Ex.No: 1	WORKING WITH GOOGLE DRIVE
DATE:21/6/19	

AIM

Working of Google Drive to make spreadsheet and notes.

Brief Note on Google Drive and its features.

1. Create a document with content, table, figures and graphs in Google document
2. Working of Google Drive to make electricity board bill in spreadsheet. Provide the following concession if the user consumes <=100 units 10%, 200 to 300 5% of the bill amount.

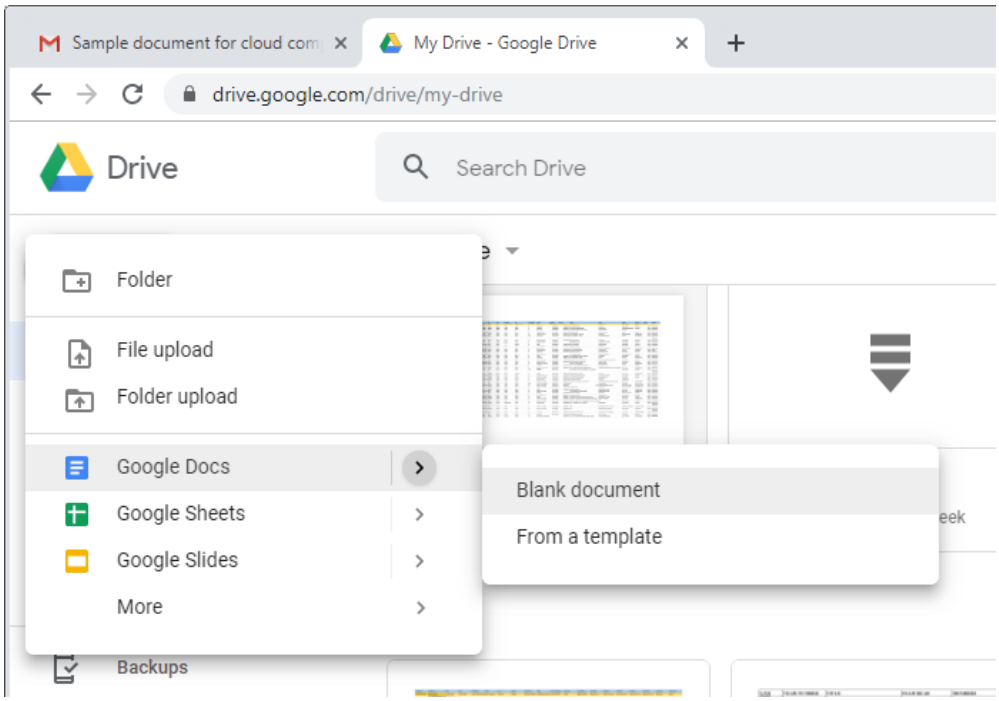
   Rs. 3 / unit(Units consumes < 100)

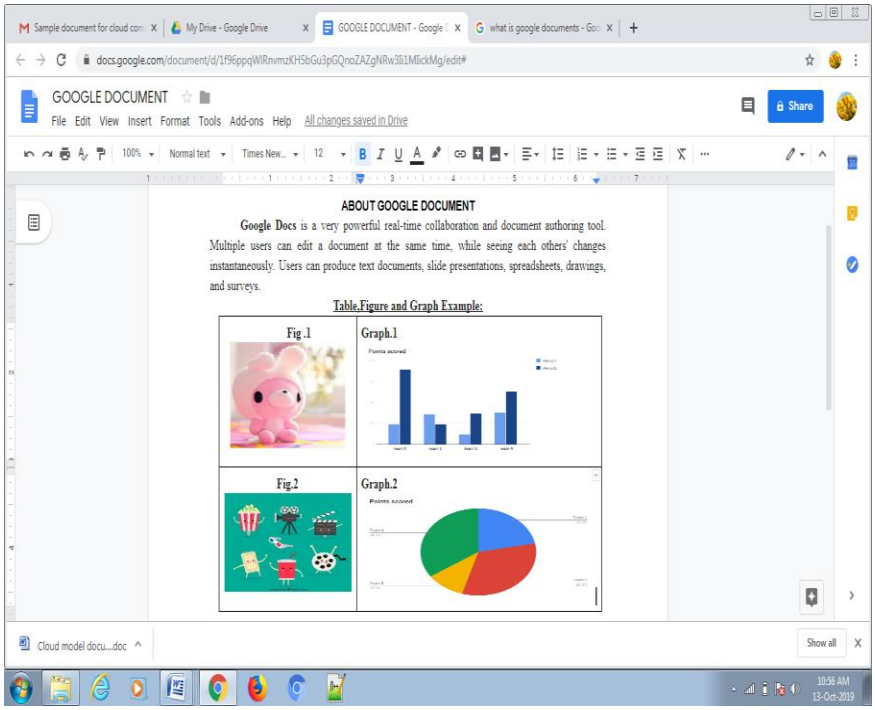
   Rs 5/unit(Units consumes 101 to 300)

   Rs 10/unit(Units consumes 301to 500)

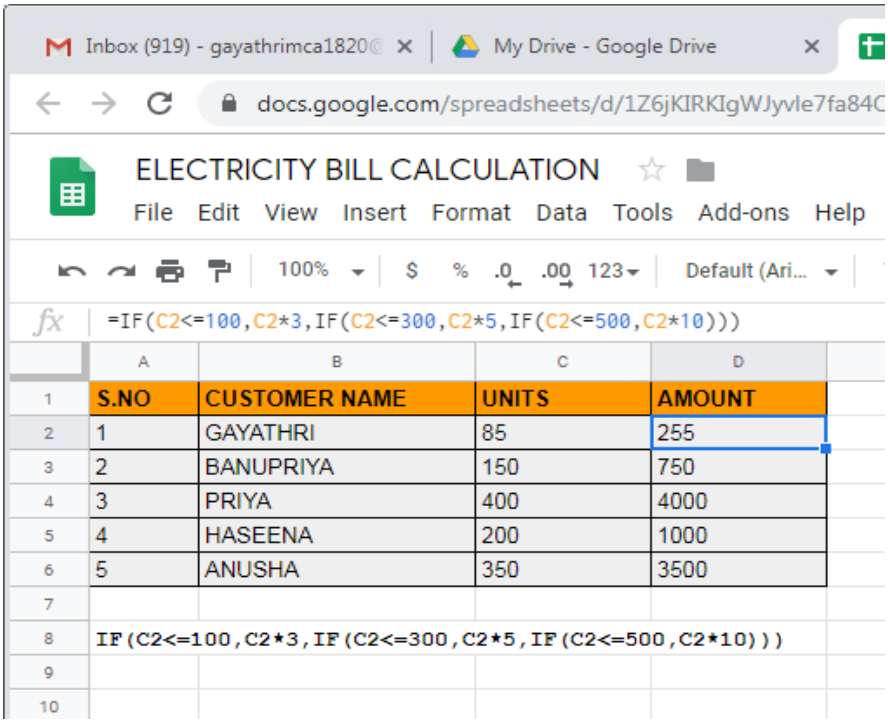
SAMPLE OUTPUT SCREEN:

1. Google document:





2. Spreadsheet



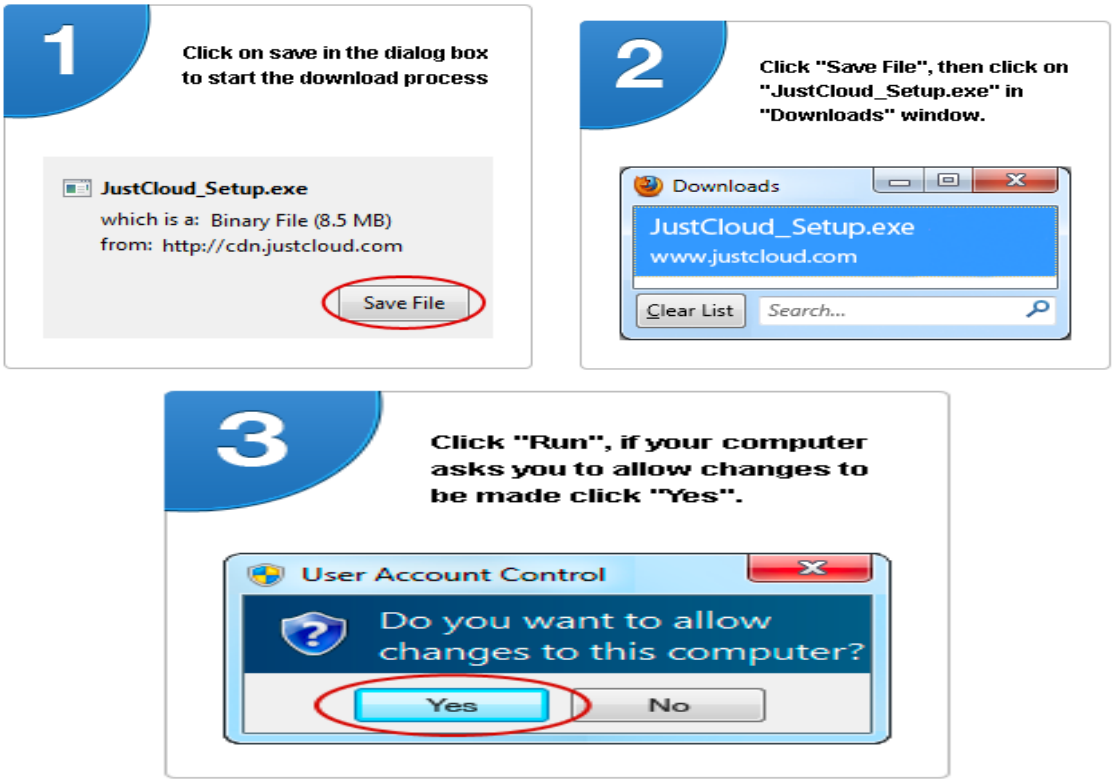
Ex.No: 2	INSTALLATION AND CONFIGURATION OF JUSTCLOUD
DATE:24/6/19	

Brief note:

Professional Cloud Storage from JustCloud is Simple, Fast and Secure. Just Cloud will automatically backup the documents, photos, music and videos stored on your computer, to the cloud so you are never without files again.

Installation:

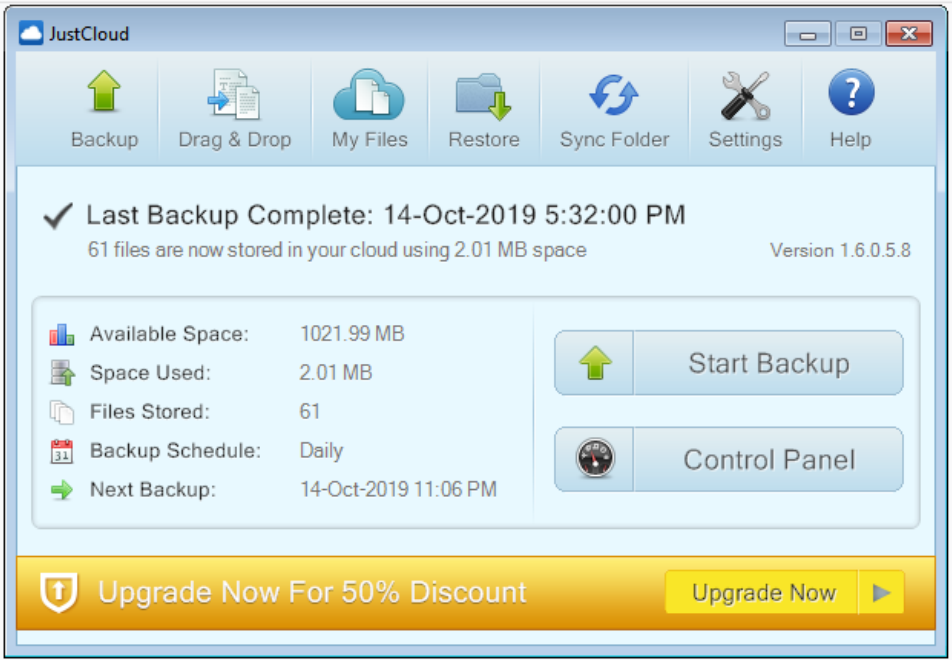
1. Download Software from this link - **http://www.justcloud.com/download/**

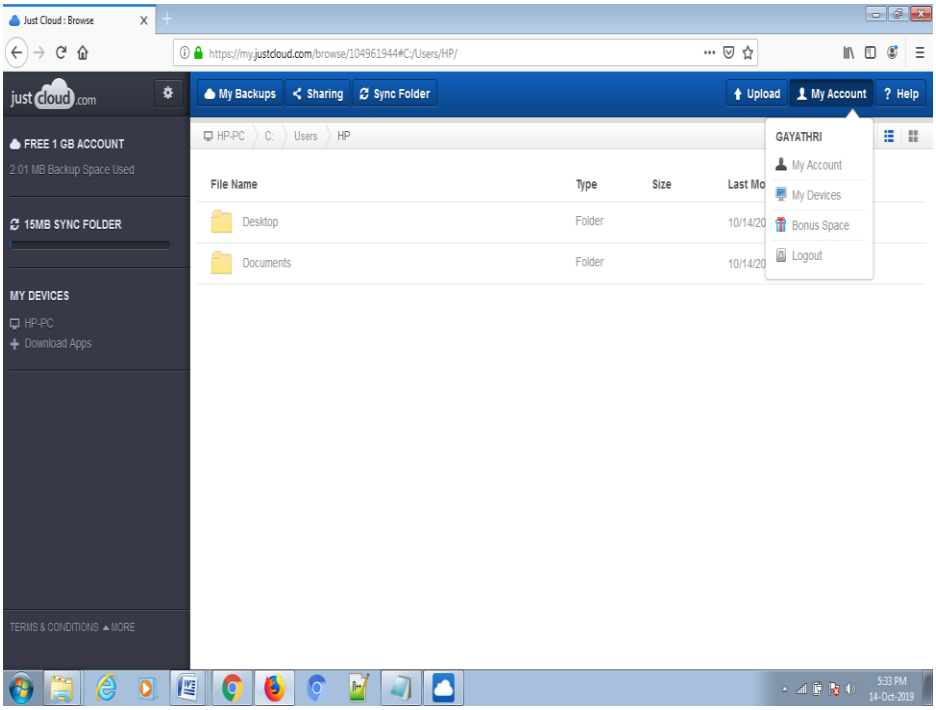


By following these steps you will download and install the JustCloud software application on this computer. This software will automatically start backing up files from your computer and saving them securely in an online cloud user account. Your free account gives you 15MB storage space or 50 files for 14 days. Once installed sync folder will be added to your desktop for you to easily drag and drop files you wish to backup.


justcloud.com
Welcome to JustCloud
Please login to your account below
Email Address
gayathrimca1820@gmail.com
Password
Remember Me
LOGIN
NOT GOT AN ACCOUNT?
Create an Account today!
GET STARTED
Forgotten Password?
Terms & Conditions
Privacy
© 2019 JustCloud


JustCloud Setup Wizard
Welcome to JustCloud
Please select the files and folders you would like to backup to the cloud
Backup Everything (Recommended)
Pictures
Desktop
Documents
Music
Videos
Downloads
Let Me Choose (Advanced)
Edit
Next


JustCloud
Backup
Drag & Drop
My Files
Restore
Sync Folder
Settings
Help
Last Backup Complete: 14-Oct-2019 5:32:00 PM
61 files are now stored in your cloud using 2.01 MB space
Version 1.6.0.5.8
Available Space: 1021.99 MB
Space Used: 2.01 MB
Files Stored: 61
Backup Schedule: Daily
Next Backup: 14-Oct-2019 11:06 PM
Start Backup
Control Panel
Upgrade Now For 50% Discount
Upgrade Now

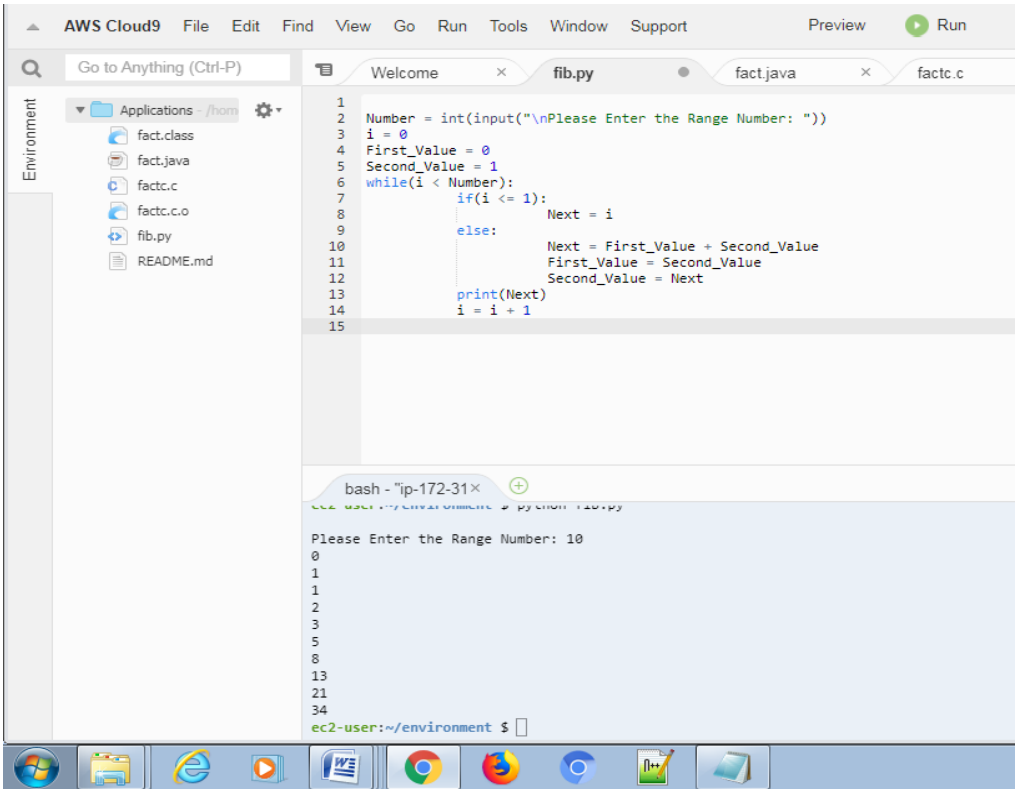

Just Cloud : Browse
https://my.justcloud.com/browse/104961944#C:/Users/HP/
justcloud.com
My Backups
Sharing
Sync Folder
Upload
My Account
Help
FREE 1 GB ACCOUNT
2.01 MB Backup Space Used
15MB SYNC FOLDER
MY DEVICES
HP-PC
Download Apps
HP-PC
C:
Users
HP
File Name
Type
Size
Desktop
Folder
Documents
Folder
GAYATHRI
My Account
My Devices
Bonus Space
Logout
TERMS & CONDITIONS
MORE
5:33 PM
14-Oct-2019

Ex.No: 3	CLOUD9 TO DEMONSTRATE DIFFERENT LANGUAGE
DATE:1/7/19	

Brief note:

Cloud9 IDE is an online development environment for JavaScript and Node.js applications as well as HTML, CSS, PHP, Java, Ruby and 23 other languages. Anyone looking for a modern and secure IDE. With your code online and accessible from anywhere, you can work more efficiently than before.

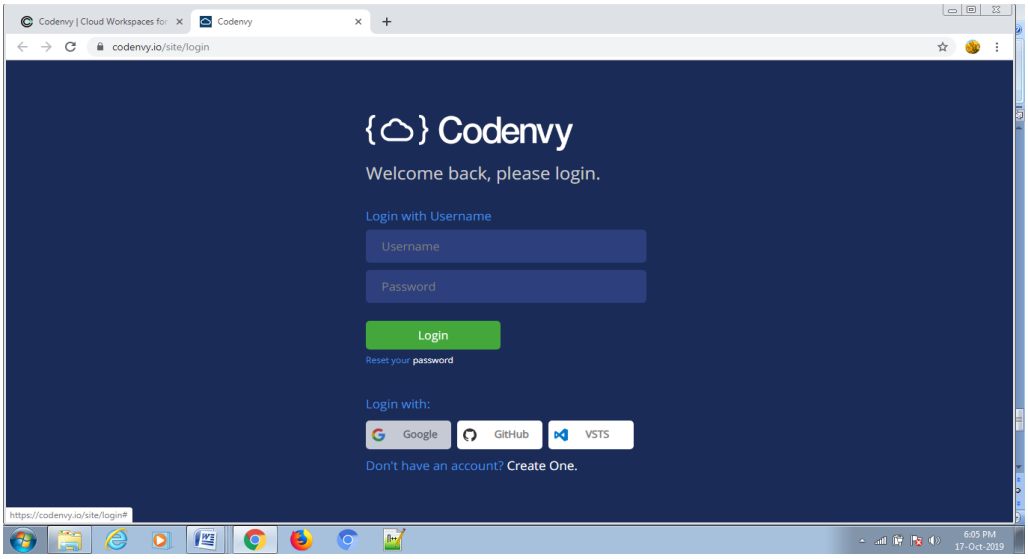
Cloud9 : Fibonacci series program:

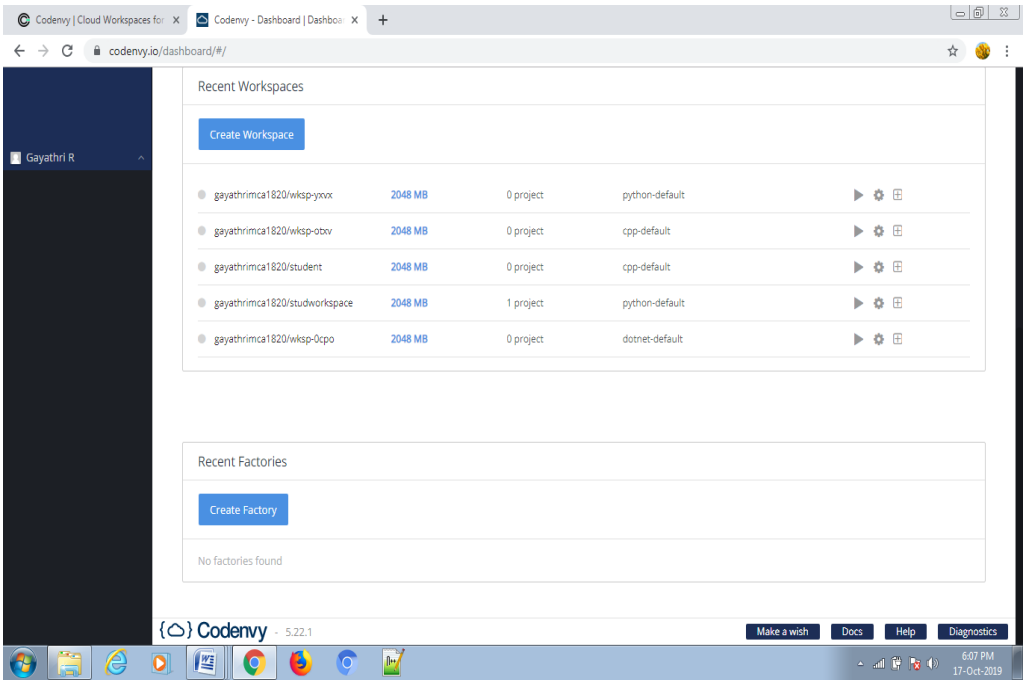


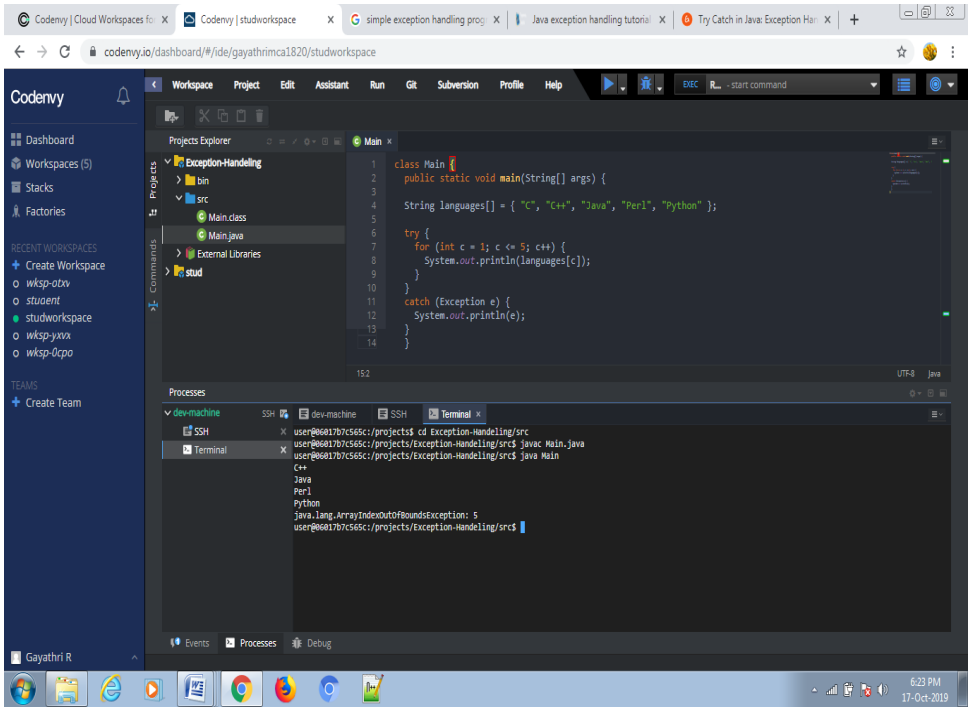
Ex.No: 4	WORKING WITH CODENVY
DATE:18/7/19	

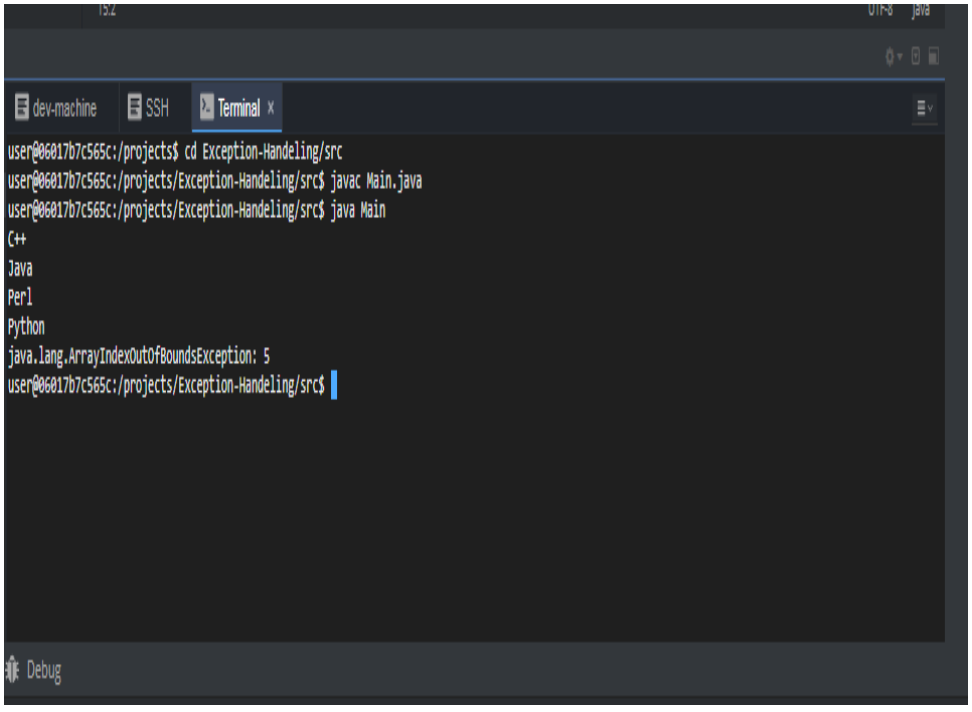
Aim:

Working in Codenvy to demonstrate Provisioning and Scaling of a website.






Codenvy | Cloud Workspaces fo
Codenvy | studworkspace
simple exception handling prog
Java exception handling tutorial
Try Catch in Java: Exception Han
codenvy.io/dashboard/#/ide/gayathrimca1820/studworkspace
Codenvy
Dashboard
Workspaces (5)
Stacks
Factories
RECENT WORKSPACES
Create Workspace
wksp-otxv
stuaent
studworkspace
wksp-yxvx
wksp-0cpo
TEAMS
Create Team
Gayathri R
Workspace
Project
Edit
Assistant
Run
Git
Subversion
Profile
Help
Projects Explorer
Exception-Handeling
bin
src
Main.class
Main.java
External Libraries
stud
Main
class Main {
public static void main(String[] args) {
String languages[] = { "C", "C++", "Java", "Perl", "Python" };
try {
for (int c = 1; c <= 5; c++) {
System.out.println(languages[c]);
}
}
catch (Exception e) {
System.out.println(e);
}
}
15:2
UTF-8
Java
Processes
dev-machine
SSH
Terminal
user@06017b7c565c:/projects$ cd Exception-Handeling/src
user@06017b7c565c:/projects/Exception-Handeling/src$ javac Main.java
user@06017b7c565c:/projects/Exception-Handeling/src$ java Main
C++
Java
Perl
Python
java.lang.ArrayIndexOutOfBoundsException: 5
user@06017b7c565c:/projects/Exception-Handeling/src$
Events
Processes
Debug
6:23 PM
17-Oct-2019


dev-machine
SSH
Terminal
user@06017b7c565c:/projects$ cd Exception-Handeling/src
user@06017b7c565c:/projects/Exception-Handeling/src$ javac Main.java
user@06017b7c565c:/projects/Exception-Handeling/src$ java Main
C++
Java
Perl
Python
java.lang.ArrayIndexOutOfBoundsException: 5
user@06017b7c565c:/projects/Exception-Handeling/src$
Debug

Ex.No: 5	WORKING AND INSTALLATION OF GOOGLE APP ENGINE
DATE:26/7/19	

The App Engine SDK allows you to run Google App Engine Applications on your local computer. It simulates the run---time environment of the Google App Engine infrastructure.

Download and Install cloud SDK

Download the Google App Engine SDK

Before downloading, please read the Terms that govern your use of the App Engine SDK.

Please note: The App Engine SDK is under **active development**, please keep this in mind as you explore its capabilities. See the SDK Release Notes for the information on the most recent changes to the App Engine SDK. If you discover any issues, please feel free to notify us via our Issue Tracker.

Platform	Version	Package	Size	SHA1 Checksum
Windows	1.1.5 - 10/03/08	GoogleAppEngine_1.1.5.msi	2.5 MB	e974312b4aefc0b3873ff0d93eb4c525d5e88c30
Mac OS X	1.1.5 - 10/03/08	GoogleAppEngineLauncher-1.1.5.dmg	3.6 MB	f62208ac01c1b3e39796e58100d5f1b2f052d3e7
Linux/Other Platforms	1.1.5 - 10/03/08	google_appengine_1.1.5.zip	2.6 MB	cbb9ce817bdabf1c4f181d9544864e55ee253de1

Making your First Application

Using a text editor such as JEdit (www.jedit.org), create a file called **app.yaml** in the ae--01--trivial folder with the following contents:

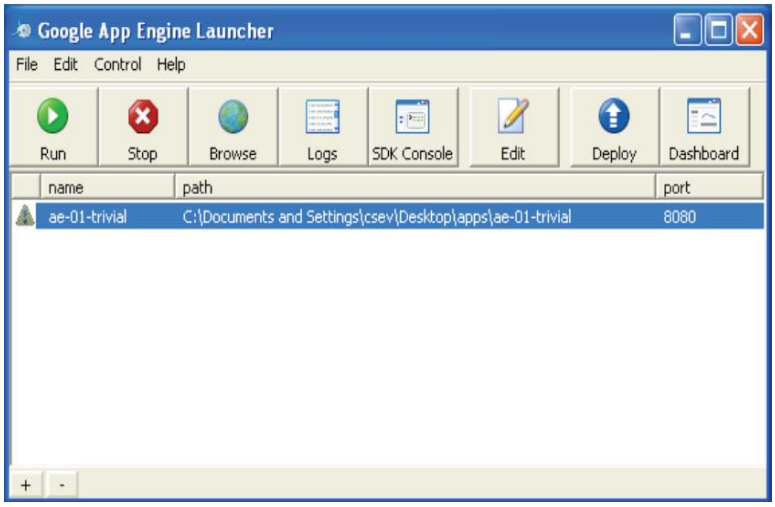
```
application: hello
version: 1
runtime: python
api_version: 1
handlers:
- url: /.*
 script: index.py
```

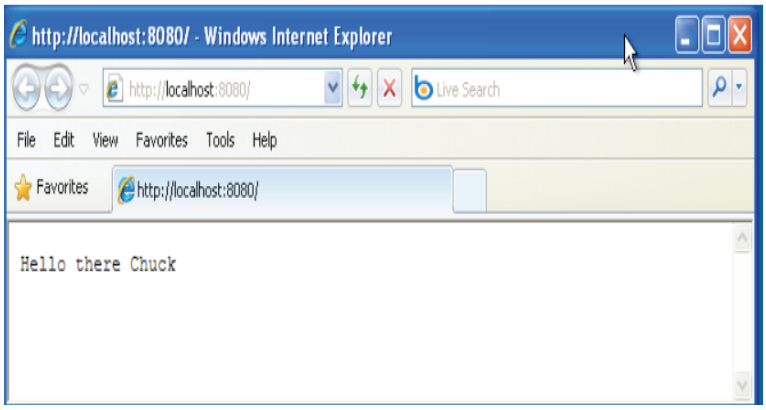
Then create a file in the ae--01--trivial folder called **index.py** with three lines in it:

```
print 'Content-Type: text/plain'
print ' '
print 'Hello there Chuck'
```

Then start the GoogleAppEngineLauncher program that can be found under Applications. Use the **File-->Add Existing Application commandand** navigate into theapps directory and select the ae--01--trivial folder.

Once you have added the application,select it so that you can control the application using the launcher.
paste **http://localhost:8080** into yourbrowser and you should see your application as follows:





To get more detail on what is going wrong,take a look at the log for the application:

Ex.No: 6	WORKING AND INSTALLATION OF MICROSOFT AZURE
DATE:5/8/19	

Introduction:

In this article we are going to see how to create a new database stored procedure using the new Azure portal instead of using the SQL Server Management Studio.

Overview:

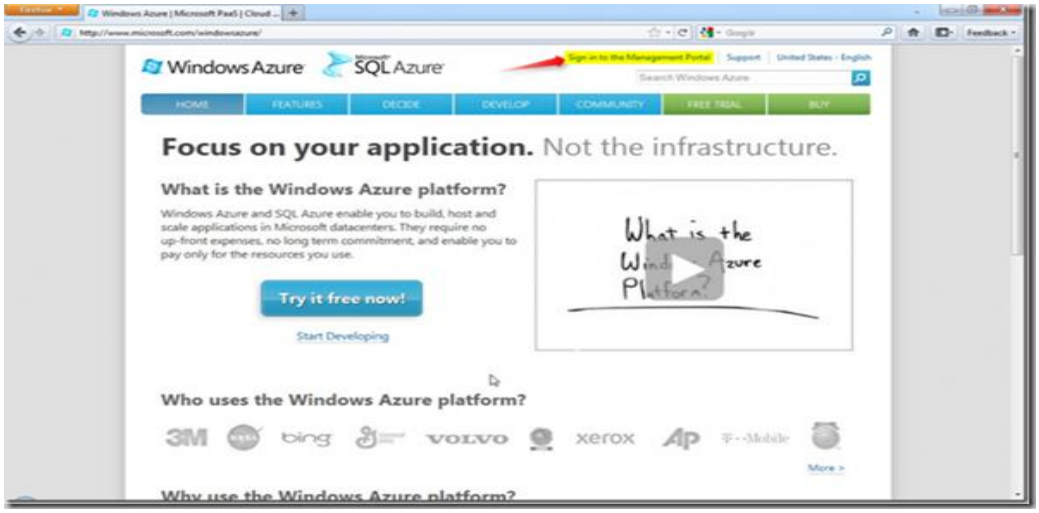
Stored procedures are created normally using the SQL Serve management studio, with the latest version of SQL Azure we have option to create a user stored procedure directly online without need to have a local interface. This way we have some control of using it anywhere anytime to do some updates regularly.

Let us see how to create the Stored procedure in Azure portal step by step.

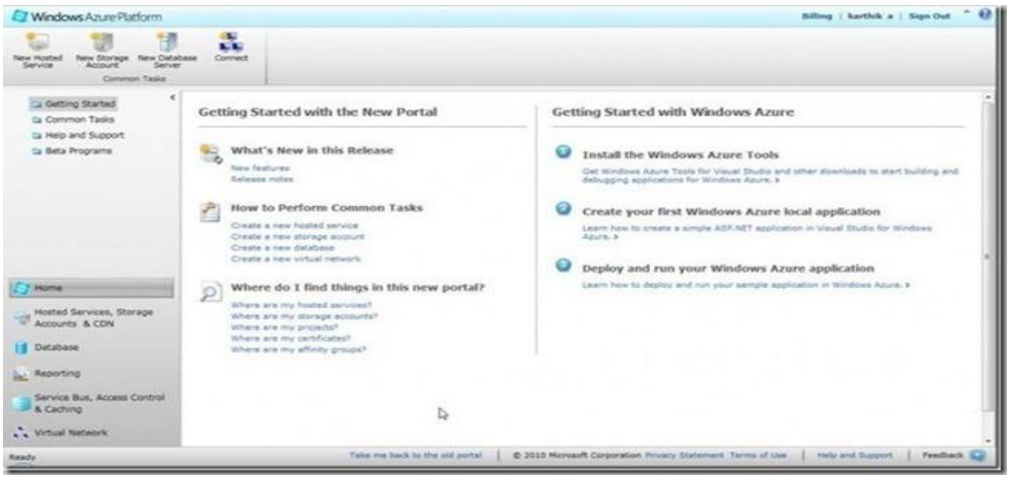
Steps:

Log in to the Azure portal using the below link. You can see the screen look similar to below

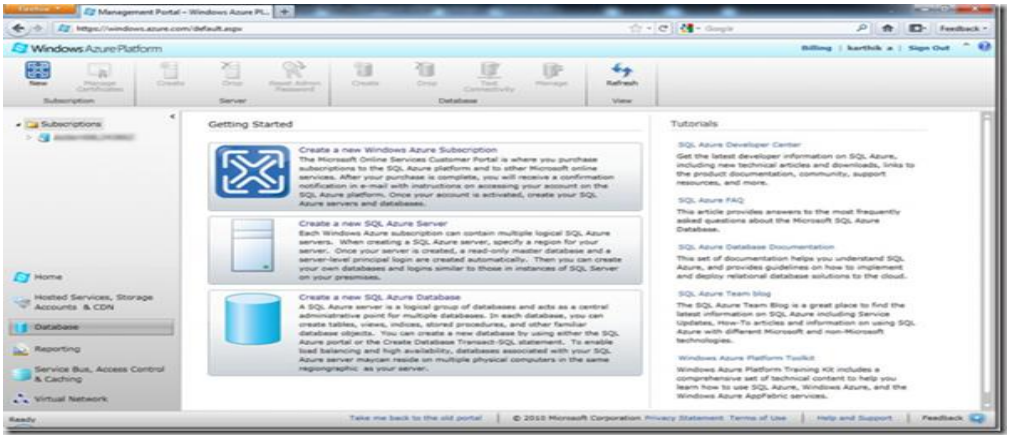
http://www.microsoft.com/windowsazure/



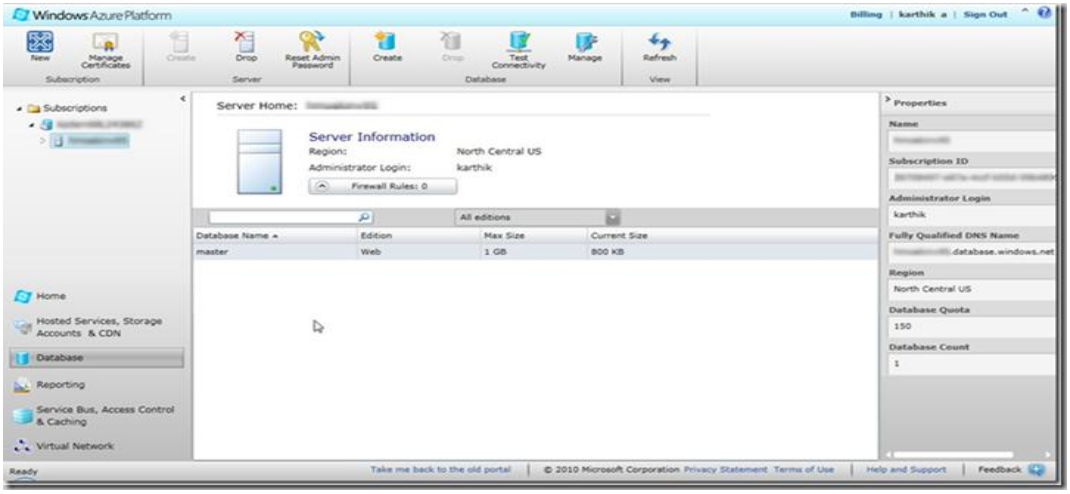
Login to the portal using your Microsoft Windows Live credentials with Azure credentials to the management portal and you will see the screen as shown in the screen below.



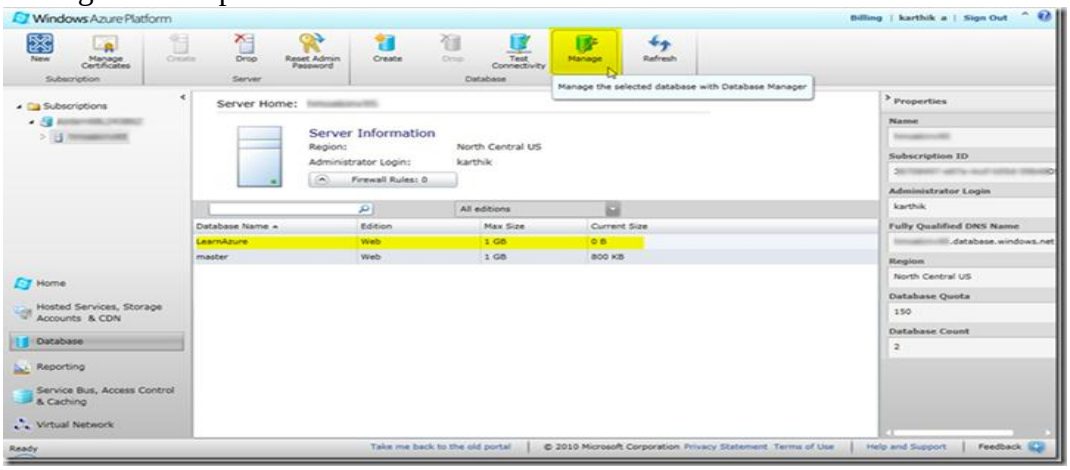
Now we can see the Database Menu at the bottom left, Click on that will go to the Database Subscription window as shown in the screen below



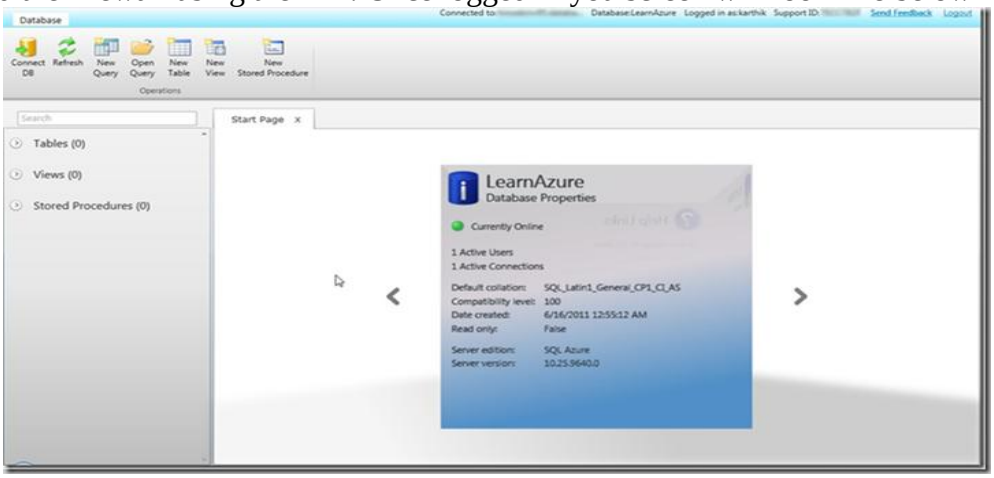
Clicking on the subscription name will provide the complete details of the server created and the new database created as shown in the screen below



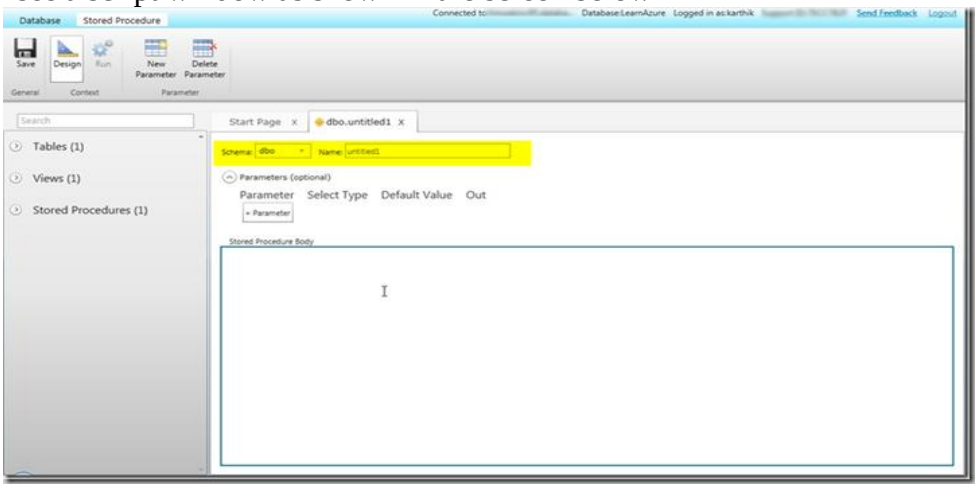
Now we have a database created(LearnAzure) with a Max size of 1GB and ready to use it for the application based on the requirement. To create a new Stored Procedure click on Manage at the top menu tool bar as shown in the screen below.



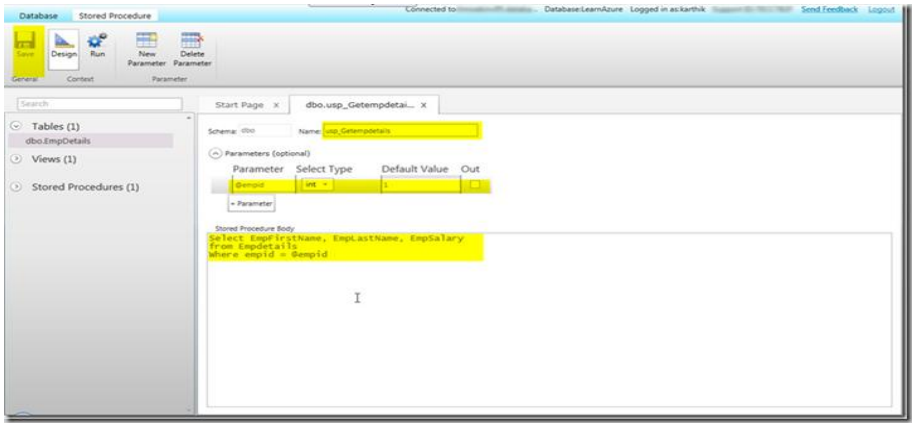
Check my previous article on how to connect to the manage portal using the credentials and the firewall using the link. Once logged in you screen will look like below



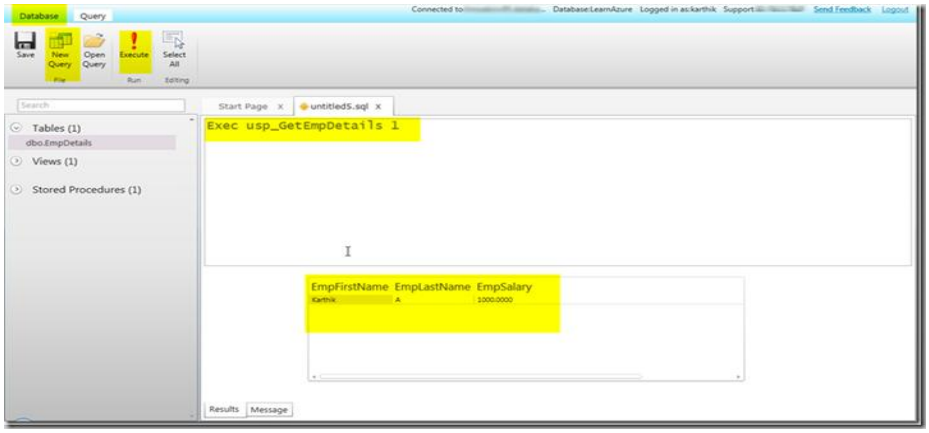
To create a new stored procedure click on New Stored procedure menu at the top and we will see a script window as shown in the screen below



Now we will write our customized stored procedure for the EmpDetails table which we created in our earlier tutorial(Check my previous article for table creation) as shown in the screen below.



Once we create the structure for the stored procedure as shown in the above screen we need to save it. Once save we can use the stored procedure to execute the same as shown in the screen below. We need to navigate to the new query window in the Database section and write a execute command as shown below.



We can create n Number of stored procedure as per the requirement and use it across the process which we normally do with the traditional SQL Server locally.

Ex.No: 7	WORKING WITH MANGRASOFT ANEKA SOFTWARE
DATE:14/8/19	

Aneka is a Cloud Application Development Platform (CAP) for developing and running compute and data intensive applications. As a platform it provides users with both a runtime environment for executing applications developed using any of the three supported programming models, and a set of APIs and tools that allow you to build new applications or run existing legacy code. The purpose of this document is to help you through the process of installing and setting up an Aneka Cloud environment. This document will cover everything from helping you to understand your existing infrastructure, different deployment options, installing the Management Studio, configuring Aneka Daemons and Containers, and finally running some of the samples to test your environment.

An Aneka Cloud is composed of a collection of services deployed on top of an infrastructure. This infrastructure can include both physical and virtual machines located in your local area network or Data Centre. Aneka services are hosted on Aneka Containers which are managed by Aneka Daemons. An Aneka Daemon is a background service that runs on a machine and helps you to install, start, stop, update and reconfigure Containers.

A key component of the Aneka platform is the Aneka Management Studio, a portal for managing your infrastructure and clouds. Administrators use the Aneka Management Studio to define their infrastructure, deploy Aneka Daemons, and install and configure Aneka Containers. The figure below shows a high-level representation of an Aneka Cloud, composed of a Master Container that is responsible for scheduling jobs to Workers, and a group of Worker Containers that execute the jobs. Each machine is typically configured with a single instance of the Aneka Daemon and a single instance of the Aneka Container.

Installation

This section assumes that you have a copy of the Aneka distribution with you. If you do not have a copy already, you can download the latest version from Manjrasoft's Website.

Installing Aneka Cloud Management Studio

Aneka installation begins with installing Aneka Cloud Management Studio. The Cloud Management Studio is your portal for creating, configuring and managing Aneka Clouds. Installing Aneka using the distributed Microsoft Installer Package (MSI) is a quick process involving three steps as described below.

Step 1 – Run the installer package to start the Setup Wizard

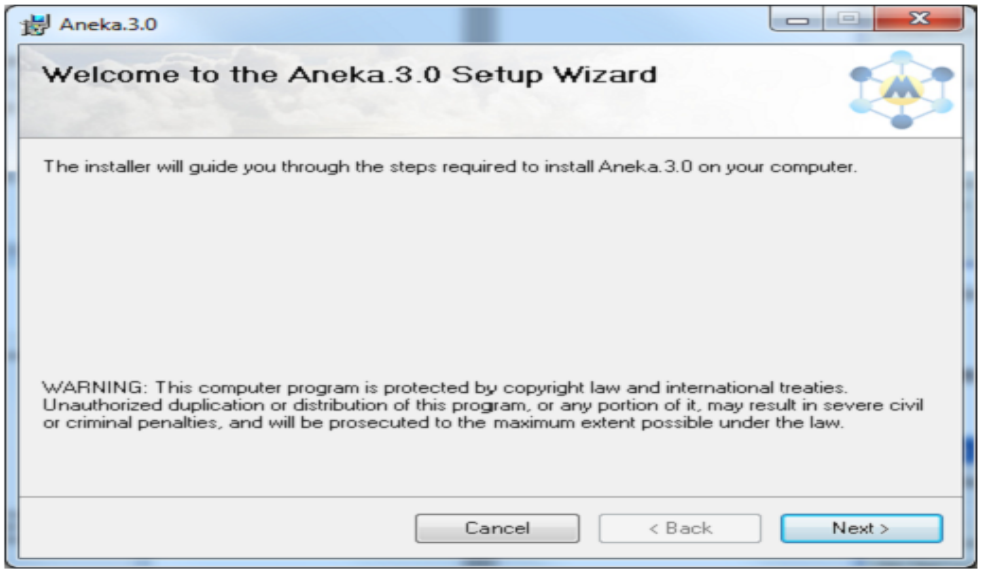


Figure - Welcome Page

The Welcome Page is self-explanatory and you can proceed by clicking next.

Step 2 – Specifying the installation folder

In Step 2 you specify the installation folder. By default Aneka is installed in C:\Program Files\Manjrasoft\Aneka.3.0.

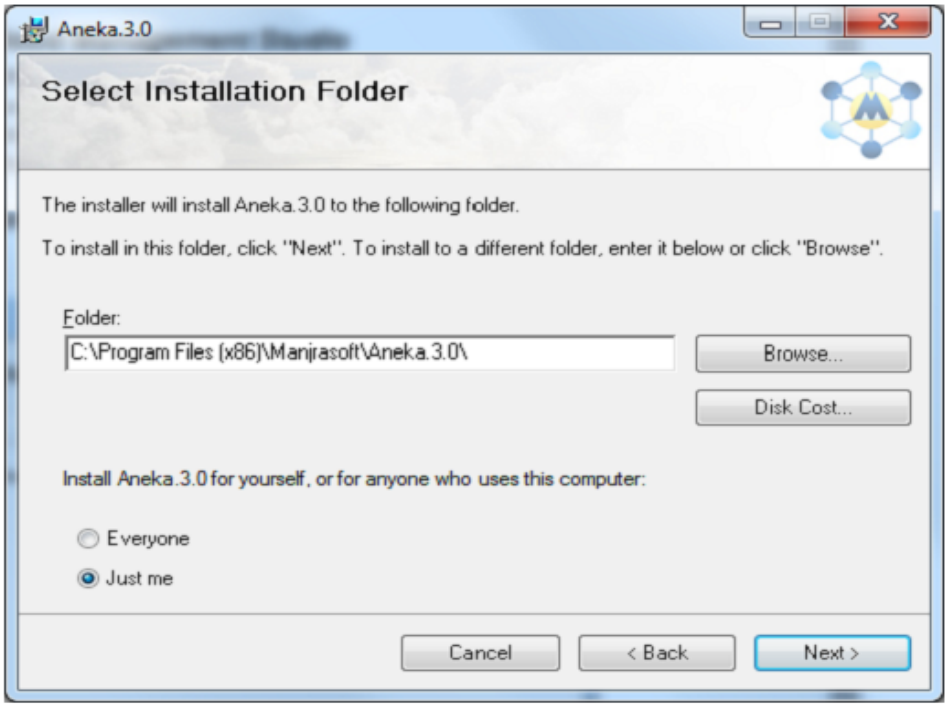


Figure - Specifying the installation folder

Step 3 – Confirm and start the installation

At this point you are ready to begin the installation. Click “Next” to start the installation or “Back” to change your installation folder.

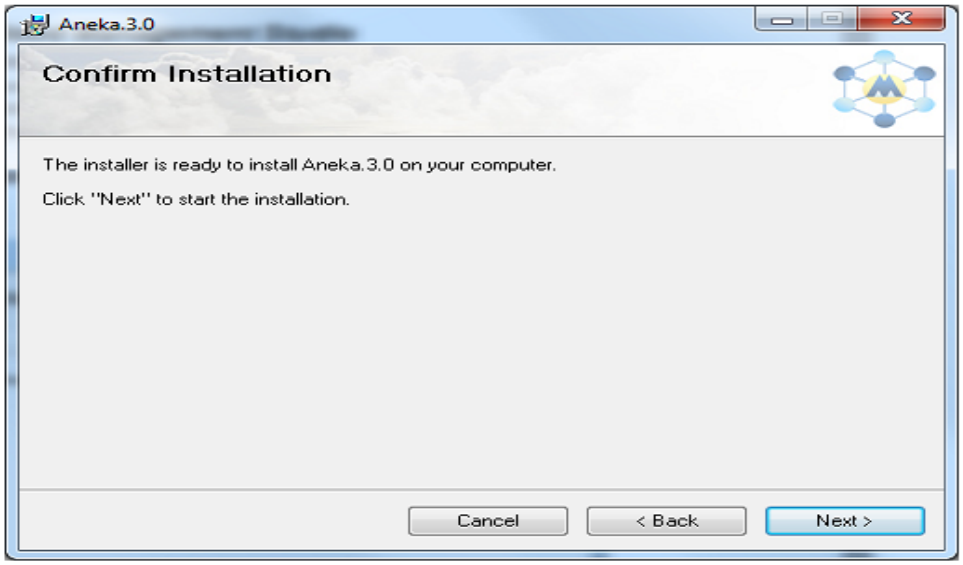


Figure - Confirm Installation

Once the installation is complete, close the wizard and launch Aneka Management Studio from the start menu.

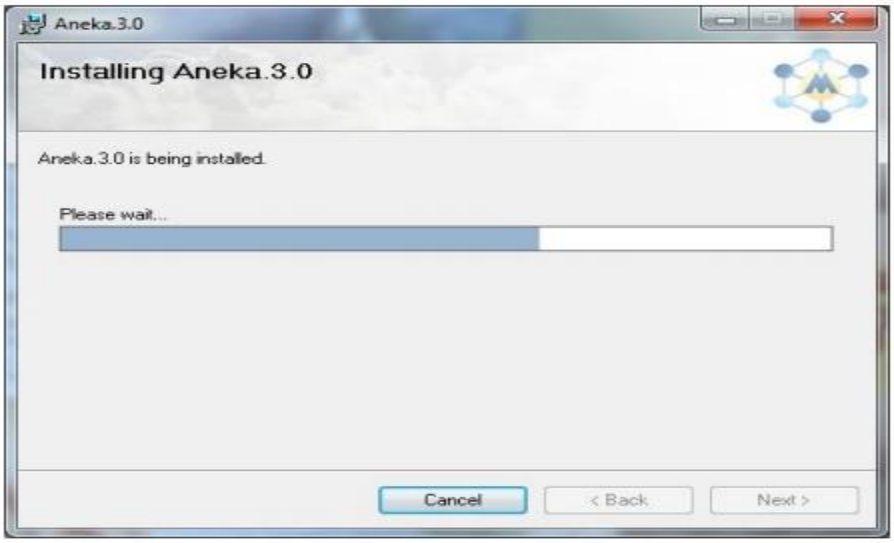


Figure - Installation Progress

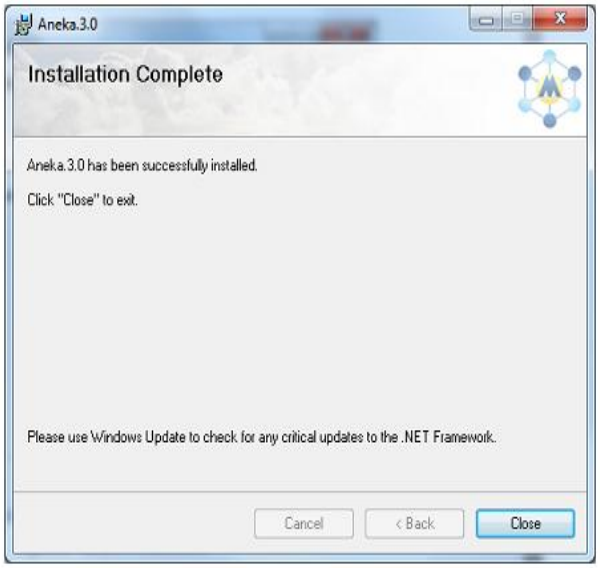


Figure - Installation Complete

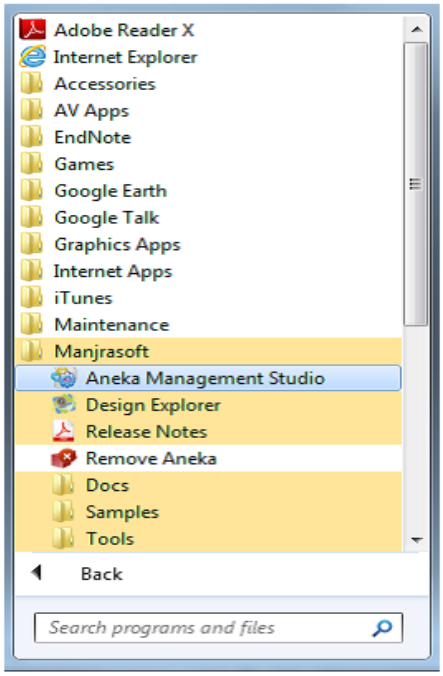


Figure - Start Menu

Aneka Cloud Management Studio

The Aneka Cloud Management Studio is your portal for managing your infrastructure and clouds. It provides facilities for defining your underlying cloud infrastructure and creating one or more Aneka Clouds on top. It lets you create and manage Aneka user accounts, monitor the overall performance of your Cloud, obtain detailed reporting information on resource usage, data transfers, billing and application (job) execution. It also provides facilities for troubleshooting your deployments by allowing you to access and examine remote logs.

Starting up Management Studio

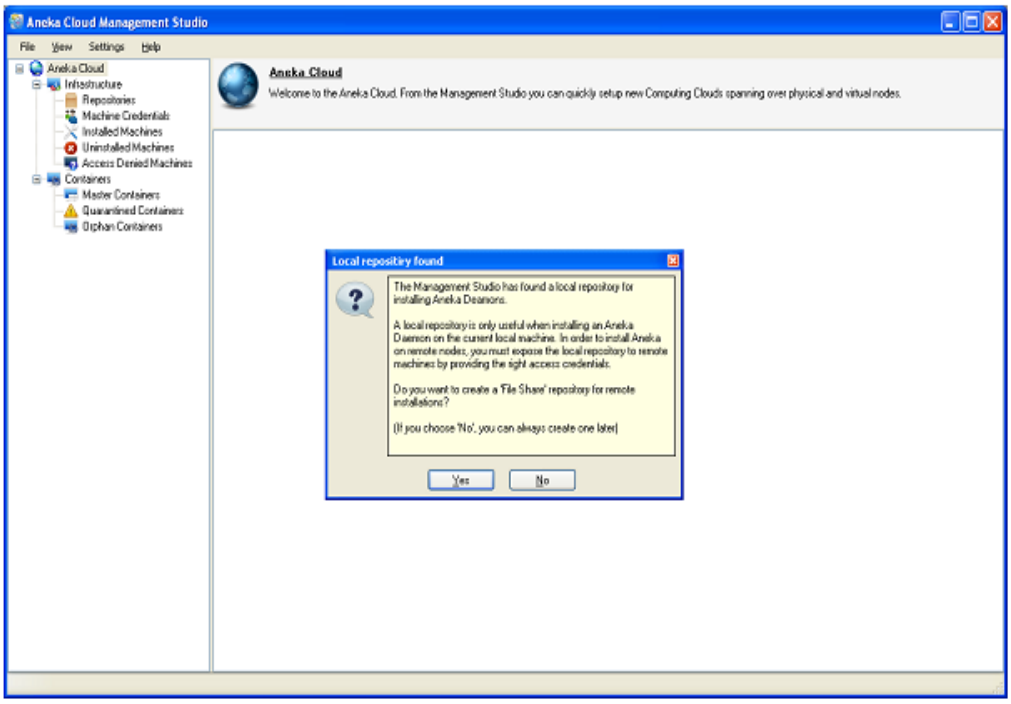


Figure - Starting Aneka Cloud Management Studio for the first time.

When Aneka Cloud Management Studio is started up for the first time you'll be asked to create a Remote Repository for performing remote installations. Setting up a Remote Repository requires selecting a suitable repository type and supplying valid credentials which remote machines can use to connect and download required files. You may however choose to create this repository at a late time before making remote installations. If no repository is defined, you will be restricted to making local installations only.

Shutting down Aneka Management Studio

When attempting to shut down Aneka Management Studio, you will be given the choice of saving all configuration data from the current session. It is highly recommended that you save this information and restore it the next time you start using the Management Studio.

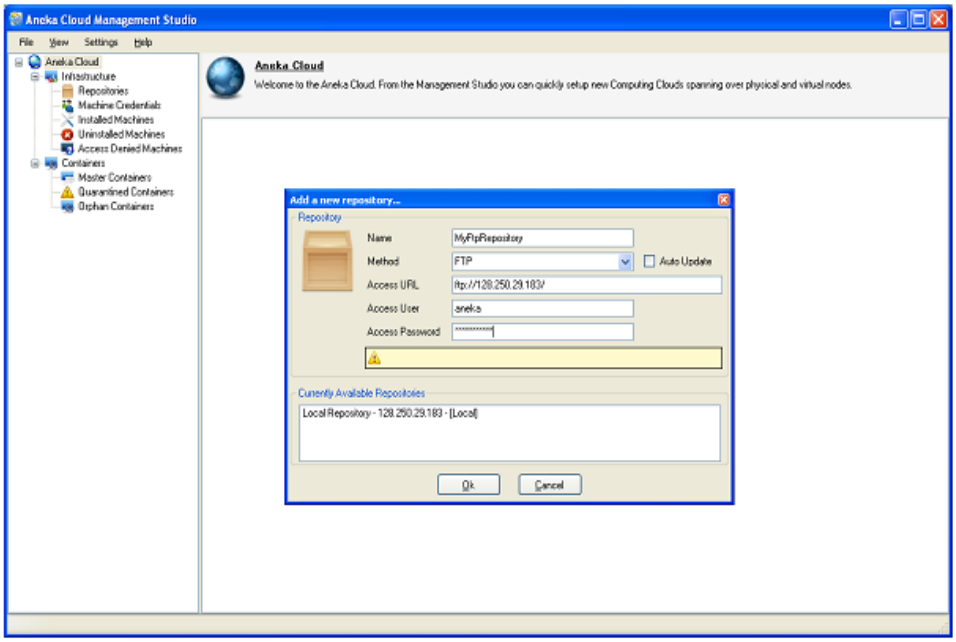


Figure - Creating a repository for remote installations

The Configuration File

The configuration file, ManagementStudio.config, contains all information that describes your infrastructure, your Clouds, the machine credentials, repositories and authentication keys (see section on installing the Master Container) that you defined when using Aneka Management Studio. It is recommended that you save this information when you exit Management Studio so that you can restore it at a later session, and get up-to-speed with your Cloud management without having to redefine all settings again. Some configuration information, such as authentication keys, must be maintained safely if you are to add new Containers to your existing Cloud. Losing an authentication key however, is not detrimental as you will be able to reconfigure your clouds with a new key.

Ex.No: 8	CASE STUDY OF AMAZON WEB SERVICES
DATE:26/8/19	

About Amazon.com

Amazon.com is the world's largest online retailer. In 2011, Amazon.com switched from tape backup to using Amazon Simple Storage Service (Amazon S3) for backing up the majority of its Oracle databases. This strategy reduces complexity and capital expenditures, provides faster backup and restore performance, eliminates tape capacity planning for backup and archive, and frees up administrative staff for higher value operations. The company was able to replace their backup tape infrastructure with cloud-based Amazon S3 storage, eliminate backup software, and experienced a 12X performance improvement, reducing restore time from around 15 hours to 2.5 hours in select scenarios.

The Challenge

As Amazon.com grows larger, the sizes of their Oracle databases continue to grow, and so does the sheer number of databases they maintain. This has caused growing pains related to backing up legacy Oracle databases to tape and led to the consideration of alternate strategies including the use of Cloud services of Amazon Web Services (AWS), a subsidiary of Amazon.com. Some of the business challenges Amazon.com faced included:

- Utilization and capacity planning is complex, and time and capital expense budget are at a premium. Significant capital expenditures were required over the years for tape hardware, data center space for this hardware, and enterprise licensing fees for tape software. During that time, managing tape infrastructure required highly skilled staff to spend time with setup, certification and engineering archive planning instead of on higher value projects. And at the end of every fiscal year, projecting future capacity requirements required time consuming audits, forecasting, and budgeting.

- The cost of backup software required to support multiple tape devices sneaks up on you. Tape robots provide basic read/write capability, but in order to fully utilize them, you must invest in proprietary tape backup software. For Amazon.com, the cost of the software had been high, and added significantly to overall backup costs. The cost of this software was an ongoing budgeting pain point, but one that was difficult to address as long as backups needed to be written to tape devices.

- Maintaining reliable backups and being fast and efficient when retrieving data requires a lot of time and effort with tape. When data needs to be durably stored on tape, multiple copies are required. When everything is working correctly, and there is minimal contention for tape resources, the tape robots and backup software can easily find the required data. However, if there is a hardware failure, human intervention is necessary to restore from tape. Contention for tape drives resulting from multiple users' tape requests slows down restore processes even more. This adds to the

recovery time objective (RTO) and makes achieving it more challenging compared to backing up to Cloud storage.

Why Amazon Web Services

Amazon.com initiated the evaluation of Amazon S3 for economic and performance improvements related to data backup. As part of that evaluation, they considered security, availability, and performance aspects of Amazon S3 backups. Amazon.com also executed a cost-benefit analysis to ensure that a migration to Amazon S3 would be financially worthwhile. That cost benefit analysis included the following elements:

- Performance advantage and cost competitiveness. It was important that the overall costs of the backups did not increase. At the same time, Amazon.com required faster backup and recovery performance. The time and effort required for backup and for recovery operations proved to be a significant improvement over tape, with restoring from Amazon S3 running from two to twelve times faster than a similar restore from tape. Amazon.com required any new backup medium to provide improved performance while maintaining or reducing overall costs. Backing up to on-premises disk based storage would have improved performance, but missed on cost competitiveness. Amazon S3 Cloud based storage met both criteria.

- Greater durability and availability. Amazon S3 is designed to provide 99.999999999% durability and 99.99% availability of objects over a given year. Amazon.com compared these figures with those observed from their tape infrastructure, and determined that Amazon S3 offered significant improvement.

- Less operational friction. Amazon.com DBAs had to evaluate whether Amazon S3 backups would be viable for their database backups. They determined that using Amazon S3 for backups was easy to implement because it worked seamlessly with Oracle RMAN.

- Strong data security. Amazon.com found that AWS met all of their requirements for physical security, security accreditations, and security processes, protecting data in flight, data at rest, and utilizing suitable encryption standards.

The Benefits

With the migration to Amazon S3 well along the way to completion, Amazon.com has realized several benefits, including:

- Reduced capital expenditures. Amazon.com no longer needs to acquire tape robots, tape drives, tape inventory, data center space, networking gear, enterprise backup software, or predict future tape consumption. This eliminates the burden of budgeting for capital equipment well in advance as well as the capital expense.

- Immediate availability of data for restoring – no need to locate or retrieve physical tapes. Whenever a DBA needs to restore data from tape, they face delays. The tape backup software needs to read the tape catalog to find the correct files to restore, locate the correct tape, mount the tape, and read the data from it. In almost all cases the data is spread across multiple tapes, resulting in further delays. This, combined with contention for tape drives resulting from multiple users' tape requests, slows the process down even more. This is especially severe during critical events such as a data

center outage, when many databases must be restored simultaneously and as soon as possible. None of these problems occur with Amazon S3. Data restores can begin immediately, with no waiting or tape queuing – and that means the database can be recovered much faster.

- Backing up a database to Amazon S3 can be two to twelve times faster than with tape drives. As one example, in a benchmark test a DBA was able to restore 3.8 terabytes in 2.5 hours over gigabit Ethernet. This amounts to 25 gigabytes per minute, or 422MB per second. In addition, since Amazon.com uses RMAN data compression, the effective restore rate was 3.37 gigabytes per second. This 2.5 hours compares to, conservatively, 10-15 hours that would be required to restore from tape.

- Easy implementation of Oracle RMAN backups to Amazon S3. The DBAs found it easy to start backing up their databases to Amazon S3. Directing Oracle RMAN backups to Amazon S3 requires only a configuration of the Oracle Secure Backup Cloud (SBC) module. The effort required to configure the Oracle SBC module amounted to an hour or less per database. After this one-time setup, the database backups were transparently redirected to Amazon S3.

- Durable data storage provided by Amazon S3, which is designed for 11 nines durability. On occasion, Amazon.com has experienced hardware failures with tape infrastructure – tapes that break, tape drives that fail, and robotic components that fail. Sometimes this happens when a DBA is trying to restore a database, and dramatically increases the mean time to recover (MTTR). With the durability and availability of Amazon S3, these issues are no longer a concern.

- Freeing up valuable human resources. With tape infrastructure, Amazon.com had to seek out engineers who were experienced with very large tape backup installations – a specialized, vendor-specific skill set that is difficult to find. They also needed to hire data center technicians and dedicate them to problem-solving and troubleshooting hardware issues – replacing drives, shuffling tapes around, shipping and tracking tapes, and so on. Amazon S3 allowed them to free up these specialists from day-to-day operations so that they can work on more valuable, business-critical engineering tasks.

- Elimination of physical tape transport to off-site location. Any company that has been storing Oracle backup data offsite should take a hard look at the costs involved in transporting, securing and storing their tapes offsite – these costs can be reduced or possibly eliminated by storing the data in Amazon S3.

As the world's largest online retailer, Amazon.com continuously innovates in order to provide improved customer experience and offer products at the lowest possible prices. One such innovation has been to replace tape with Amazon S3 storage for database backups. This innovation is one that can be easily replicated by other organizations that back up their Oracle databases to tape.

Ex.No: 9	CASE STUDY OF MICROSOFT AZURE
DATE:4/9/19	

What is Azure?

At its core, Azure is a public cloud computing platform—with solutions including **Infrastructure as a Service** (IaaS), **Platform as a Service** (PaaS), and **Software as a Service** (SaaS) that can be used for services such as analytics, virtual computing, storage, networking, and much more. It can be used to replace or supplement your on-premise servers.

Microsoft Azure – IaaS, PaaS and SaaS

- **Flexible** – Move compute resources up and down as needed
- **Open** – Supports almost any OS, language, tool, or framework
- **Reliable** – 99.95% availability SLA and 24×7 tech support
- **Global** – Data housed in geo-synchronous data centers
- **Economical** – Only pay for what you use

Azure is a fast, flexible, and affordable platform, and its pricing and capabilities make it the best public cloud offering on the market. Now let's take a look at *how* to put it to work for you.

1. Enhance and Implement Backup and Disaster Recovery

Azure is a backup and disaster recovery dream tool. Why? Because of its **flexibility, advanced site recovery,** and **built-in integration.**

As a cloud-based solution, Azure is innately **flexible –** it can back up your data in almost any language, on any OS, and from any location. Plus, you define the frequency and extent of your backup schedule (daily, weekly, monthly, etc.).

If you're in a Windows virtual environment, Azure's **built-in integration** for additional backup will be a quick and painless solution. Azure site recovery integrates with System Center and HyperV architectures, creating a robust and seamless cohesion between Azure, System Center, and HyperV.

2. Host and Develop Web and Mobile Apps

Whether you're looking for a platform for hosting, developing, or managing a web or mobile app, Azure makes those apps autonomous and adaptive with **patch management, AutoScale,** and **integration** for on-premise apps.

With **Automatic patch management** for your virtual machines, you can spend less time managing your infrastructure and focus on improving your apps. Azure also comes with continuous deployment support, which allows you to streamline ongoing code updates.

AutoScale is a feature built into Azure Web Apps that adjusts your resources automatically based on customer web traffic so you have the resources you need when traffic is high, and save money when you're not in peak times.

Through Azure, you can seamlessly **link your web app to an on-premise app**. Connecting apps in both locations lets both employees and partners securely access resources inside your firewall—resources that would otherwise be difficult to access externally.

3. Distribute and Supplement Active Directory

Azure can integrate with your Active Directory to supplement your identity and access capabilities—this gives your DNS a **global reach, centralized management,** and **robust security.**

With Azure, you can **globally distribute** an Active Directory environment that is direct connect enabled. No other cloud provider has the ability to extend the reach of your domain controller and consolidate AD management like Azure.

If you have multiple locations or use on-premise apps or cloud apps like Office 365, Active Directory integration with Azure will be the **central tool for managing and maintaining access to all of these tools**.

Azure also enables you to utilize multi-factor authentication, adding a new layer of **security** to your data and applications with zero hassle for your users. You can also easily implement single sign-on for Windows, Mac, Android, and iOS cloud apps.

4. Innovate with IoT Industry Solutions

The scalability, flexibility, and security of Microsoft Azure makes it the perfect resource for companies moving toward IoT solutions. You can connect your devices to the cloud using solutions that integrate with your existing infrastructure and start collecting new data about your company.

Ex.No: 10	WORKING WITH GIT, GIT LAB, GIT HUB
DATE:24/9/19	

AIM:

Brief Note Git, Git Lab, Git hub

Create a repository in Github and perform the following

1. Clone the repository
2. Create a text file and push that file into github

Git:

The purpose of Git is to manage a project, or a set of files, as they change over time. Git stores this information in a data structure called a repository.

A git **repository** contains, among other things, the following:

- A set of **commit objects**.
- A set of references to commit objects, called **heads**.

The Git repository is stored in the same directory as the project itself, in a subdirectory called .git. Note differences from central-repository systems like CVS or Subversion:

- There is only one .git directory, in the root directory of the project.
- The repository is stored in files alongside the project. There is no central server repository.

GitHub:

GitHub is a code hosting platform for collaboration and version control. GitHub lets you (and others) work together on projects.

Sign up for GitHub at **https://github.com/**

GitHub essentials are:

- Repositories
- Branches
- Commits
- Pull Requests
- Git (the version control software GitHub is built on)

Example

$ git push origin heroku

$ cd /etc/

$ ls

Repository

- A GitHub **repository** can be used to store a development **project**.

- It can contain **folders** and any type of **files** (HTML, CSS, JavaScript, Documents, Data, Images).
- A GitHub repository should also include a **licence** file and a **README** file about the project.
- A GitHub repository can also be used to store ideas, or any resources that you want to share.

Branch

- A GitHub branch is used to work with different **versions** of a repository at the same time.
- By default a repository has a **master** branch (a production branch).
- Any other branch is a **copy** of the master branch (as it was at a point in time).
- New Branches are for bug fixes and feature work separate from the master branch. When changes are ready, they can be merged into the master branch. If you make changes to the master branch while working on a new branch, these updates can be pulled in.

Commits

- At GitHub, changes are called commits.
- Each commit (change) has a description explaining why a change was made.

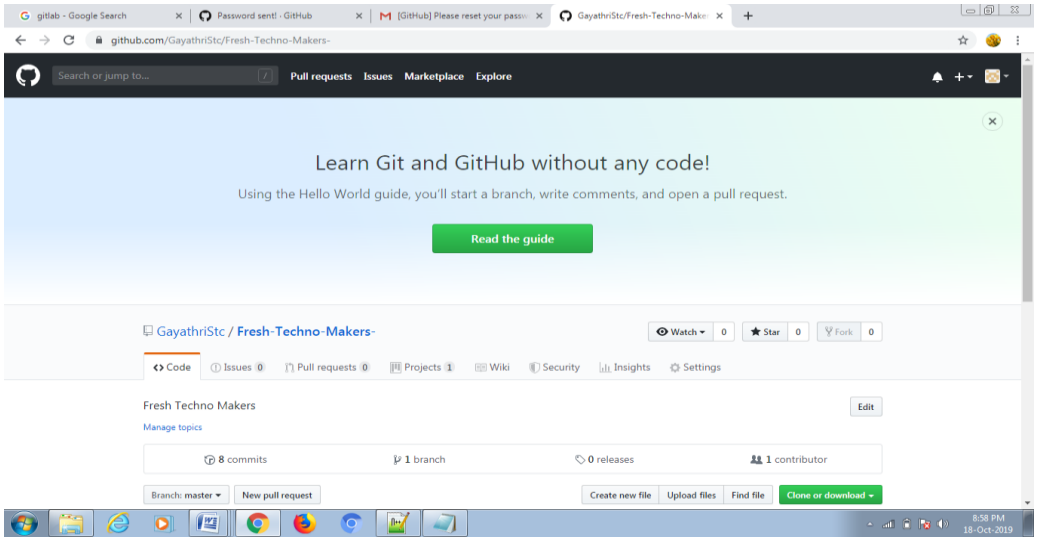
Pull Requests

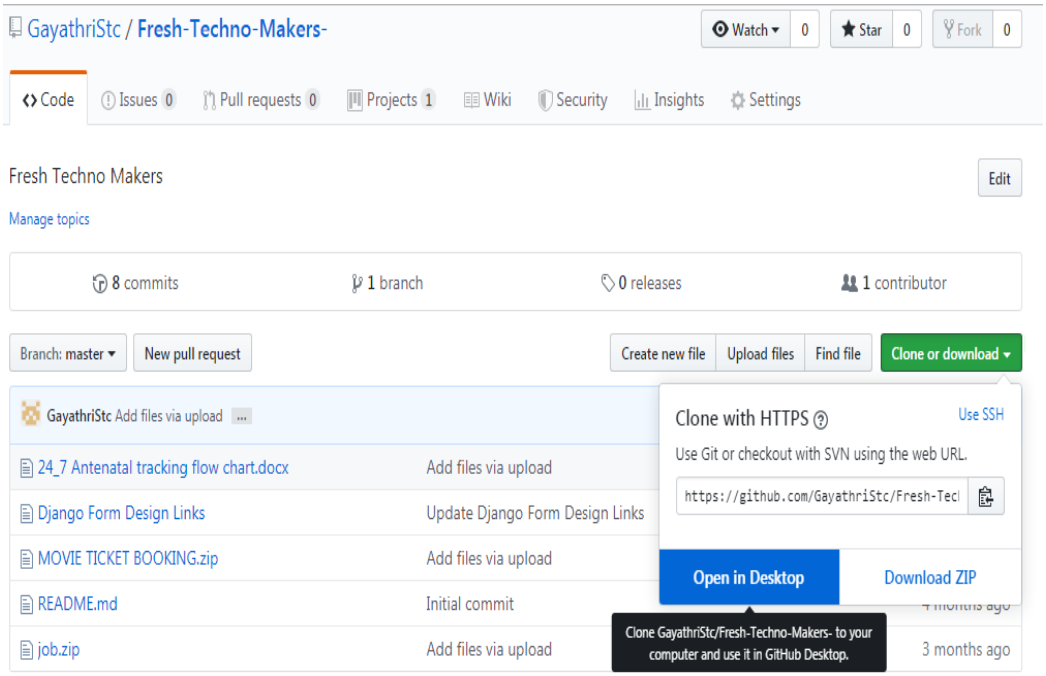
- Pull Requests are the heart of GitHub **collaboration**.
- With a pull request you are **proposing** that your changes should be **merged** (pulled in) with the master.
- Pull requests show content **differences**, changes, additions, and subtractions in **colors** (green and red).
- As soon as you have a commit, you can open a pull request and start a discussion, even before the code is finished.

Git Lab:

GitLab is a great way to manage git repositories on a centralized server. While solutions like GitHub are a great option for many projects, they do not fit every team's needs. GitLab gives you complete control over your repositories and allows you to decide whether they are public or private for free.

Create a repository in Github and perform the following: Clone the repository and Create a text file and push that file into github:





Create a text file and push that file into github

1. On your computer, move the file you'd like to upload to GitHub into the local directory that was created when you cloned the repository.
2. Open Git Bash.
3. Change the current working directory to your local repository.
4. Stage the file for commit to your local repository.

```
$ git add .
# Adds the file to your local repository and stages it for commit. To unstage a file, use 'git reset HEAD YOUR-FILE'.
```

5. Commit the file that you've staged in your local repository.

```
$ git commit -m "Add existing file"
# Commits the tracked changes and prepares them to be pushed to a remote repository. To remove this commit and modify the file, use 'git reset --soft HEAD~1' and commit and add the file again.
```

6. Push the changes in your local repository to GitHub.

```
$ git push origin your-branch# Pushes the changes in your local repository up to the remote repository you specified as the origin
```