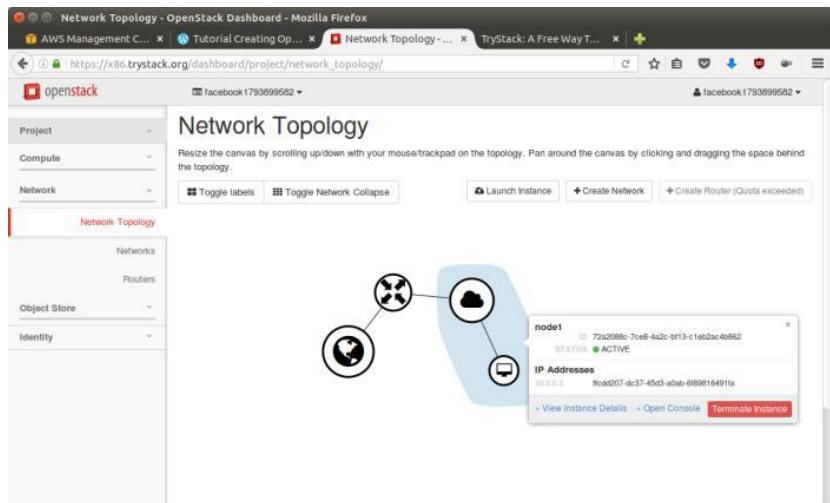


I assume that you already join to the Facebook Group and login to the dashboard. After you login to the TryStack, you will see the Compute Dashboard like:



Overview: What we will do?

In this post, I will show you how to run an OpenStack instance. The instance will be accessible through the internet (have a public IP address). The final topology will like:



As you see from the image above, the instance will be connected to a local network and the local network will be connected to internet.

Step 1: Create Network

Network? Yes, the network in here is our own local network. So, your instances will be not mixed up with the others. You can imagine this as your own LAN (Local Area Network) in the cloud.

1. Go to Network > Networks and then click Create Network.
2. In Network tab, fill Network Name for example internal and then click Next.
3. In Subnet tab,

Fill Network Address with appropriate CIDR, for example 192.168.1.0/24. Use private network CIDR block as the best practice.

Select IP Version with appropriate IP version, in this case IPv4.

Click Next.

4. In Subnet Details tab, fill DNS Name Servers with 8.8.8.8 (Google DNS) and then

click Create.

Step 2: Create Instance

Now, we will create an instance. The instance is a virtual machine in the cloud, like AWS EC2.

You need the instance to connect to the network that we just created in the previous step.

1. Go to Compute > Instances and then click Launch Instance.

2. In Details tab,

Fill Instance Name, for example Ubuntu 1.

Select Flavor, for example m1.medium.

Fill Instance Count with 1.

Select Instance Boot Source with Boot from Image.

Select Image Name with Ubuntu 14.04 amd64 (243.7 MB) if you want install Ubuntu 14.04 in your virtual machine.

3. In Access & Security tab,

Click [+] button of Key Pair to import key pair. This key pair is a public and private key that we will use to connect to the instance from our machine.

In Import Key Pair dialog,

Fill Key Pair Name with your machine name (for example Edward-Key).

Fill Public Key with your SSH public key (usually is in `~/.ssh/id_rsa.pub`). See description in Import Key Pair dialog box for more information. If you are using Windows, you can use Puttygen to generate key pair.

Click Import key pair.

In Security Groups, mark/check default.

4. In Networking tab,

In Selected Networks, select network that have been created in Step 1, for example internal.

5. Click Launch.

6. If you want to create multiple instances, you can repeat step 1-5. I created one more instance

with instance name Ubuntu 2.

Step 3: Create Router

I guess you already know what router is. In the step 1, we created our network, but it is isolated.

It doesn't connect to the internet. To make our network has an internet connection, we need a router that running as the gateway to the internet.

1. Go to Network > Routers and then click Create Router.

2. Fill Router Name for example router1 and then click Create router.

3. Click on your router name link, for example router1, Router Details page.

4. Click Set Gateway button in upper right:

Select External networks with external.

Then OK.

5. Click Add Interface button.

Select Subnet with the network that you have been created in Step 1.

Click Add interface.

6. Go to Network > Network Topology. You will see the network topology. In the example, there are two network, i.e. external and internal, those are bridged by a router. There are instances those are joined to internal network.

Step 4: Configure Floating IP Address

Floating IP address is public IP address. It makes your instance is accessible from the internet.

When you launch your instance, the instance will have a private network IP, but no public IP. In OpenStack, the public IPs is collected in a pool and managed by admin (in our case is TryStack).

You need to request a public (floating) IP address to be assigned to your instance.

1. Go to Compute > Instance.
2. In one of your instances, click More > Associate Floating IP.
3. In IP Address, click Plus [+].
4. Select Pool to external and then click Allocate IP.
5. Click Associate.
6. Now you will get a public IP, e.g. 8.21.28.120, for your instance.

Step 5: Configure Access & Security

OpenStack has a feature like a firewall. It can whitelist/blacklist your in/out connection. It is called Security Group.

1. Go to Compute > Access & Security and then open Security Groups tab.
2. In default row, click Manage Rules.
3. Click Add Rule, choose ALL ICMP rule to enable ping into your instance, and then click Add.
4. Click Add Rule, choose HTTP rule to open HTTP port (port 80), and then click Add.
5. Click Add Rule, choose SSH rule to open SSH port (port 22), and then click Add.
6. You can open other ports by creating new rules.

Step 6: SSH to Your Instance

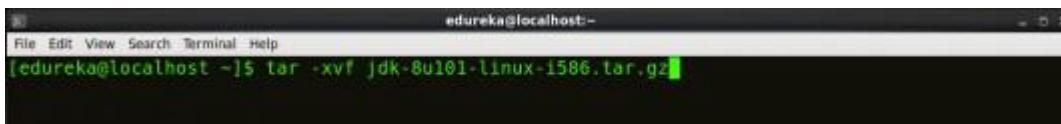
Now, you can SSH your instances to the floating IP address that you got in the step 4. If you are using Ubuntu image, the SSH user will be ubuntu.

Install Hadoop:

Step 1: Click [here](#) to download the Java 8 Package. Save this file in your home directory.

Step 2: Extract the Java Tar File.

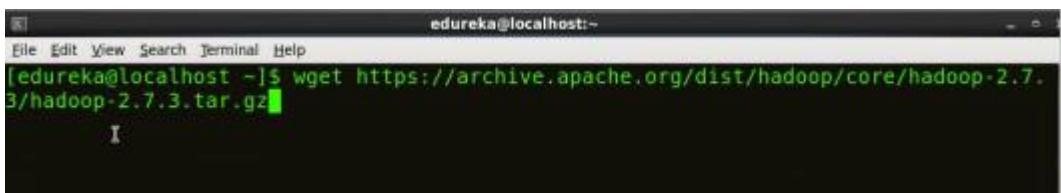
Command: `tar -xvf jdk-8u101-linux-i586.tar.gz`



```
edureka@localhost:~$ tar -xvf jdk-8u101-linux-i586.tar.gz
```

Step 3: Download the Hadoop 2.7.3 Package.

Command: wget https://archive.apache.org/dist/hadoop/core/hadoop-2.7.3/hadoop-2.7.3.tar.gz



```
edureka@localhost:~$ wget https://archive.apache.org/dist/hadoop/core/hadoop-2.7.3/hadoop-2.7.3.tar.gz
```

Step 4: Extract the Hadoop tar File.

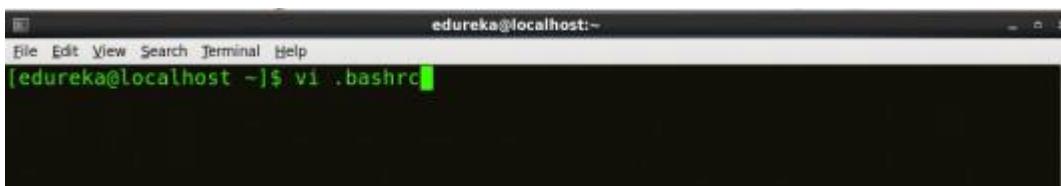
Command: tar -xvf hadoop-2.7.3.tar.gz



```
edureka@localhost:~ (on localhost.localdomain)$ tar -xvf hadoop-2.7.3.tar.gz
```

Step 5: Add the Hadoop and Java paths in the bash file (.bashrc). Open .bashrc file. Now, add Hadoop and Java Path as shown below.

Command: vi .bashrc | OMoARcPSD|26314682



```
edureka@localhost:~$ vi .bashrc
```

```
# User specific aliases and functions

export HADOOP_HOME=$HOME/hadoop-2.7.3
export HADOOP_CONF_DIR=$HOME/hadoop-2.7.3/etc/hadoop
export HADOOP_MAPRED_HOME=$HOME/hadoop-2.7.3
export HADOOP_COMMON_HOME=$HOME/hadoop-2.7.3
export HADOOP_HDFS_HOME=$HOME/hadoop-2.7.3
export YARN_HOME=$HOME/hadoop-2.7.3
export PATH=$PATH:$HOME/hadoop-2.7.3/bin

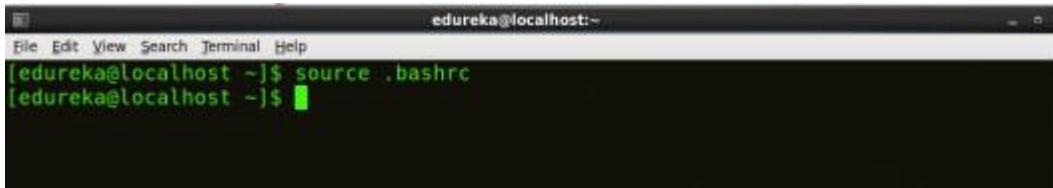
# Set JAVA_HOME

export JAVA_HOME=/home/edureka/jdk1.8.0_101
export PATH=/home/edureka/jdk1.8.0_101/bin:$PATH
```

Then, save the bash file and close it.

For applying all these changes to the current Terminal, execute the source command.

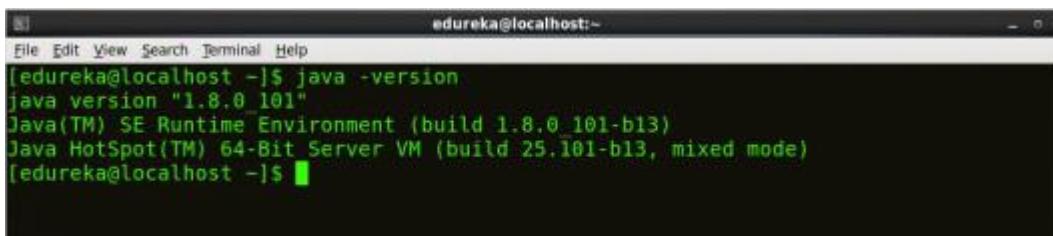
Command: source .bashrc



```
edureka@localhost:~$ source .bashrc
```

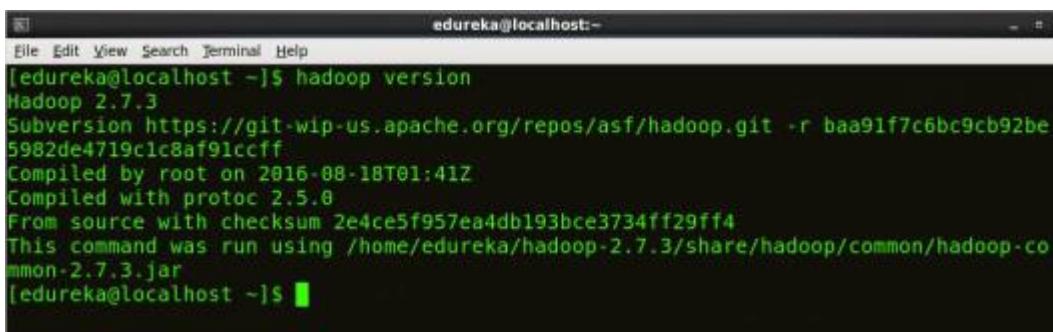
To make sure that Java and Hadoop have been properly installed on your system and can be accessed through the Terminal, execute the java -version and hadoop version commands.

Command: java -version
OMoARcPSD | 26314682



```
edureka@localhost:~$ java -version
java version "1.8.0_101"
Java(TM) SE Runtime Environment (build 1.8.0_101-b13)
Java HotSpot(TM) 64-Bit Server VM (build 25.101-b13, mixed mode)
```

Command: hadoop version



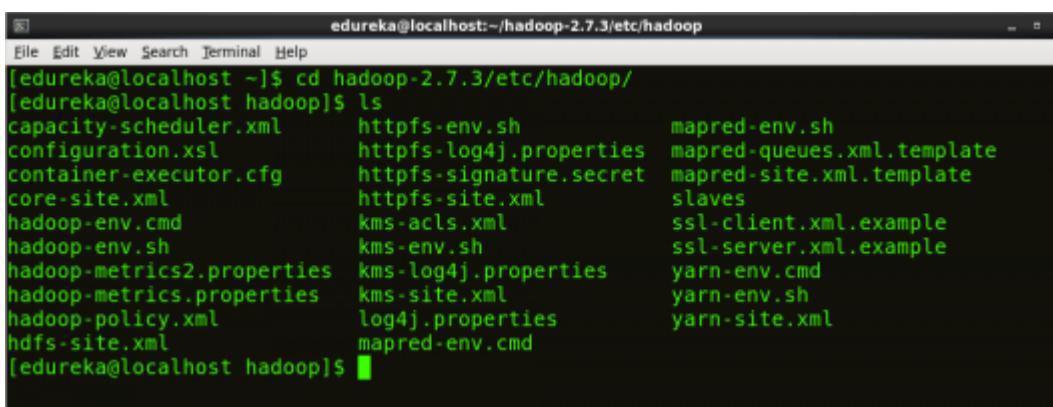
```
edureka@localhost:~$ hadoop version
Hadoop 2.7.3
Subversion https://git-wip-us.apache.org/repos/asf/hadoop.git -r baa91f7c6bc9cb92be5982de4719c1c8af91ccff
Compiled by root on 2016-08-18T01:41Z
Compiled with protoc 2.5.0
From source with checksum 2e4ce5f957ea4db193bce3734ff29ff4
This command was run using /home/edureka/hadoop-2.7.3/share/hadoop/common/hadoop-common-2.7.3.jar
```

Step 6: Edit the Hadoop Configuration files.

Command: cd hadoop-2.7.3/etc/hadoop/

Big Data Hadoop Certification Training

Command: ls All the Hadoop configuration files are located in hadoop-2.7.3/etc/hadoop directory as you can see in the snapshot below:



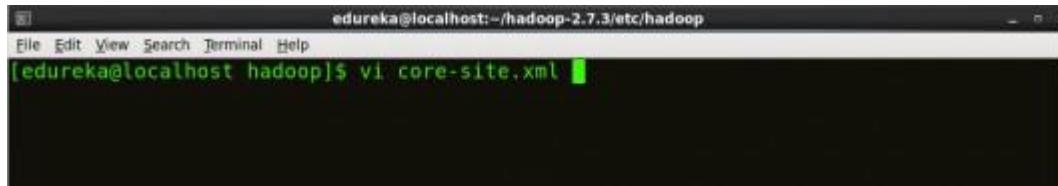
```
edureka@localhost:~/hadoop-2.7.3/etc/hadoop$ cd hadoop-2.7.3/etc/hadoop/
[edureka@localhost hadoop]$ ls
capacity-scheduler.xml      httpfs-env.sh          mapred-env.sh
configuration.xsl           httpfs-log4j.properties  mapred-queues.xml.template
container-executor.cfg       httpfs-signature.secret mapred-site.xml.template
core-site.xml                httpfs-site.xml        slaves
hadoop-env.cmd              kms-acls.xml         ssl-client.xml.example
hadoop-env.sh               kms-env.sh           ssl-server.xml.example
hadoop-metrics2.properties   kms-log4j.properties  yarn-env.cmd
hadoop-metrics.properties    kms-site.xml        yarn-env.sh
hadoop-policy.xml           log4j.properties     yarn-site.xml
hdfs-site.xml                mapred-env.cmd
```

Step 7: Open core-site.xml and edit the property mentioned below inside

configuration tag:

core-site.xml informs Hadoop daemon where NameNode runs in the cluster. It contains configuration settings of Hadoop core such as I/O settings that are common to HDFS & MapReduce.

Command: vi core-site.xml



```
edureka@localhost:~/hadoop-2.7.3/etc/hadoop
[edureka@localhost hadoop]$ vi core-site.xml
```

```
<configuration>
<property>
<name>fs.default.name</name>
<value>hdfs://localhost:9000</value>
</property>
</configuration>
```

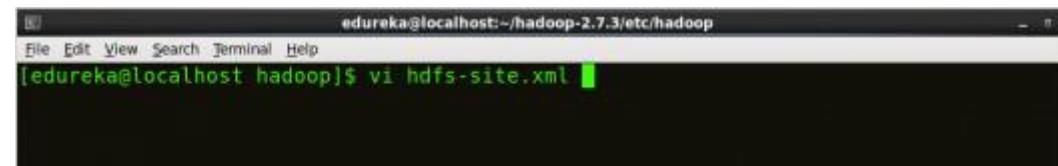
Step 8: Edit hdfs-site.xml and edit the property mentioned below inside configuration tag:

hdfs-site.xml contains configuration settings of HDFS daemons (i.e. NameNode, DataNode, Secondary NameNode). It also includes the replication factor and block size of HDFS.

Command: vi hdfs-site.xml

Fig: Hadoop Installation – Configuring hdfs-site.xml

1



```
edureka@localhost:~/hadoop-2.7.3/etc/hadoop
[edureka@localhost hadoop]$ vi hdfs-site.xml
```

```
<configuration>
<property>
<name>dfs.replication</name>
<value>1</value>
</property>
<property>
<name>dfs.permission</name>
<value>false</value>
</property>
```

Step 9: Edit the mapred-site.xml file and edit the property mentioned below inside configuration tag:

mapred-site.xml contains configuration settings of MapReduce application like number of JVM that can run in parallel, the size of the mapper and the reducer process, CPU cores available for a process, etc.

In some cases, mapred-site.xml file is not available. So, we have to create the mapred-site.xml file using mapred-site.xml template.

Command: cp mapred-site.xml.template mapred-site.xml

Command: vi mapred-site.xml.

edureka@localhost hadoop]\$ cp mapred-site.xml.template mapred-site.xml
[edureka@localhost hadoop]\$

```
<configuration>
<property>
<name>mapreduce.framework.name</name>
<value>yarn</value>
</property>
</configuration>
```

Step 10: Edit yarn-site.xml and edit the property mentioned below inside configuration tag:

yarn-site.xml contains configuration settings of ResourceManager and NodeManager like application memory management size, the operation needed on program & algorithm, etc.

Command: vi yarn-site.xml

edureka@localhost hadoop]\$ vi yarn-site.xml

```
<configuration>
<property>
<name>yarn.nodemanager.aux-services</name>
<value>mapreduce_shuffle</value>
</property>
<property>
<name>yarn.nodemanager.auxservices.mapreduce.shuffle.class</name>
<value>org.apache.hadoop.mapred.ShuffleHandler</value>
</property>
</configuration>
```

Step 11: Edit hadoop-env.sh and add the Java Path as mentioned below:

hadoop-env.sh contains the environment variables that are used in the script to run Hadoop like Java home path, etc.

Command: vi hadoop-env.sh

edureka@localhost hadoop]\$ vi hadoop-env.sh

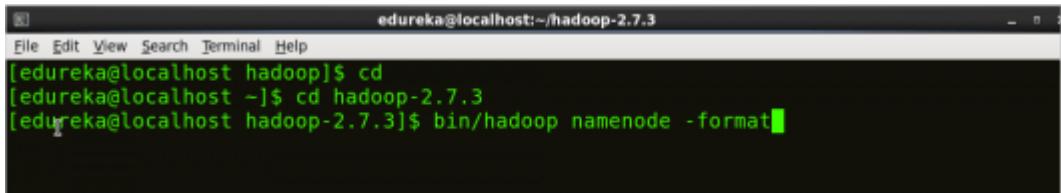
```
# The java implementation to use.
export JAVA_HOME=/home/edureka/jdk1.8.0_101
```

Step 12: Go to Hadoop home directory and format the NameNode.

Command: cd

Command: cd hadoop-2.7.3

Command: bin/hadoop namenode -format



```
edureka@localhost:~/hadoop-2.7.3
File Edit View Search Terminal Help
[edureka@localhost hadoop]$ cd
[edureka@localhost ~]$ cd hadoop-2.7.3
[edureka@localhost hadoop-2.7.3]$ bin/hadoop namenode -format
```

This formats the HDFS via NameNode. This command is only executed for the first time. Formatting the file system means initializing the directory specified by the dfs.name.dir variable.

Never format, up and running Hadoop filesystem. You will lose all your data stored in the HDFS.

Step 13: Once the NameNode is formatted, go to hadoop-2.7.3/sbin directory and start all the daemons.

Command: cd hadoop-2.7.3/sbin

Either you can start all daemons with a single command or do it individually.

Command: ./start-all.sh

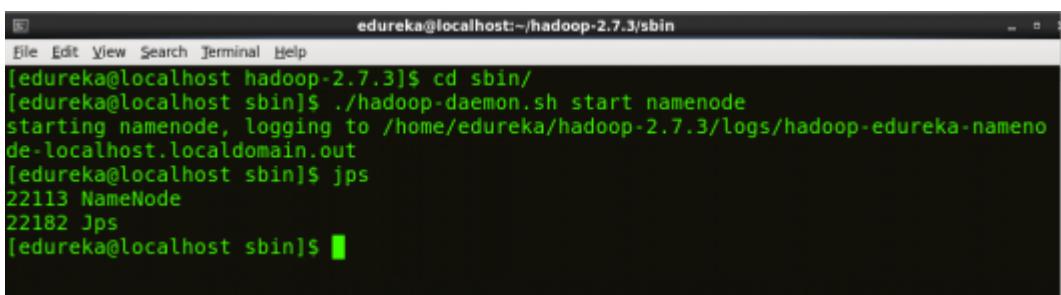
The above command is a combination of start-dfs.sh, start-yarn.sh & mr-jobhistorydaemon.sh

Or you can run all the services individually as below:

Start NameNode:

The NameNode is the centerpiece of an HDFS file system. It keeps the directory tree of all files stored in the HDFS and tracks all the file stored across the cluster.

Command: ./hadoop-daemon.sh start namenode



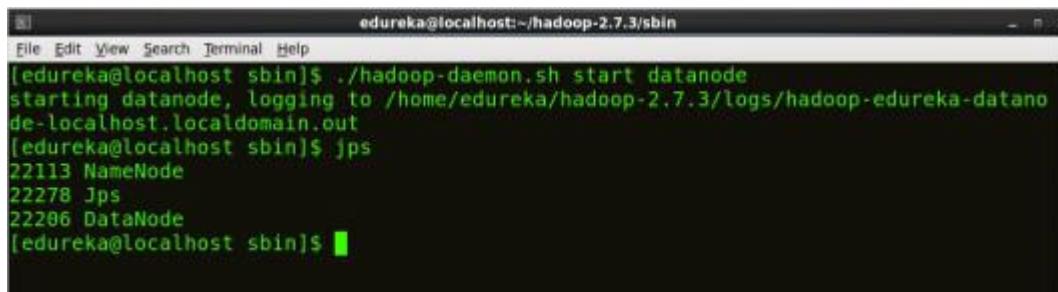
```
edureka@localhost:~/hadoop-2.7.3/sbin
File Edit View Search Terminal Help
[edureka@localhost hadoop-2.7.3]$ cd sbin/
[edureka@localhost sbin]$ ./hadoop-daemon.sh start namenode
starting namenode, logging to /home/edureka/hadoop-2.7.3/logs/hadoop-edureka-namenode-localhost.localdomain.out
[edureka@localhost sbin]$ jps
22113 NameNode
22182 Jps
[edureka@localhost sbin]$
```

Start DataNode:

On startup, a DataNode connects to the Namenode and it responds to the requests

from the Namenode for different operations.

Command: ./hadoop-daemon.sh start datanode

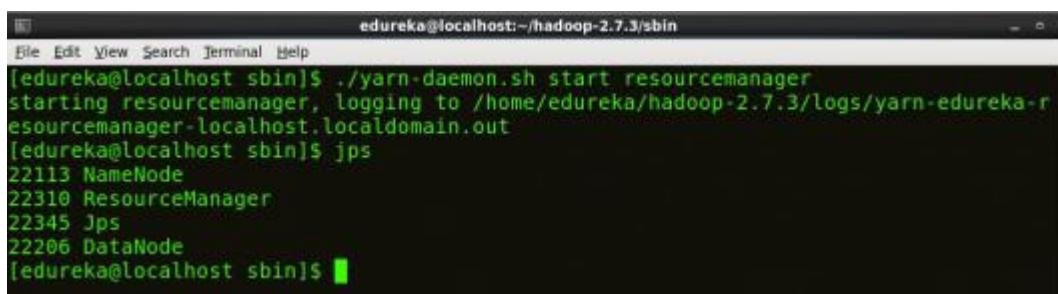


```
edureka@localhost:~/hadoop-2.7.3/sbin
File Edit View Search Terminal Help
[edureka@localhost sbin]$ ./hadoop-daemon.sh start datanode
starting datanode, logging to /home/edureka/hadoop-2.7.3/logs/hadoop-edureka-datanode-localhost.localdomain.out
[edureka@localhost sbin]$ jps
22113 NameNode
22278 Jps
22206 DataNode
[edureka@localhost sbin]$
```

Start ResourceManager:

ResourceManager is the master that arbitrates all the available cluster resources and thus helps in managing the distributed applications running on the YARN system. Its work is to manage each NodeManagers and the each application's ApplicationMaster.

Command: ./yarn-daemon.sh start resourcemanager

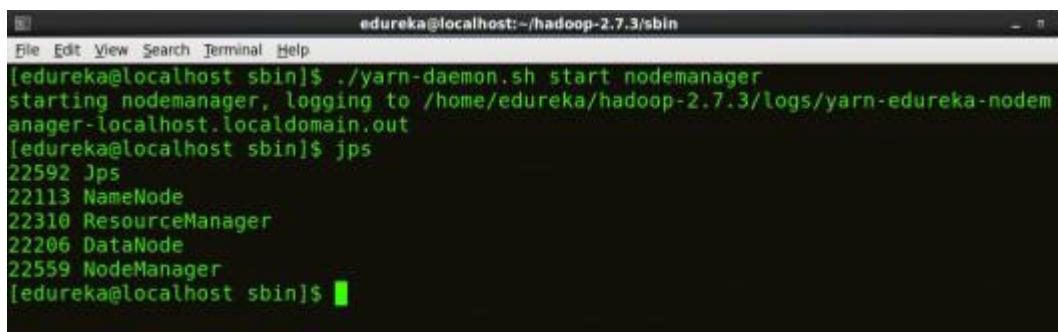


```
edureka@localhost:~/hadoop-2.7.3/sbin
File Edit View Search Terminal Help
[edureka@localhost sbin]$ ./yarn-daemon.sh start resourcemanager
starting resourcemanager, logging to /home/edureka/hadoop-2.7.3/logs/yarn-edureka-resourcemanager-localhost.localdomain.out
[edureka@localhost sbin]$ jps
22113 NameNode
22310 ResourceManager
22345 Jps
22206 DataNode
[edureka@localhost sbin]$
```

Start NodeManager:

The NodeManager in each machine framework is the agent which is responsible for managing containers, monitoring their resource usage and reporting the same to the ResourceManager.

Command: ./yarn-daemon.sh start nodemanager



```
edureka@localhost:~/hadoop-2.7.3/sbin
File Edit View Search Terminal Help
[edureka@localhost sbin]$ ./yarn-daemon.sh start nodemanager
starting nodemanager, logging to /home/edureka/hadoop-2.7.3/logs/yarn-edureka-nodemanager-localhost.localdomain.out
[edureka@localhost sbin]$ jps
22592 Jps
22113 NameNode
22310 ResourceManager
22206 DataNode
22559 NodeManager
[edureka@localhost sbin]$
```

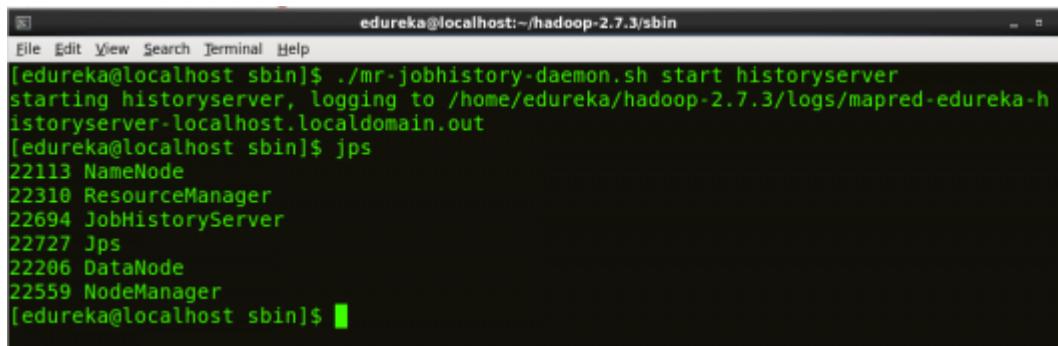
Start JobHistoryServer:

JobHistoryServer is responsible for servicing all job history related requests from client.

Command: ./mr-jobhistory-daemon.sh start historyserver

Step 14: To check that all the Hadoop services are up and running, run the below command.

Command: jps

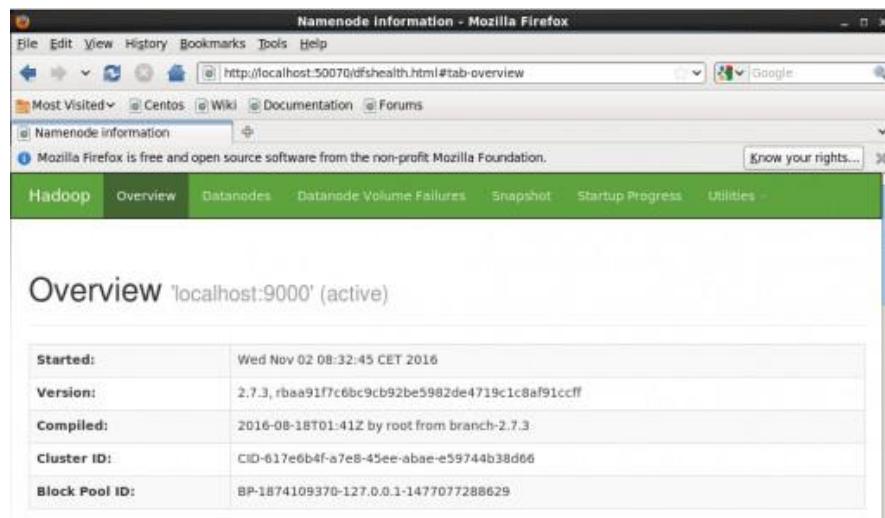


```
edureka@localhost:~/hadoop-2.7.3/sbin
File Edit View Search Terminal Help
[edureka@localhost sbin]$ ./mr-jobhistory-daemon.sh start historyserver
starting historyserver, logging to /home/edureka/hadoop-2.7.3/logs/mapred-edureka-h
istoryserver-localhost.localdomain.out
[edureka@localhost sbin]$ jps
22113 NameNode
22310 ResourceManager
22694 JobHistoryServer
22727 Jps
22286 DataNode
22559 NodeManager
[edureka@localhost sbin]$
```

Step 15: Now open the Mozilla browser and go

to localhost:50070/dfshealth.html to check the NameNode interface.

Congratulations, you have successfully installed a single node Hadoop cluster



| | |
|----------------|--|
| Started: | Wed Nov 02 08:32:45 CET 2016 |
| Version: | 2.7.3, rbaa91f7c6bc9cb92be5982de4719c1c8af91ccff |
| Compiled: | 2016-08-18T01:41Z by root from branch-2.7.3 |
| Cluster ID: | CID-617e6b4f-a7e8-45ee-abae-e59744b38d66 |
| Block Pool ID: | BP-1874109370-127.0.0.1-1477077288629 |

RESULT

Thus the above multithreading program has been executed and verified successfully.

OPENSTACK
PART- A SCL WORKSHEET

Worksheet No : 10

Date:

| | |
|------------|---|
| 1. | _____ is just like a virtualization but <i>able to abstract the software installation procedure and create virtual software installations.</i> |
| Ans: | |
| 2. | In _____ industry, data virtualization is used to optimize a global supply chain, optimize factories, and improve IT assets utilization. |
| Ans: | |
| 3. | _____ is an application that will be "installed" into its own self-contained unit. |
| Ans: | |
| 4. | Server Virtualization is the process of dividing a physical server into several virtual servers, called _____. |
| Ans: | |
| 5. | Full Virtualization uses a _____ to directly communicate with the CPU and physical server. It provides the best isolation and security mechanism to the virtual machines. |
| Ans: | |
| 6. | _____ and _____ are the types of Operating System virtualization. |
| Ans: | |
| 7. | _____ is one of the best advantages of Server Virtualization. |
| Ans: | |
| 8. | _____ is a major component for storage servers, in the form of functional RAID levels and controllers. |
| Ans: | |
| 9. | _____ is pre-installed or permanently loaded on the local device and no-hard disk is needed |
| Ans: | |
| 10. | _____ virtual disk data will be streamed when required for running or starting a function called by the user for example starting an application available within the virtual disk. |
| Ans: | |
| 11. | Which one of the following options can be considered as the Cloud? |

| | |
|------------|---|
| Ans: | |
| 12. | Which of the following is an essential concept related to Cloud? |
| Ans: | |

OPENSTACK
PART – B INFERENCE AND APPLICATIONS

| | |
|---------------------|---|
| INFERENCE | |
| 1. | What have you inferred from this experiment? |
| Ans: | |
| APPLICATIONS | |
| 1. | What are serverless components in cloud computing? |
| Ans: | |

| | | | |
|--------------------------|--|--|-----|
| ASSESSMENT | | | |
| Name of the Student | | Name of the facilitator | |
| Register Number | | Comments : | |
| Year/ Semester | | Marks (5+3+2) | /10 |
| Signature of the student | | Signature of the facilitator with date | |

Ex. No: 11

Date:

TRANSFER THE FILES FROM ONE VIRTUAL MACHINE TO ANOTHER VIRTUAL MACHINE.

AIM

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

PROCEDURE

1. Open Browser, type localhost:9869
2. Login using username: oneadmin, password: opennebula
3. Then follow the steps to migrate VMs
 - a. Click on infrastructure
 - b. Select clusters and enter the cluster name
 - c. Then select host tab, and select all host
 - d. Then select Vnets tab, and select all vnet
 - e. Then select datastores tab, and select all datastores
 - f. And then choose host under infrastructure tab
 - g. Click on + symbol to add new host, name the host then click on create.
4. on instances, select VMs to migrate then follow the stpes
 - a. Click on 8th icon ,the drop down list display
 - b. Select migrate on that ,the popup window display
 - c. On that select the target host to migrate then click on migrate

Before migration

Host:SACET

| ID | Owner | Group | Name | Status | Host | IPs |
|----|----------|----------|------------|---------|-------------|----------------|
| 5 | oneadmin | oneadmin | vm2 | FAILURE | naveenkumar | 172.16.100.205 |
| 4 | oneadmin | oneadmin | vm2 | FAILURE | naveenkumar | 172.16.100.204 |
| 3 | oneadmin | oneadmin | vm1 | FAILURE | naveenkumar | 172.16.100.203 |
| 2 | oneadmin | oneadmin | naveen | FAILURE | naveenkumar | 172.16.100.202 |
| 1 | oneadmin | oneadmin | naveen | FAILURE | naveenkumar | 172.16.100.201 |
| 0 | oneadmin | oneadmin | ttylinux-0 | FAILURE | naveenkumar | 172.16.100.200 |

Host:one-sandbox

Screenshot of the OpenNebula Sunstone interface showing the Host list for 'one-sandbox'.

Host list table:

| ID | Owner | Group | Name | Status | Host | IPs |
|----|----------|----------|------|---------|-------------|----------------|
| 7 | oneadmin | oneadmin | vm8 | RUNNING | one-sandbox | 172.16.100.207 |
| 6 | oneadmin | oneadmin | vm8 | RUNNING | one-sandbox | 172.16.100.206 |

VMs tab selected.

Screenshot of the OpenNebula Sunstone interface showing the 'Migrate Virtual Machine' dialog.

Message box:

VM 6 vm8 is currently running on Host one-sandbox
VM 7 vm8 is currently running on Host one-sandbox

Select a Host:

Please select a Host from the list

Host list table:

| ID | Name | Cluster | RVMs | Allocated CPU | Allocated MEM | Status |
|----|--------------|---------|------|----------------|------------------|--------|
| 2 | raa | default | 0 | 0 / 0 | 0KB / - | RETRY |
| 1 | navneenkumar | rama | 6 | 62 / 0 | 44MB / - | ERROR |
| 0 | one-sandbox | rama | 2 | 20 / 100 (20%) | 4MB / 741MB (1%) | ON |

Migrate button.

| ID | Owner | Group | Name | Status | Host | IPs |
|----|----------|----------|-----------|---------|-------------|----------------|
| 7 | oneadmin | oneadmin | vm8 | SAVE | naveenkumar | 172.16.100.207 |
| 6 | oneadmin | oneadmin | vm8 | SAVE | naveenkumar | 172.16.100.206 |
| 5 | oneadmin | oneadmin | vm2 | FAILURE | naveenkumar | 172.16.100.205 |
| 4 | oneadmin | oneadmin | vm2 | FAILURE | naveenkumar | 172.16.100.204 |
| 3 | oneadmin | oneadmin | vm1 | FAILURE | naveenkumar | 172.16.100.203 |
| 2 | oneadmin | oneadmin | naiveen | FAILURE | naveenkumar | 172.16.100.202 |
| 1 | oneadmin | oneadmin | naiveen | FAILURE | naveenkumar | 172.16.100.201 |
| 0 | oneadmin | oneadmin | ttylinux0 | FAILURE | naveenkumar | 172.16.100.200 |

8 TOTAL 2 ACTIVE 0 OFF 0 PENDING 6 FAILED

After Migration:

| ID | Name | Cluster | RVMs | Allocated CPU | Allocated MEM | Status |
|----|-------------|---------|------|---------------|------------------|--------------|
| 2 | raa | default | 0 | 0 / 0 | 0KB / 0B | OK / * ERROR |
| 1 | naveenkumar | rama | 8 | 81 / 0 | 481KB / 0B | OK / * ERROR |
| 0 | one-sandbox | rama | 0 | 0 / 100 (0%) | 0KB / 7411B (0%) | ON |

3 TOTAL 1 ON 0 OFF 2 ERROR

Host:one-sandbox

The screenshot shows the OpenNebula Sunstone interface for the host 'one-sandbox'. The left sidebar contains navigation links for Dashboard, Instances (VMs, Services, Virtual Routers), Templates, Storage, Network, Infrastructure (Clusters, Hosts, Zones), System, and Settings. A support section indicates 'Not connected' and has a 'Sign in' button. The main content area is titled 'Host 0 one-sandbox' and shows a table with the following columns: ID, Owner, Group, Name, Status, Host, and IPs. A message 'There is no data available' is displayed above the table. The table shows 0 entries. The status column header has a note: 'Showing 0 to 0 of 0 entries'. The bottom right corner of the window shows the date and time: 8/23/2016 2:37 PM.

Host:SACET

The screenshot shows the OpenNebula Sunstone interface for the host 'naveenkumar'. The left sidebar contains navigation links for Dashboard, Instances (VMs, Services, Virtual Routers), Templates, Storage, Network, Infrastructure (Clusters, Hosts, Zones), System, and Settings. A support section indicates 'Not connected' and has a 'Sign in' button. The main content area is titled 'Host 1 naveenkumar' and shows a table with the following columns: ID, Owner, Group, Name, Status, Host, and IPs. The status column shows various failure statuses such as FAILURE, UNREACHABLE, UNKNOWN, and UNKNOWN. The table shows 8 entries. The status column header has a note: 'Showing 1 to 8 of 8 entries'. The bottom right corner of the window shows the date and time: 8/23/2016 2:37 PM.

RESULT

Thus the file transfer between VM was successfully completed...

FILE CREATION
PART- B SCL WORKSHEET

Worksheet No : 11

Date:

| | |
|------------|---|
| 1. | Which one of the following is a kind of technique that allows sharing the single physical instance of an application or the resources among multiple organizations/customers? |
| Ans | |
| 2. | In Virtualization, which architecture provides the virtual isolation between the several tenants? |
| Ans | |
| 3. | On which one of the following utility computing is based? |
| Ans | |
| 4. | Which of the model involves the special types of services that users can access on a Cloud Computing platform? |
| Ans | |
| 5. | Managed IT services are based on the concept of which one of the following? |
| Ans | |
| 6. | Which one of the following refers to the user's part of the Cloud Computing system? |
| Ans | |
| 7. | By whom is the backend commonly used? |
| Ans | |
| 8. | Which one of the following is a phase of the Deployment process? |
| Ans | |
| 9. | _____ enables batch processing, which greatly speeds up high-processing applications. |
| Ans | |
| 10. | Which one of the following is not an example of the Type1-Hypervisor? |
| Ans | |
| 11. | In which one of the following phases, IT Architecture Development came? |
| Ans: | |
| 12. | Which one of the following given programs provides the isolation (abstraction) and partitioning? |
| Ans: | |

FILE CREATION
PART – C INFERENCE AND APPLICATIONS

| INFERENCE | |
|---------------------|---|
| 1. | What have you inferred from this experiment? |
| Ans: | |
| APPLICATIONS | |
| 1. | What are the Cloud Storage Levels? |
| Ans: | |

ASSESSMENT

| | | | |
|--------------------------|--|--|-----|
| Name of the Student | | Name of the facilitator | |
| Register Number | | Comments : | |
| Year/ Semester | | Marks (5+3+2) | /10 |
| Signature of the student | | Signature of the facilitator with date | |