

# **AUTOSHOP**

## **Deployment of AUTOSHOP in Various Cloud Platforms**

*Project Report Submitted by*

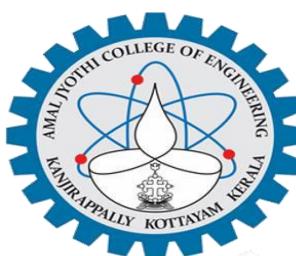
**JISHNUMON PB**

**Reg. No: LAJC16MCA042**

*In Partial fulfilment for the award of the degree*

*of*

**MASTER OF COMPUTER APPLICATIONS (MCA)**  
**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**



**AMAL JYOTHI COLLEGE OF ENGINEERING  
KANJIRAPPALLY**

[Affiliated to APJ Abdul Kalam Technological University, Kerala. Approved by AICTE, Accredited By NAAC with 'A' grade. Koovappally, Kanjirappally, Kottayam, Kerala - 686518]

**2017-2019**

# **AMAL JYOTHI COLLEGE OF ENGINEERING**

[Affiliated to APJ Abdul Kalam Technological University, Kerala. Approved by AICTE, Accredited by NAAC with ‘A’ grade. Koovappally, Kanjirappally, Kottayam, Kerala - 686518]

## **DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**



## **CERTIFICATE**

This is to certify that the project entitled “AUTOSHOP” is a bonafide record of the work done by **JISHNUMON PB LAJC16MCA042**, during the academic year **2017-2019** carried out under our supervision. It is certified that all corrections/suggestions indicated for assessment have been incorporated in the report. The work report has been approved as it satisfies the academic requirements in respect of the project work prescribed by the university for the Master of Computer Applications Degree. Certified further, that to the best of our knowledge the exact work reported hereindoesnotformpartofanyotherprojectreport or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this to any other candidate.

**Fr. RubinThottupuram**

Head of the Department

**Mr. Binumon Joseph**

Project Coordinator

**Mr. Jinson Devis**

Project Supervisor

**External Expert appointed by the university**

## **DECLARATION**

I hereby declare that the project report “**AUTOSHOP**” is a bonafide work done at Amal Jyothi College of Engineering, towards the partial fulfilment of the requirements for the award of the Degree of Master of Computer Applications (MCA) from APJ Abdul Kalam Technological University, during the academic year 2017-2019.

**Date.....**

**JISHNUMON PB**

**KANJIRAPPALLY**

**Reg. No: LAJC16MCA042**

## **ACKNOWLEDGEMENT**

First and foremost, I thank Almighty God for his gracious guidance through the project. I take this opportunity to express my gratitude to all those who have helped me in completing the project successfully.

It has been said that gratitude is the memory of the heart. I acknowledge my deep sense of gratitude to our manager **Rev. Fr. Dr. Mathew Paikatt** for providing all the infrastructural facilities for us, our Principal **Dr. Z V Lakaparampil** for providing good faculty for guidance.

I take the immense pleasure in expressing my thanks to Head of the Department of Master of Computer Applications, **Fr. Rubin Thottupuram**, for his kind patronages in making this project a successful one. I would like to extend my sincere thanks to our coordinator **Mr. Binumon Joseph** my project guide **Mr. Jinson Devis** for their guidance and cooperation, without which this would not have been a success.

I am indebted to my beloved teachers whose cooperation and suggestions throughout the project which helped me a lot. I also thank all my friends and classmates for their interest, dedication and encouragement shown towards the project. I convey hearty thanks to parents for the moral support, suggestion and encouragement to make this venture a success.

**JISHNUMON PB**

## **ABSTRACT**

The project entitled '**Autoshop**' is an online Automobile shopping system that allows web users to purchase used vehicles online without visiting any physical location. '**Autoshop**' allows the user to purchase Automobile online and Bid vehicles in Auction. The Site Administrator updates the information about new Automobiles concurrently. Only registered customers can purchase Automobiles bid from Autoshop. The user must register in the site to access their accounts, after login they can buy used vehicles by bidding Automobiles which are available for auction. The user can bid a vehicle with a high rate than the latest Bid Rate, before the date expires. After date expires, the site sends the Confirmation letter to the user who bid the car with highest rate through email-id which they specified.

This system allows the users to search items category wise, then Brand wise and Model wise. Thus this system provides all the basic functionalities to a user who would like to purchase used cars in online.

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## INTRODUCTION

Autoshop is an online website which helps the users to easily view all the products and their accessories and buy vehicles in online. The system consists of three modules: products, users and administrator. For higher availability the project has been hosted in various cloud platforms such as Google cloud platform, Amazon AWS, Microsoft azure.

**Google Cloud Platform-** Google Cloud Platform, offered by Google, is a suite of cloud computing services that runs on the same infrastructure that Google uses internally for its end-user products, such as Google Search and YouTube. Alongside a set of management tools, it provides a series of modular cloud services including computing, data storage, data analytics and machine learning. Registration requires a credit card or bank account details.

**Amazon AWS-**Amazon Web Services (AWS) is a subsidiary of Amazon.com that provides on-demand cloud computing platforms to individuals, companies and governments, on a paid subscription basis. AWS's version of virtual computers have most of the attributes of a real computer including hardware (CPU(s) & GPU(s) for processing, local/RAM memory, hard-disk/SSD storage); a choice of operating systems; networking; and pre-loaded application software such as web servers, databases, CRM, etc. The browser acts as a window into the virtual computer, letting subscribers log-in, configure and use their virtual systems just as they would a real physical computer.

**Microsoft Azure-**Microsoft Azure (formerly Windows Azure) is a cloud computing service created by Microsoft for building, testing, deploying, and managing applications and services through a global network of Microsoft-managed data centres. It provides software as a service (SaaS), platform as a service (PaaS) and infrastructure as a service (IaaS) and supports many different programming languages, tools and frameworks, including both Microsoft-specific and third-party software and systems.

The website has been tested using various kali Linux tools for testing the vulnerability of the site such as JSQL, The Mole

**JSQL**- JSQL Injection is a Java-based automated SQL injection tool used to find database information from a distant server. Provides a common way of using SQL from within Java to access a database.it is free, open source and cross-platform (Windows, Linux, Mac OS X, Solaris).

**The Mole** is a vulnerability scanner that scans web servers for thousands of vulnerabilities and other known issues. It is very easy to use and does everything itself, without much instructions. It is included by default in pen testing distorts like Kali Linux.

For additional security purpose SSL certificate is integrated

SSL Certificates are small data files that digitally bind a cryptographic key to an organization's details. When installed on a web server, it activates the padlock and the https protocol and allows secure connections from a web server to a browser.

The search engine optimization technique used is Bing webmaster

Bing Webmaster Tools is a free service as part of Microsoft's Bing search engine which allows webmasters to add their websites to the Bing index crawler. The service also offers tools for webmasters to troubleshoot the crawling and indexing of their website, Sitemap creation, submission and ping tools, website statistics, consolidation of content submission, and new content and community resources.

Also, the project included with some additional features such as Google AdWords, Online chat and Voice search etc. Google AdWords is an online advertising service developed by Google, where advertisers pay to display brief advertising copy, product listings, and video content within the Google ad network to web users. Google AdWords' system is based partly on cookies and partly on keywords determined by advertisers. Google uses these characteristics to place advertising copy on pages where they think it might be relevant. Advertisers pay when users divert their browsing to click on the advertising copy. Partner websites receive a portion of the generated income.

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## **PART 1**

# **DEPLOYMENT OF THE APPLICATION IN VARIOUS CLOUD PLATFORMS**

## P1.1 Google Cloud Platform

### P1.1.1 Introduction To Google Cloud Platform

With Google Cloud Platform (GCP), you can build, test, and deploy applications on Google's highly-scalable and reliable infrastructure for your web, mobile, and backend solutions.

#### Overview

This overview is designed to help you understand the overall landscape of Google Cloud Platform (GCP). Here, you'll take a brief look at some of the commonly used features and get pointers to documentation that can help you go deeper. Knowing what's available and how the parts work together can help you make decisions about how to proceed. You'll also get pointers to some tutorials that you can use to try out GCP in various scenarios. And GCE allows administrators to select the region and zone where certain data resources will be stored and used. Currently, GCE has three regions: United States, Europe and Asia. Each region has two availability zones and each zone supports either Ivy Bridge or Sandy Bridge processors. GCE also offers a suite of tools for administrators to create advanced networks on the regional level.

#### GCP resources

GCP consists of a set of physical assets, such as computers and hard disk drives, and virtual resources, such as virtual machines (VMs), that are contained in Google's data centers around the globe. Each data center location is in a global *region*. Regions include Central US, Western Europe, and East Asia. Each region is a collection of *zones*, which are isolated from each other within the region. Each zone is identified by a name that combines a letter identifier with the name of the region. For example, zone an in the East Asia region is named Asia-east1-a

#### Accessing resources through services

In cloud computing, what you might be used to thinking of as software and hardware products, become *services*. These services provide access to the underlying resources. The list of available GCP services is long, and it keeps growing. When you develop your website or application on GCP, you mix and match these services into combinations that provide the infrastructure you need, and then add your code to enable the scenarios you want to build.

---

### Global, regional, and zonal resources

Some resources can be accessed by any other resource, across regions and zones. These global resources include preconfigured disk images, disk snapshots, and networks. Some resources can be accessed only by resources that are located in the same region.

### Persistent disk

Every Google Compute Engine instance starts with a disk resource called persistent disk. Persistent disk provides the disk space for instances and contains the root filesystem from which the instance boots. Persistent disks can be used as raw block devices. By default, Google Compute Engine uses SCSI for attaching persistent disks. Persistent Disks provide straightforward, consistent and reliable storage at a consistent and reliable price, removing the need for a separate local ephemeral disk. Persistent disks need to be created before launching an instance.

### Projects

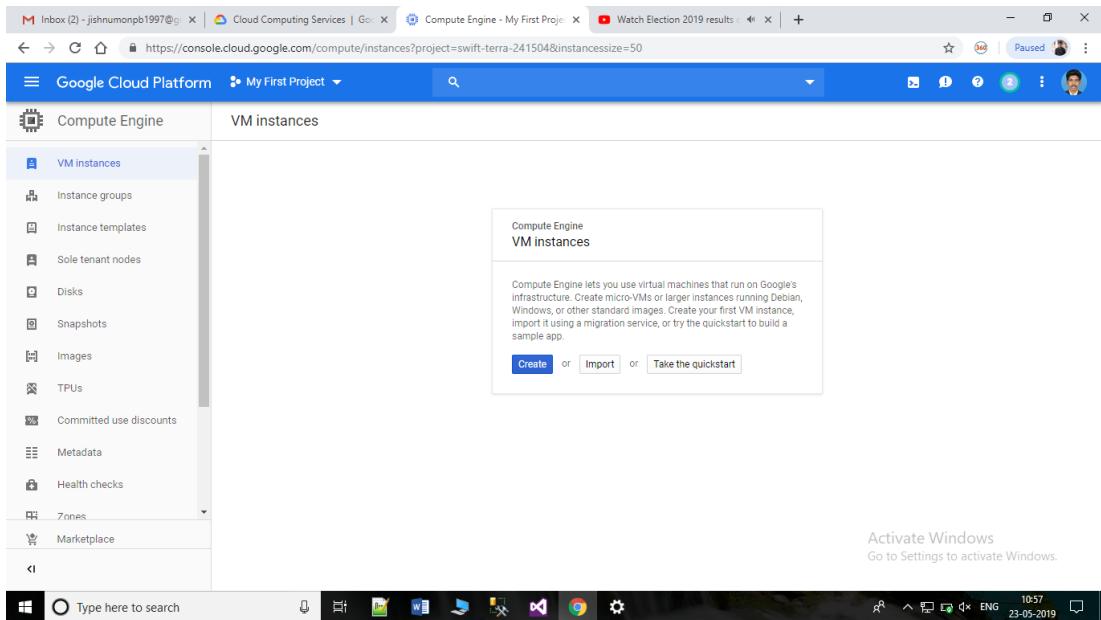
Any GCP resources that you allocate and use must belong to a project. You can think of a project as the organizing entity for what you're building. A project is made up of the settings, permissions, and other metadata that describe your applications. Resources within a single project can work together easily, for example by communicating through an internal network, subject to the regions-and-zones rules. The resources that each project contains remain separate across project boundaries; you can only interconnect them through an external network connection.

Each GCP project has:

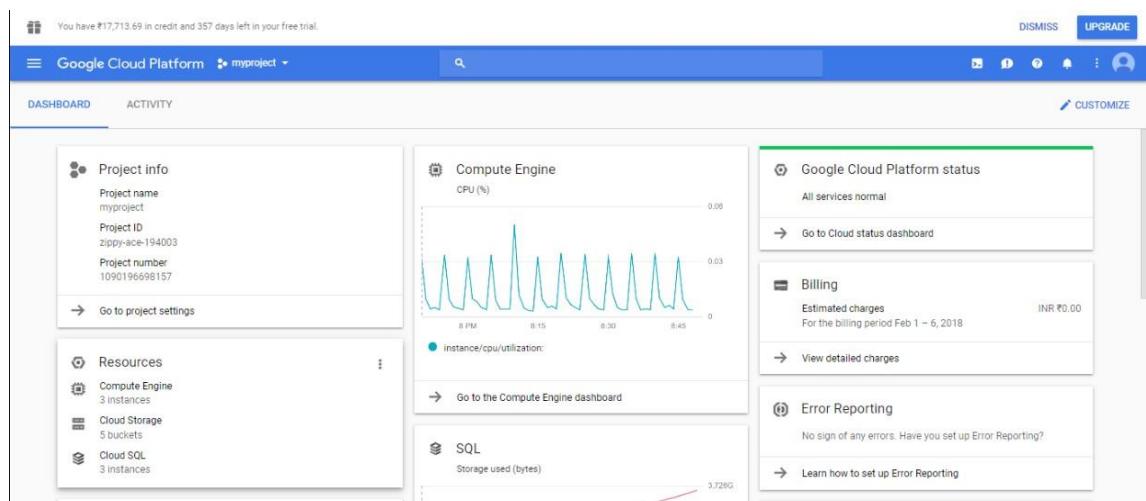
- A project name, which you provide.
  - A project ID, which you can provide or GCP can provide for you.
  - A project number, which GCP provides.
-

## P1.1.2 Compute Engine for the implementation of Application

Step 1- Log on to google cloud platform account



Step 2- Creating a new project



### Step 3-Creating a new virtual machine instance Compute Engine

To create a VM instance, select one of the options:

- New VM Instance** Create a single VM instance from scratch
- New VM instance from template** Create a single VM instance from an existing template
- Marketplace** Deploy a ready-to-go solution onto a VM instance

**Name**: instance-1-autoshop

**Region**: us-central1 (Iowa)    **Zone**: us-central1-a

**Machine type**: Customize to select cores, memory and GPUs.

1 vCPU    3.75 GB memory    Customize

You have ₹2,900.25 free trial credits remaining  
\$24.67 monthly estimate  
That's about \$0.034 hourly  
Pay for what you use: No upfront costs and per second billing

**Container**: Deploy a container image to this VM instance. Learn more

**Boot disk**: New 10 GB standard persistent disk  
Image: Debian GNU/Linux 9 (stretch)    Change

**Identity and API access**

**Service account**: Compute Engine default service account

**Access scopes**: Allow default access

Activate Windows  
Go to Settings to activate Windows.

**Compute Engine**

- VM instances
- Instance groups
- Instance templates
- Disks
- Snapshots
- Images
- Committed use discounts
- Metadata
- Health checks
- Zones
- Operations
- Quotas
- Settings

**Create an instance**

**Name**: project

**Zone**: us-east1-b

**Machine type**: Customize to select cores, memory and GPUs.

**Basic view**

Cores: 2 vCPU (1 - 64)

Memory: 7.5 GB (1.8 - 13)

Extend memory: 7.5 GB

CPU platform: Automatic

GPUs: Choosing a machine type

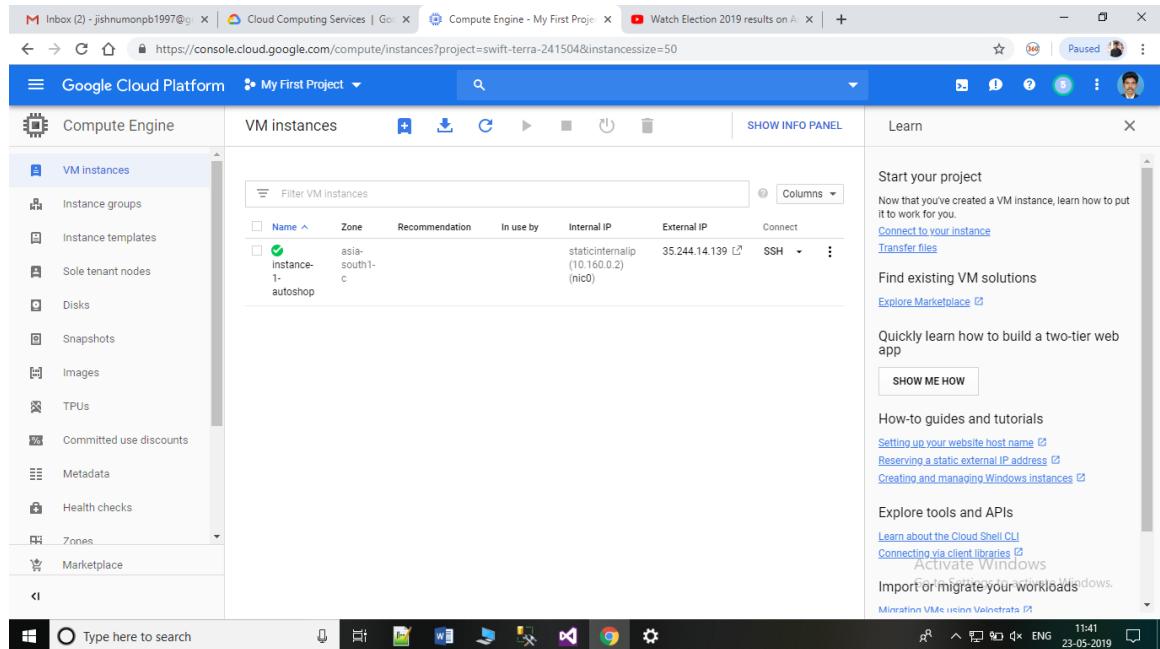
\$48.95 per month estimated  
Effective hourly rate \$0.067 (730 hours per month)

**Container**: Deploy a container image to this VM instance. Learn more

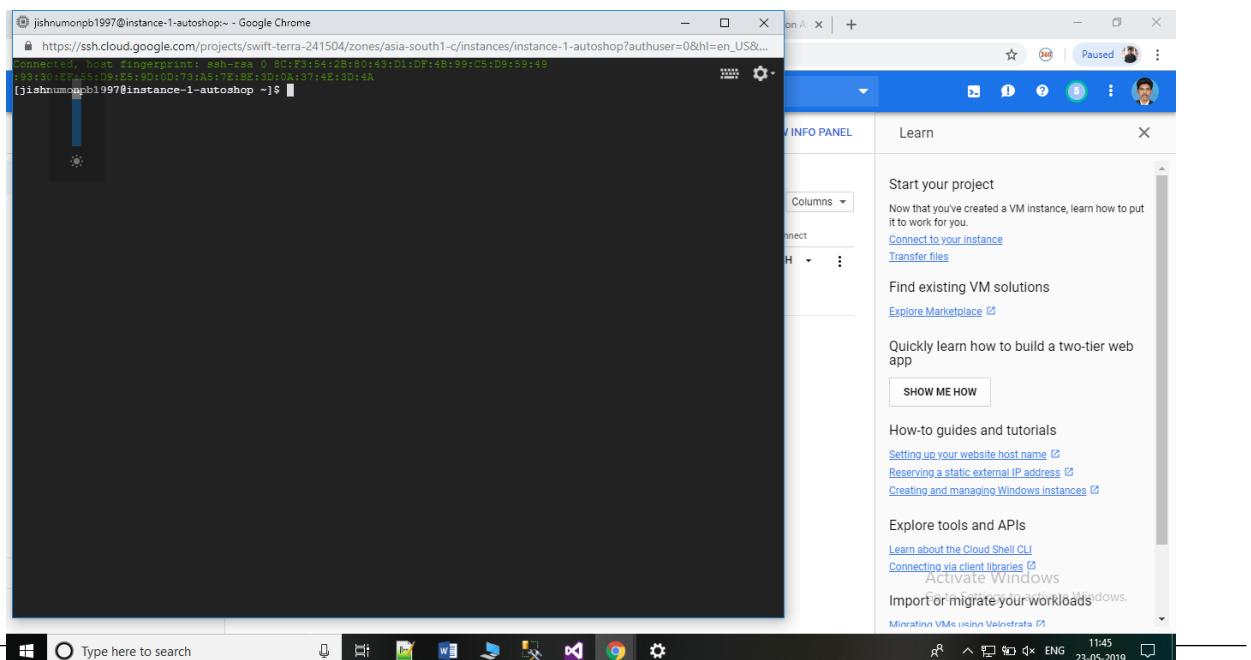
## Step 4- Connecting to cloud Secure shell

sudo -s

yum update -y yum install -y perl yum install -y wget



## Open shell Terminal



Type sudo -s to get admin permission

```
root@instance-1-autoshop/home/jishnumonpb1997 - Google Chrome
https://ssh.cloud.google.com/projects/swift-terra-241504/zones/asia-south1-c/instances/instance-1-autoshop?authuser=0&hl=en_US&... Resolving Dependencies
--> Running transaction check
--> Package google-cloud-sdk.noarch 0:246.0.0-1.el7 will be updated
--> Package google-cloud-sdk.noarch 0:247.0.0-1.el7 will be an update
--> Package google-compute-engine.noarch 0:2.8.14-1.el7 will be updated
--> Package google-compute-engine.noarch 0:2.8.16-1.el7 will be an update
--> Package google-compute-engine-oslogin.x86_64 0:1.5.2-1.el7 will be an update
--> Package google-compute-engine-oslogin.x86_64 0:1.5.3-1.el7 will be an update
--> Package python-google-compute-engine.noarch 0:2.8.14-1.el7 will be updated
--> Package python-google-compute-engine.noarch 0:2.8.16-1.el7 will be an update
--> Finished Dependency Resolution

Dependencies Resolved

Package           Arch      Version       Repository      Size
Updating:
google-cloud-sdk        noarch    247.0.0-1.el7   google-cloud-sdk      32 M
google-compute-engine  noarch    2.8.16-1.el7    google-compute-engine 14 k
google-compute-engine-oslogin x86_64  1.5.3-1.el7    google-compute-engine 96 k
python-google-compute-engine noarch  2.8.16-1.el7    google-compute-engine 104 k

Transaction Summary
Upgrade: 4 Packages

Total download size: 33 M
Downloading packages:
Delta RPMs disabled because /usr/bin/applydeltarpm not installed.
(1/4): 9de3ddd214074d6350526d568faef37850b578e45fcfa555f49bae212694e5d7-google-compute-engi | 14 kB 00:00:00
(2/4): 72f6893235e4ad70c383113633f84d8fe5bfab98e9c5c8c101f0521bcede97-google-compute-engi | 96 kB 00:00:00
(3/4): 100e3c5800ebff6be7eaaa577ce448f25158aef2198d687f623ee05b99ee975-python-google-compu | 104 kB 00:00:00
(4/4): 2eeb7f1f06468732b2c1288f90ff60e54d16f13acbe3ed0a0d518dc597db85e4-google-cloud-sdk-24 | 32 MB 00:00:02

Total                                         14 MB/s | 33 MB 00:00:02
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Updating : python-google-compute-engine-2.8.16-1.el7.noarch
  Updating : google-compute-engine-oslogin-1.5.3-1.el7.x86_64
                                                               1/8
                                                               2/8

Type here to search
```

Type apt-get update for Package updation

```
0 updates are security updates.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

aneenamaneel1394@project:~$ sudo su
root@project:/home/aneenamaneel1394# apt-get update
Hit:1 http://us-central1.gce.archive.ubuntu.com/ubuntu artful InRelease
Get:2 http://us-central1.gce.archive.ubuntu.com/ubuntu artful-updates InRelease [78.6 kB]
Get:3 http://us-central1.gce.archive.ubuntu.com/ubuntu artful-backports InRelease [72.2 kB]
Get:4 http://us-central1.gce.archive.ubuntu.com/ubuntu artful/multiverse Sources [182 kB]
Get:5 http://us-central1.gce.archive.ubuntu.com/ubuntu artful/restricted Sources [5392 B]
Get:6 http://us-central1.gce.archive.ubuntu.com/ubuntu artful/universe Sources [8721 kB]
Hit:7 http://archive.canonical.com/ubuntu artful InRelease
Get:8 http://security.ubuntu.com/ubuntu artful-security InRelease [78.6 kB]
Get:9 http://us-central1.gce.archive.ubuntu.com/ubuntu artful/main Sources [849 kB]
Get:10 http://us-central1.gce.archive.ubuntu.com/ubuntu artful-updates/universe Sources [21.9 kB]
Get:11 http://us-central1.gce.archive.ubuntu.com/ubuntu artful-updates/main Sources [69.9 kB]
Get:12 http://us-central1.gce.archive.ubuntu.com/ubuntu artful-updates/multiverse Sources [1168 B]
Get:13 http://us-central1.gce.archive.ubuntu.com/ubuntu artful-updates/restricted Sources [360 B]
Get:14 http://us-central1.gce.archive.ubuntu.com/ubuntu artful-updates/main amd64 Packages [174 kB]
Get:15 http://us-central1.gce.archive.ubuntu.com/ubuntu artful-updates/main Translation-en [77.7 kB]
Get:16 http://us-central1.gce.archive.ubuntu.com/ubuntu artful-updates/universe amd64 Packages [69.8 kB]
Get:17 http://us-central1.gce.archive.ubuntu.com/ubuntu artful-updates/universe Translation-en [39.6 kB]
Get:18 http://us-central1.gce.archive.ubuntu.com/ubuntu artful-backports/universe Sources [1772 B]
Get:19 http://us-central1.gce.archive.ubuntu.com/ubuntu artful-backports/main Sources [1192 B]
Get:20 http://security.ubuntu.com/ubuntu artful-security/main Sources [28.3 kB]
Get:21 http://security.ubuntu.com/ubuntu artful-security/universe Sources [9760 B]
Get:22 http://security.ubuntu.com/ubuntu artful-security/restricted Sources [560 B]
Get:23 http://security.ubuntu.com/ubuntu artful-security/multiverse Sources [1168 B]
Get:24 http://security.ubuntu.com/ubuntu artful-security/main amd64 Packages [78.4 kB]
Get:25 http://security.ubuntu.com/ubuntu artful-security/main Translation-en [36.7 kB]
Get:26 http://security.ubuntu.com/ubuntu artful-security/universe amd64 Packages [28.4 kB]
Get:27 http://security.ubuntu.com/ubuntu artful-security/universe Translation-en [17.5 kB]
Fetched 10.6 MB in 2 s (4645 kB/s)
Reading package lists... Done
root@project:/home/aneenamaneel1394#
```

## Installing Packages Yum install -y perl

```

root@instance-1-autoshop:/home/jishnumonpb1997 - Google Chrome
https://ssh.cloud.google.com/projects/swift-terra-241504/zones/asia-south1-c/instances/instance-1-autoshop?authuser=0&hl=en_US...
--> Package google-compute-engine.noarch 0:2.8.16-1.el7 will be an update
--> Package google-compute-engine-oslogin.x86_64 0:1.5.2-1.el7 will be updated
--> Package google-compute-engine-oslogin.x86_64 0:1.5.3-1.el7 will be an update
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Updating:
google-cloud-sdk          noarch   247.0.0-1.el7    google-cloud-sdk   32 M
google-compute-engine     noarch   2.8.16-1.el7    google-compute-engine 14 k
google-compute-engine-oslogin x86_64  1.5.3-1.el7    google-compute-engine 96 k
python-google-compute-engine noarch   2.8.16-1.el7    google-compute-engine 104 k

Transaction Summary

Upgrade 4 Packages

Total download size: 33 M
Downloading packages:
Delta RPMs disabled because /usr/bin/applydeletarpm not installed.
(1/4): 9de3dd21407ded5052ed69fada37850b578e45cfa955f49bae212694e5d7-google-compute-engi | 14 kB 00:00:00
(2/4): 72f6993235e4ad070c383113633f84df1e5bfa98e9c65c8c101f0521bdc3e97-google-compute-engi | 96 kB 00:00:00
(3/4): 100e3c5800ehffdebe7eaas57ce448f25158ae2198d887f623ee5bb9ee975-python-google-compu | 104 kB 00:00:00
(4/4): 2eeb7f106468732b2c1288f90ff60e54d16f13acbe3ed0a0d518cd597d8b5e4-google-cloud-sdk-24 | 32 MB 00:00:02

Total                                         14 MB/s | 33 MB 00:00:02
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Updating : python-google-compute-engine-2.8.16-1.el7.noarch                                1/8
  Updating : google-compute-engine-oslogin-1.5.3-1.el7.x86_64                            2/8
  Installing SELinux module for OS Linux
  Updating : google-compute-engine-2.8.16-1.el7.noarch                                3/8
Warning: google-accounts-daemon.service changed on disk. Run 'systemctl daemon-reload' to reload units.
Warning: google-clock-skew-daemon.service changed on disk. Run 'systemctl daemon-reload' to reload units.
Warning: google-network-daemon.service changed on disk. Run 'systemctl daemon-reload' to reload units.
  Updating : google-cloud-sdk-247.0.0-1.el7.noarch [########################################] 4/8

```

Google Cloud Platform (GCP)

Start your project

Find existing VM solutions

Explore tools and APIs

How-to guides and tutorials

Import or migrate your workloads

Minrathin VMs using Velociraptor

```

root@instance-1-autoshop:/home/jishnumonpb1997 - Google Chrome
https://ssh.cloud.google.com/projects/swift-terra-241504/zones/asia-south1-c/instances/instance-1-autoshop?authuser=0&hl=en_US...
* updates: mirror.fileplanet.com
* package 4:perl-5.16.3-294.el7_6.x86_64 already installed and latest version
Nothing to do
[root@instance-1-autoshop jishnumonpb1997]# yum install -y wget
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
 * base: mirror.scalablecdns.com
 * epel: d21zkt7pfhg30w.cloudfront.net
 * extras: mirror.hostedplex.com
 * updates: mirror.fileplanet.com
Resolving Dependencies
-> Running transaction check
--> Package wget.x86_64 0:1.14-18.el7_6.1 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

Package           Arch      Version       Repository      Size
Installing:
wget              x86_64    1.14-18.el7_6.1      updates        547 k

Transaction Summary

Install 1 Package

Total download size: 547 k
Installed size: 2.0 M
Downloading packages:
wget-1.14-18.el7_6.1.x86_64.rpm                                         | 547 kB 00:00:01
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : wget-1.14-18.el7_6.1.x86_64                               1/1
  Verifying  : wget-1.14-18.el7_6.1.x86_64                               1/1

Installed:
  wget.x86_64 0:1.14-18.el7_6.1

Complete!
[root@instance-1-autoshop jishnumonpb1997]#

```

Google Cloud Platform (GCP)

Start your project

Find existing VM solutions

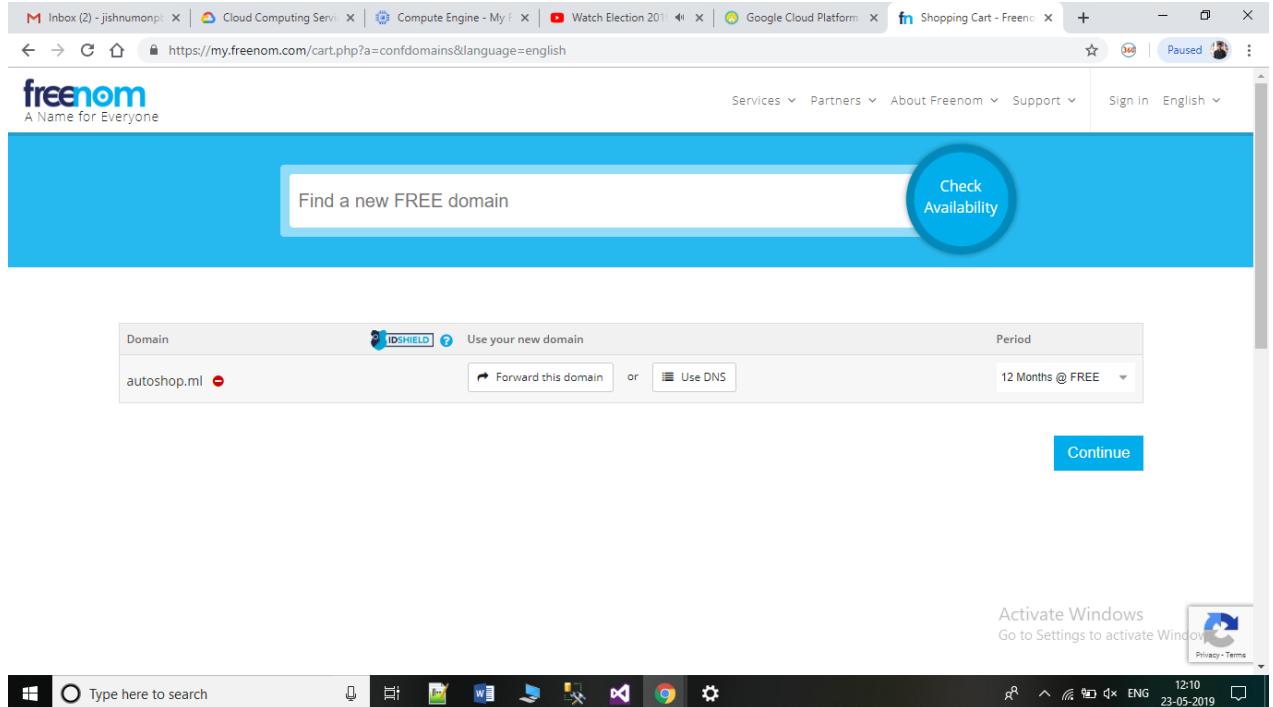
Explore tools and APIs

How-to guides and tutorials

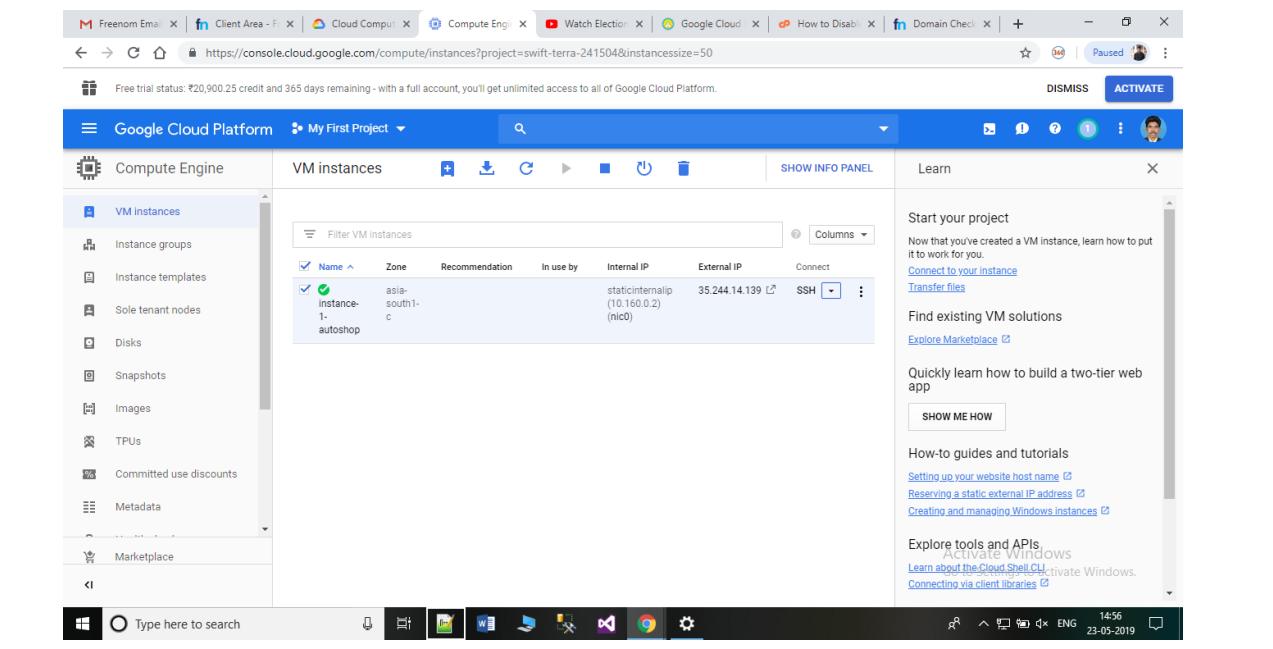
Import or migrate your workloads

Minrathin VMs using Velociraptor

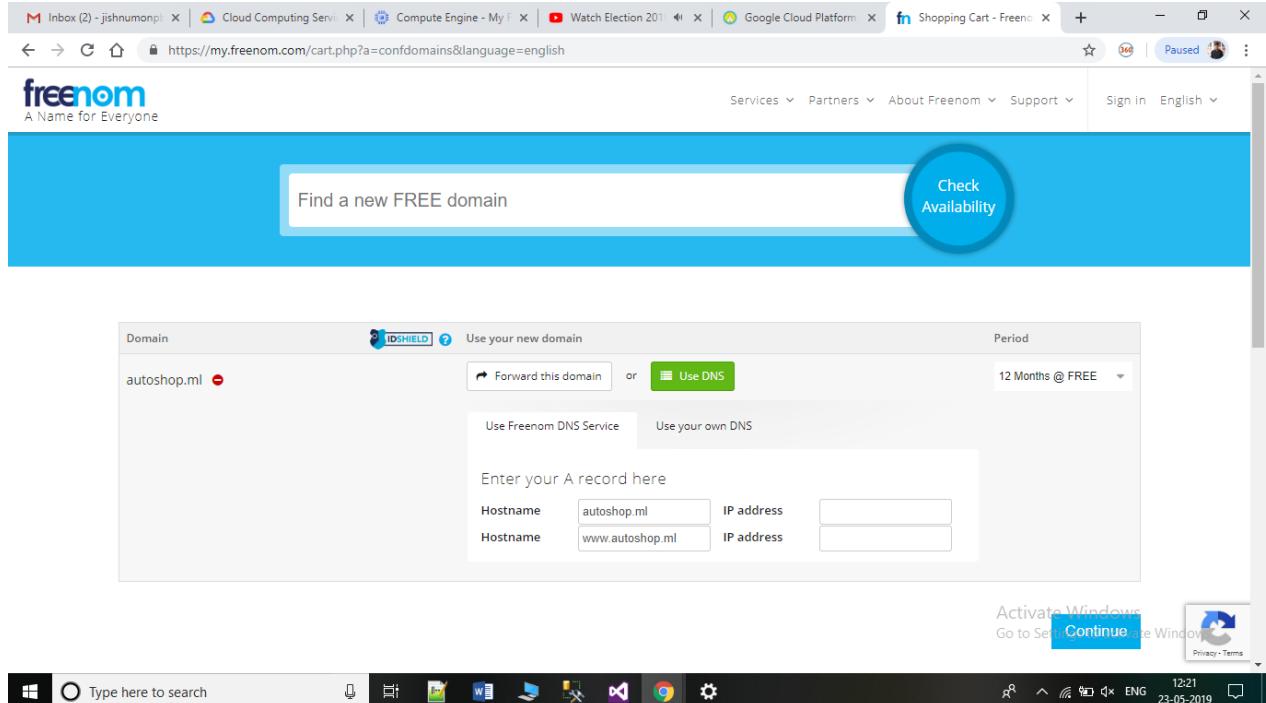
## Step 5-Purchase Domain From freenom



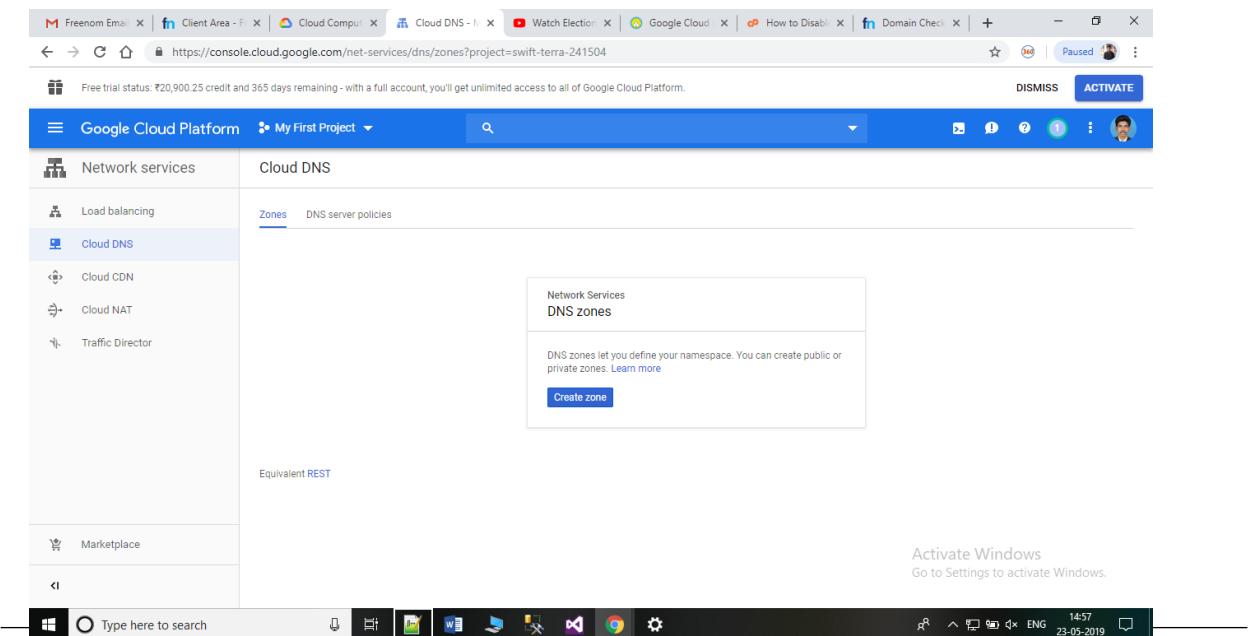
## Copying External IP from vm instance

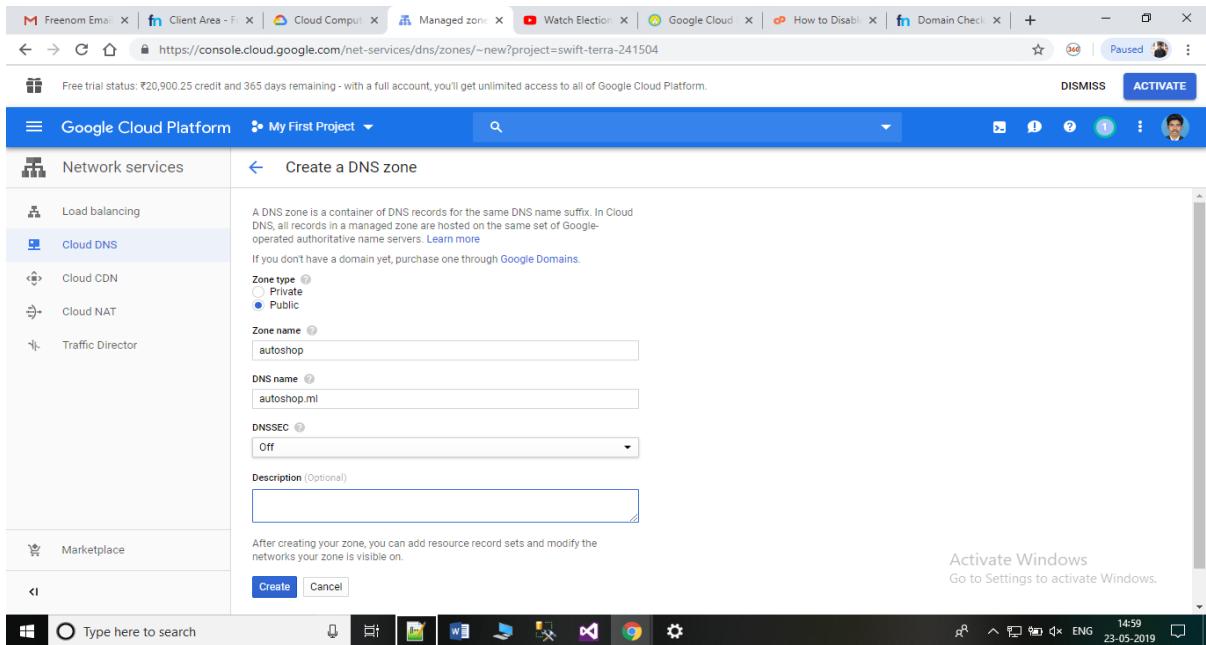


### Step 6-Enter host name and ip address in freenom

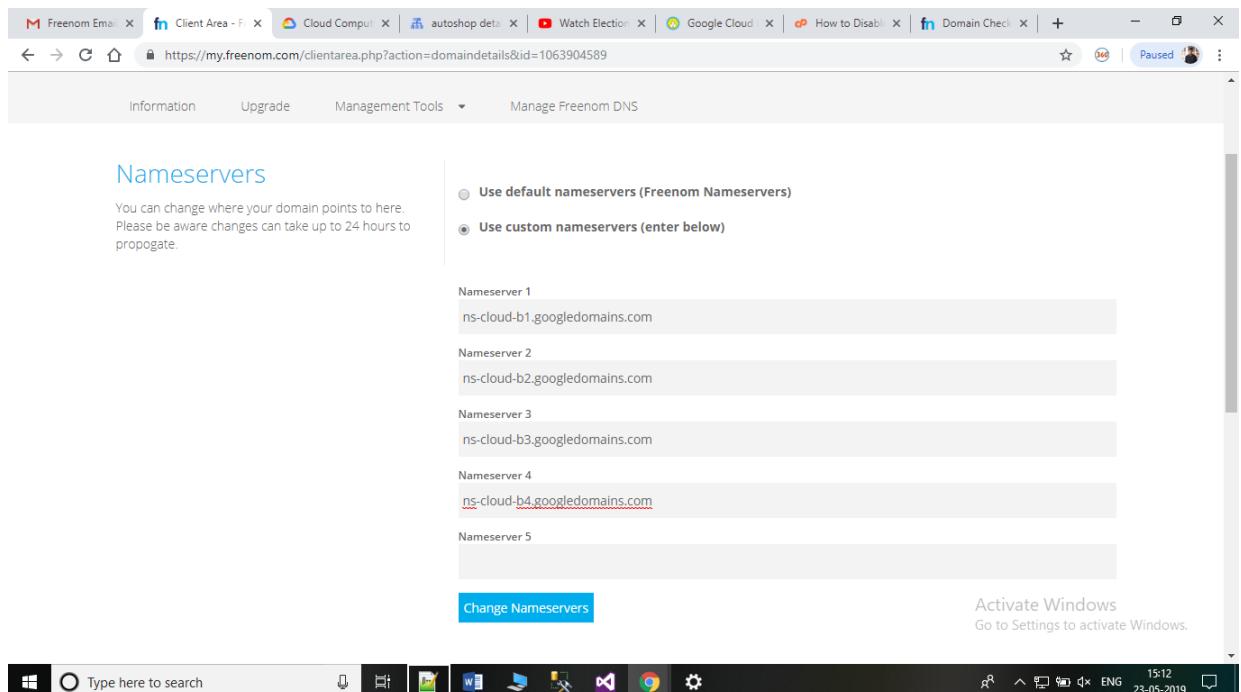


### Step 7>Create cloud DNS Zone





### Step 8-Enter nameserver ip address



The screenshot shows the Google Cloud Platform Network services - Zone details for the zone 'autoshop'. The DNS name is 'autoshop.ml' and the type is 'Public'. The 'DNS peering' status is 'Disabled'. There are two record sets listed:

DNS name	Type	TTL (seconds)	Data
autoshop.ml.	NS	21600	ns-cloud-b1.googledomains.com. ns-cloud-b2.googledomains.com. ns-cloud-b3.googledomains.com. ns-cloud-b4.googledomains.com.
autoshop.ml.	SOA	21600	ns-cloud-b1.googledomains.com. cloud-dns-hostmaster.google.com. 1 21600 3600 259200 300

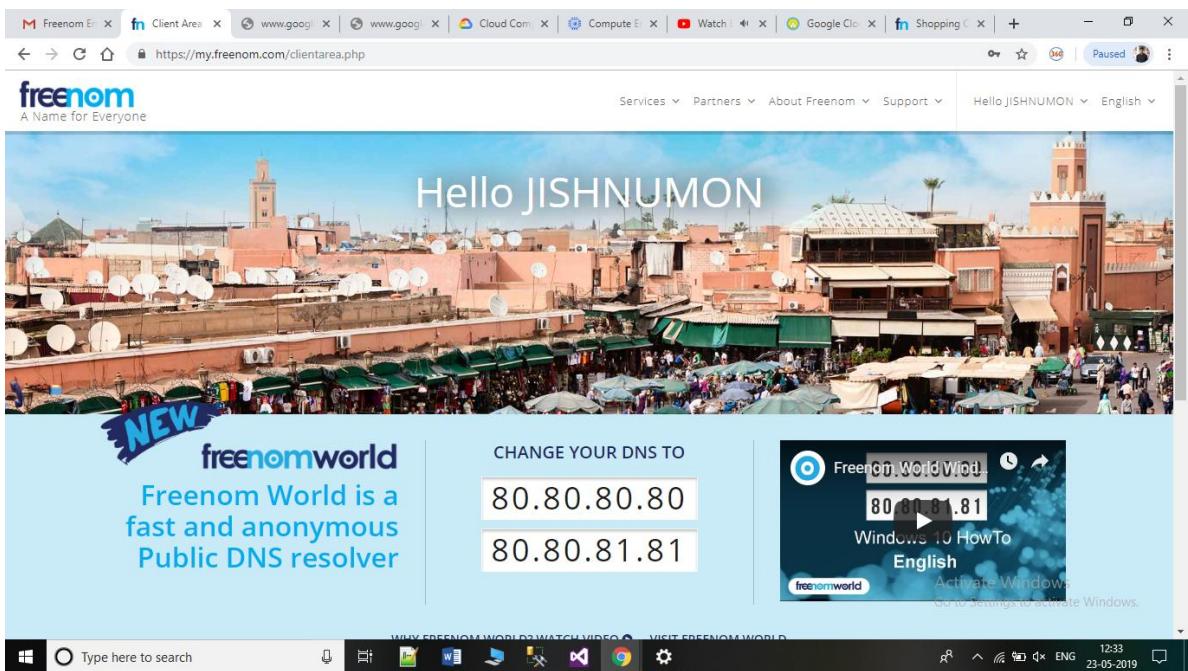
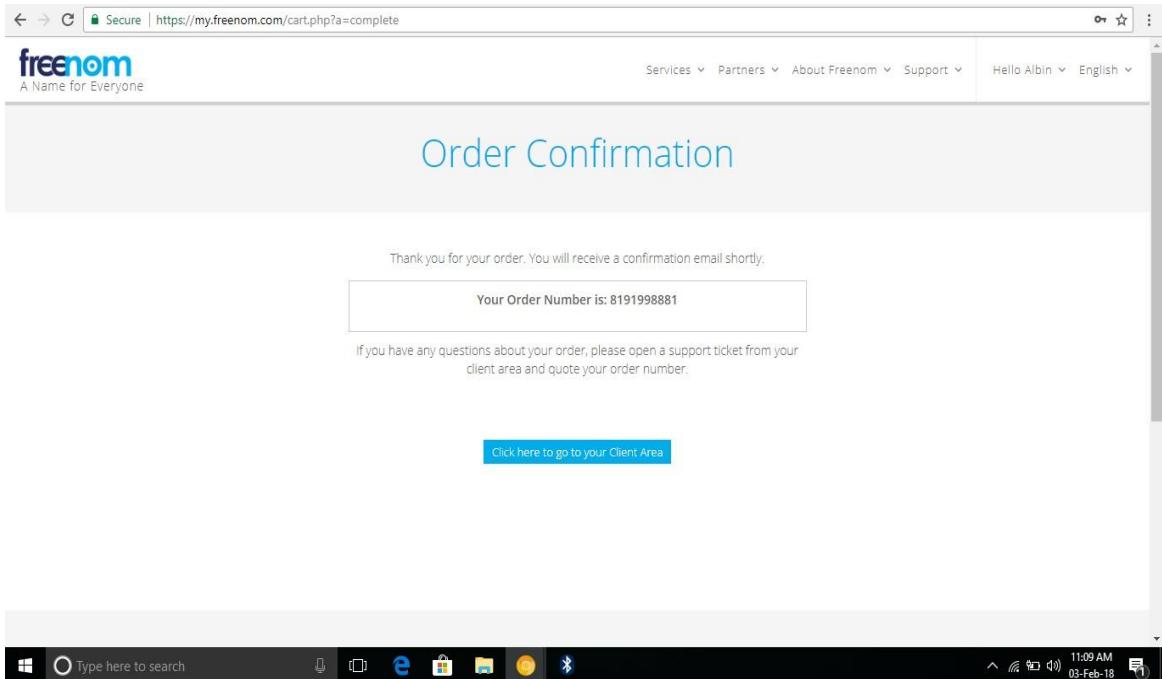
We Get our Domain From freenom-.ml

The screenshot shows a browser window with the URL <https://my.freenom.com/cart.php?a=checkout>. The page title is 'Review & Checkout'. The table shows the total due amount for domain registration.

Description	Price
Domain Registration - autoshop.ml	\$0.00USD
<b>Subtotal:</b>	<b>\$0.00USD</b>
<b>Total Due Today:</b>	<b>\$0.00USD</b>

Below the table, there is a section titled 'Your Details' with fields for First Name, Last Name, Company Name, and Address 1. The details entered are:

- First Name: JISHNUMON
- Last Name: PB
- Company Name: AMAL JYOTHI COLLEGE OF ENGINEERING
- Address 1: POWATH HOUSE PERUVANTHANAM PO CHUZHUPPU



### Step 9-Add Record set in that DNS Zone. Create a recordset as Type A and CNAME

The screenshot shows the 'Create record set' interface in the Google Cloud Platform. The left sidebar lists 'Network services' with 'Cloud DNS' selected. The main form has the following fields:

- DNS Name:** .autoshop.ml
- Resource Record Type:** A
- TTL:** 5
- TTL Unit:** minutes
- IPv4 Address:** 192.0.2.91

At the bottom are 'Create' and 'Cancel' buttons, and a link to 'Equivalent REST or command line'.

This screenshot is identical to the one above, showing the 'Create record set' interface in the Google Cloud Platform. The DNS Name is .autoshop.ml, Resource Record Type is A, TTL is 5, and TTL Unit is minutes. An IPv4 Address of 192.0.2.91 is listed. The system tray at the bottom right shows a different date and time: 14:59 23-05-2019.

The screenshot shows the Google Cloud Platform Network services interface for creating a record set. The left sidebar lists 'Network services' with 'Cloud DNS' selected. The main panel shows a 'Create record set' form. The 'DNS Name' field contains 'www.eworkshop.ml.'. The 'Resource Record Type' is set to 'CNAME', 'TTL' is '5', and 'TTL Unit' is 'minutes'. The 'Canonical name' field contains 'server-1.example.com.' with a '+' button to add more items. Below the form are 'Create' and 'Cancel' buttons, and an 'Equivalent REST or command line' section.

The screenshot shows the Google Cloud Platform Network services interface for creating a record set. The left sidebar lists 'Network services' with 'Cloud DNS' selected. The main panel shows a 'Create record set' form. The 'DNS Name' field contains '.autoshop.ml.'. The 'Resource Record Type' is set to 'A', 'TTL' is '5', and 'TTL Unit' is 'minutes'. The 'IPv4 Address' field contains '192.0.2.91' with a '+' button to add more items. Below the form are 'Create' and 'Cancel' buttons, and an 'Equivalent REST or command line' section. A 'Marketplace' section is visible at the bottom of the sidebar.

The screenshot shows the Google Cloud Platform Network services - Zone details for the 'autoshop' zone. The left sidebar lists Network services: Load balancing, Cloud DNS (selected), Cloud CDN, Cloud NAT, and Traffic Director. The main pane displays the 'autoshop' zone details, including its DNS name (autoshop.ml) and type (Public). It shows that DNS peering is disabled. A table lists record sets: an NS record for 'autoshop.ml' pointing to ns-cloud-b1.google domains, and an SOA record for 'autoshop.ml'. Below the table is an 'Equivalent REST' section. The status bar at the bottom indicates a free trial status of ₹20,900.25 credit and 365 days remaining.

The screenshot shows a terminal window on a Google Cloud VM instance (root@instance-1-autoshop:jishnumonpb1997) running Linux. The user runs the command 'yum install -y wget'. The output shows the package is already installed and up-to-date. The transaction summary shows the installation of wget version 1.14-18.el7\_6.1. The terminal window is part of a larger desktop environment with a taskbar at the bottom.

## Step 10- Installation Of WHM and Cpanel

```

root@instance-1-autoshop:~# yum install -y wget
* updates: mirror.fileplanet.com
Package 4iperl-5.16.3-294.el7_6.x86_64 already installed and latest version
Nothing to do
[root@instance-1-autoshop:~]# yum install -y wget
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
 * base: mirror.scalabledns.com
 * epel: d21zk17pfhg30w.cloudfront.net
 * extras: mirror.hostdplex.com
 * updates: mirror.fileplanet.com
Resolving Dependencies
--> Running transaction check
--> Package wget.x86_64 0:1.14-18.el7_6.1 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
| Package          | Arch      | Version       | Repository | Size |
|-----|-----|-----|-----|-----|
| Installing:     |           |              |            |       |
|   wget           | x86_64   | 1.14-18.el7_6.1 | updates    | 547 k |
|-----|-----|-----|-----|-----|
| Transaction Summary |           |              |            |       |
|-----|-----|-----|-----|-----|
| Install 1 Package |           |              |            |       |
|-----|-----|-----|-----|-----|
| Total download size: 547 k |           |              |            |       |
| Installed size: 2.0 M |           |              |            |       |
| Downloading packages: |           |              |            |       |
| wget-1.14-18.el7_6.1.x86_64.rpm |           | 547 kB 00:00:01 |
|-----|-----|-----|-----|-----|
| Running transaction check |           |              |            |       |
| Running transaction test |           |              |            |       |
| Transaction test succeeded |           |              |            |       |
| Running transaction |           |              |            |       |
|   Installing : wget-1.14-18.el7_6.1.x86_64 |           | 1/1 |
|   Verifying : wget-1.14-18.el7_6.1.x86_64 |           | 1/1 |
|-----|-----|-----|-----|-----|
| Installed:       |           |              |            |       |
|   wget.x86_64 0:1.14-18.el7_6.1 |           | 1/1 |
|-----|-----|-----|-----|-----|
| Complete! |           |              |            |       |
[root@instance-1-autoshop:~]#

```

```

root@project/home - Google Chrome
Secure | https://ssh.cloud.google.com/projects/albintom-193806/zones/us-east1-b/instances/project?authuser=1&hl=en_US&projectNumber=1068734311409
Verifying : wget-1.14-15.el7_4.1.x86_64
1/1
Installed:
wget.x86_64 0:1.14-15.el7_4.1
Complete!
[root@project albintom70]# hostname centos.eworkshop.ml
[root@project albintom70]# cd /home && curl -o latest -L https://securedownloads.cpanel.net/latest && sh latest
% Total    % Received % Xferd  Average Speed   Time   Time Current
          Dload  Upload Total Spent   Left Speed
100 27475  100 27475    0     0  84381      0  --:--:--  --:--:-- 84799
Verifying archive integrity... All good.
Uncompressing cPanel & WHM Installer.....
[  E  P  O  N  E  L  ]
Installer Version v00071 r567a617660c2d5c38ae1649f5ede2067aee6ee7e

Beginning main installation.
2018-02-03 06:22:49 777 ( INFO): cPanel & WHM installation started at: Sat Feb  3 06:22:49 2018!
2018-02-03 06:22:49 778 ( INFO): This installation will require 20-50 minutes, depending on your hardware.
2018-02-03 06:22:49 779 ( INFO): Now is the time to go get another cup of coffee/jolt.
2018-02-03 06:22:49 780 ( INFO): The install will log to the /var/log/cpanel-install.log file.
2018-02-03 06:22:49 781 ( INFO):
2018-02-03 06:22:49 782 ( INFO): Beginning Installation v3...
2018-02-03 06:22:49 456 ( INFO): CentOS 7 (Linux) detected!
2018-02-03 06:22:49 472 ( INFO): Checking RAM now...
2018-02-03 06:22:49 532 ( INFO): Validating that the system hostname ('centos.eworkshop.ml') is a FQDN...
2018-02-03 06:22:49 551 ( INFO): Checking for NetworkManager now...
2018-02-03 06:22:50 585 (ERROR): ****ERROR*****
2018-02-03 06:22:50 586 (ERROR): NetworkManager is installed and running, or
2018-02-03 06:22:50 587 (ERROR): configured to startup.
2018-02-03 06:22:50 588 (ERROR):
2018-02-03 06:22:50 589 (ERROR): cPanel does not support NetworkManager enabled
2018-02-03 06:22:50 590 (ERROR): systems. The installation cannot proceed.
2018-02-03 06:22:50 591 (ERROR):
2018-02-03 06:22:50 592 (ERROR): See https://go.cpanel.net/disablenm for more
2018-02-03 06:22:50 593 (ERROR): information on disabling Network Manager
2018-02-03 06:22:50 594 (ERROR): ****ERROR*****
2018-02-03 06:22:50 595 (FATAL): Exiting...
Removing /root/installer.lock.
[root@project home]# cd /home && curl -o latest -L https://securedownloads.cpanel.net/latest && sh latest

```

## Step 11-Enable and restart services

**Exercise extreme caution** when you disable the Network Manager. Your server may lose its network services if you do not disable Network Manager correctly.

### Disable the Network Manager service

To disable the Network Manager service, perform the following steps:

**Important:**  
Perform these steps from the server's console in order to prevent any interruption to network connectivity.

1. Disable Network Manager with the following commands:
  - Disable NetworkManager on CentOS 6, CloudLinux 6, Red Hat Enterprise Linux 6 (RHEL), or Amazon Linux...
  - Disable NetworkManager on CentOS 7, CloudLinux 7, or RHEL 7...

```
1 systemctl stop NetworkManager.service
2 systemctl disable NetworkManager.service
```
2. Change to the /etc/sysconfig/network-scripts directory.
3. Open each configuration file with your preferred text editor and set the following keys' values:
 

```
1 NM_CONTROLLED=no
2 ONBOOT=yes
```
4. Run the following commands to restart the network:
  - Restart the network on CentOS 6, CloudLinux 6, RHEL 6, or Amazon Linux...
  - Restart the network on CentOS 7, CloudLinux 7, or RHEL 7...

```
1 systemctl enable network.service
2 systemctl start network.service
```

**Important:**  
Perform these steps from the server's console in order to prevent any interruption to network connectivity.

1. Disable Network Manager with the following commands:
  - Disable NetworkManager on CentOS 6, CloudLinux 6, Red Hat Enterprise Linux 6 (RHEL), or Amazon Linux...
  - Disable NetworkManager on CentOS 7, CloudLinux 7, or RHEL 7...

```
1 systemctl stop NetworkManager.service
2 systemctl disable NetworkManager.service
```
2. Change to the /etc/sysconfig/network-scripts directory.
3. Open each configuration file with your preferred text editor and set the following keys' values:
 

```
1 NM_CONTROLLED=no
2 ONBOOT=yes
```
4. Run the following commands to restart the network:
  - Restart the network on CentOS 6, CloudLinux 6, RHEL 6, or Amazon Linux...
  - Restart the network on CentOS 7, CloudLinux 7, or RHEL 7...

```
1 systemctl enable network.service
2 systemctl start network.service
```

**Additional documentation**

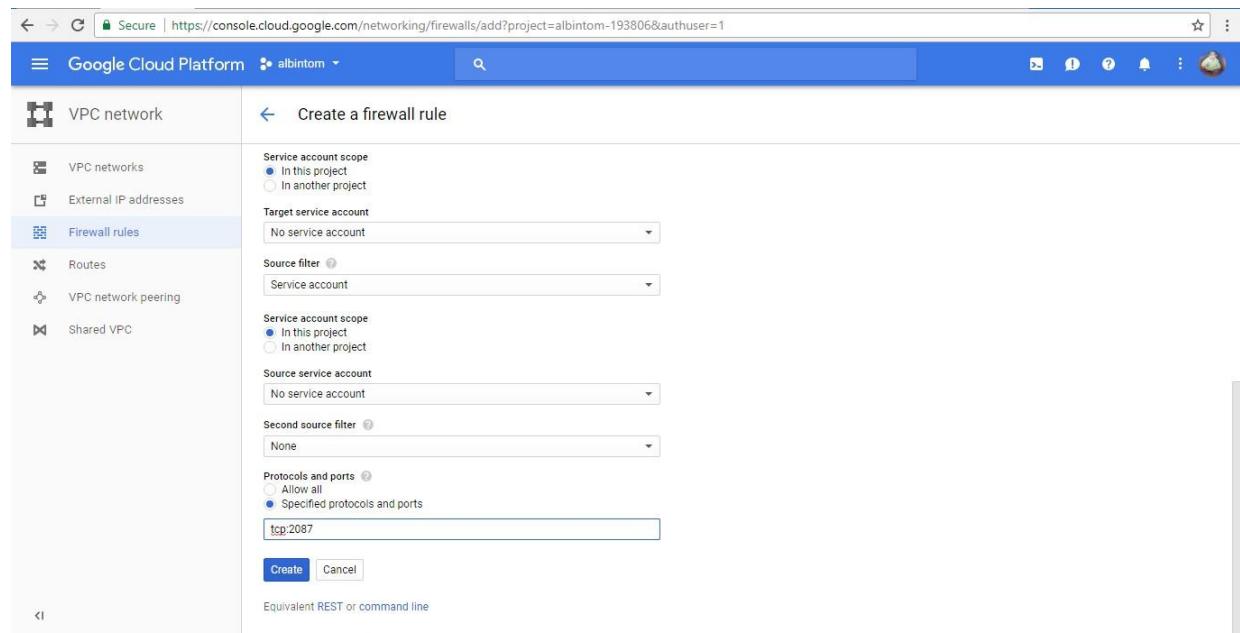
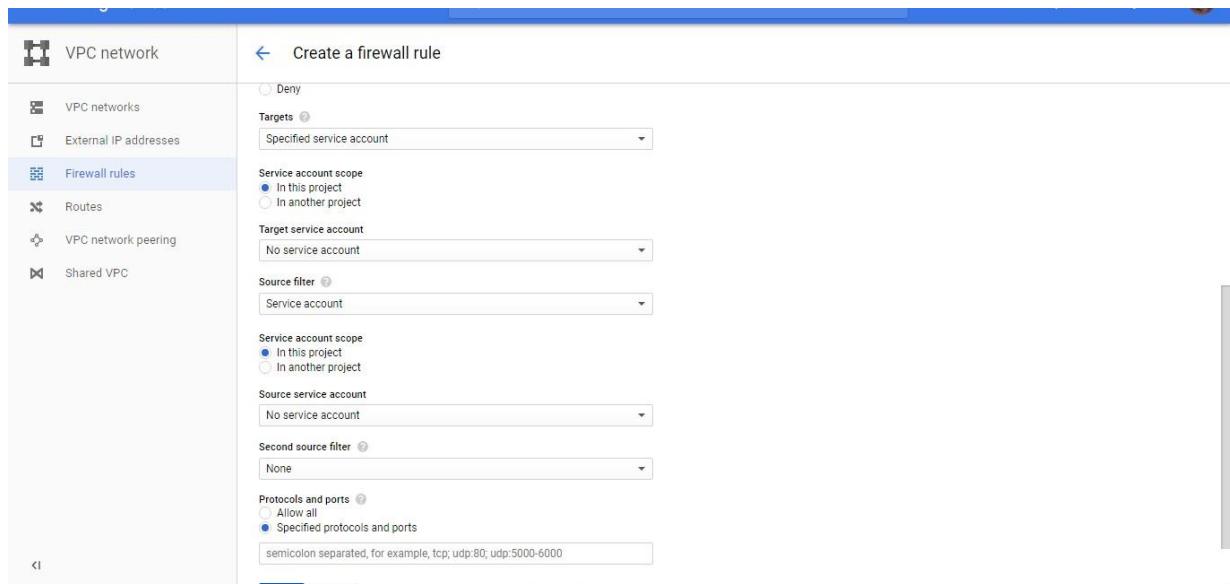
Suggested documentation | For cPanel users | For WHM users | For developers

## Step 12-Config: Firewall Rules-tcp: 2087 WHM

The screenshot shows the Google Cloud Platform interface for managing VPC network firewall rules. The left sidebar has 'VPC network' selected under 'Firewall rules'. The main area displays a table of firewall rules with columns for Name, Type, Targets, Filters, Protocols / ports, Action, Priority, and Network. One rule, 'whm-port', is highlighted.

Name	Type	Targets	Filters	Protocols / ports	Action	Priority	Network
whm-port	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:2087,2083	Allow	1000	default
default-allow-ssh	Ingress	http-server	IP ranges: 0.0.0.0/0	tcp:80	Allow	1000	default
default-allow-https	Ingress	https-server	IP ranges: 0.0.0.0/0	tcp:443	Allow	1000	default
rulewhm	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:2087,2083	Allow	1000	default
default-allow-icmp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	icmp	Allow	65534	default
default-allow-internal	Ingress	Apply to all	IP ranges: 10.128.0.0/9	tcp:0-65535 udp:0-65535	Allow	65534	default
default-allow-dns	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:389	Allow	65534	default
default-allow-ssh	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:22	Allow	65534	default

The screenshot shows the 'Create a firewall rule' dialog box. The 'Name' field is populated with 'whm-port'. Other fields include 'Description (Optional)', 'Network' (set to 'default'), 'Priority' (set to 1000), 'Direction of traffic' (set to 'Ingress'), 'Action on match' (set to 'Allow'), 'Targets' (set to 'Specified service account'), and 'Service account scope' (set to 'In this project').



The screenshot shows the Google Cloud Platform interface for managing VPC network firewall rules. The left sidebar lists options like VPC networks, External IP addresses, Firewall rules, Routes, VPC network peering, Shared VPC, and Serverless VPC access. The main content area is titled 'Firewall rules' and shows a table of existing rules:

Name	Type	Targets	Filters	Protocols / ports	Action	Priority	Network
autopshop	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:2087,2083	Allow	1000	default
default-allow-http	Ingress	http-server	IP ranges: 0.0.0.0/0	tcp:80	Allow	1000	default
default-allow-https	Ingress	https-server	IP ranges: 0.0.0.0/0	tcp:443	Allow	1000	default
rulewhm	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:2087,2083	Allow	1000	default
default-allow-icmp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	icmp	Allow	65534	default
default-allow-internal	Ingress	Apply to all	IP ranges: 10.128.0.0/9	tcp:0-65535 udp:0-65535 icmp	Allow	65534	default
default-allow-rdp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:3389	Allow	65534	default
default-allow-ssh	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:22	Allow	65534	default

A message at the bottom right says 'Activate Windows Go to Settings to activate Windows.'

Successfully install whm and cpanel

The screenshot shows a terminal window with a black background and white text. It displays a session log from a cloud provider, followed by a root shell prompt. The user runs the 'passwd' command to change the password for the 'root' user, but receives an error message about the password being too short.

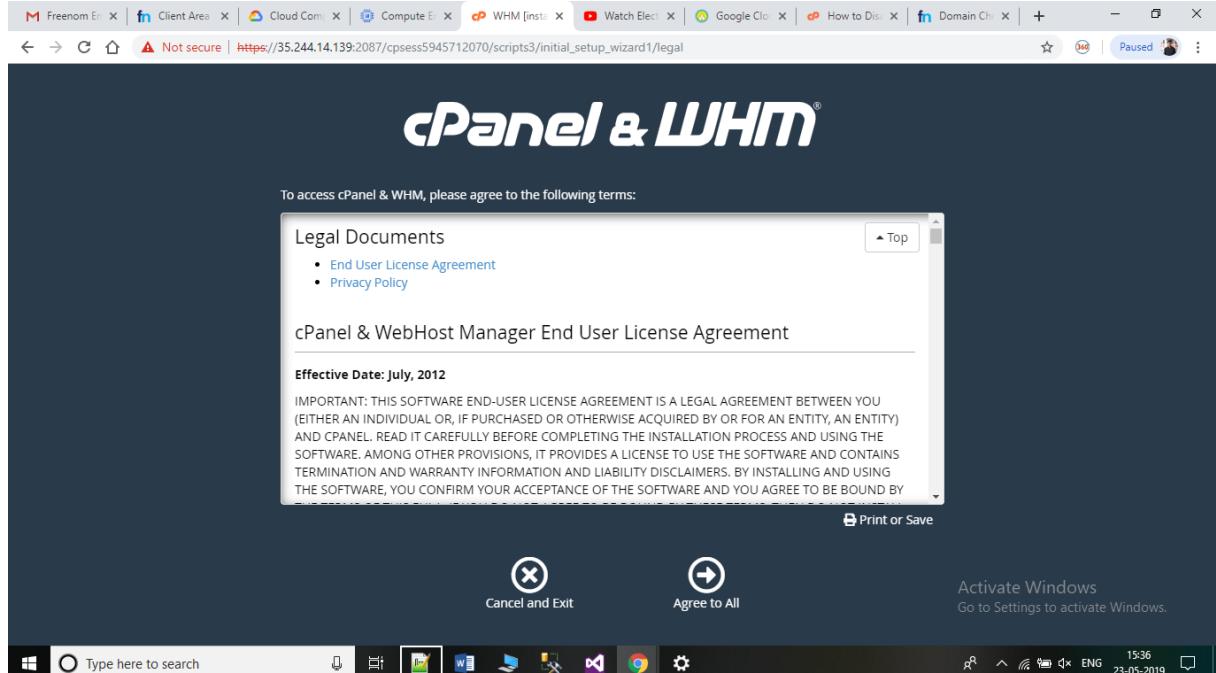
```

root@instance-1-autoshop:/home/jishnumonpb1997 - Google Chrome
Connected to host [REDACTED].ssh-2020-05-23T07:19:46Z
Last login: Thu May 23 07:19:46 2019 from 74.125.41.98
[jishnumonpb1997@instance-1-autoshop ~]$ sudo -s
[root@instance-1-autoshop jishnumonpb1997]# passwd
Changing password for user root.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[root@instance-1-autoshop jishnumonpb1997]#

```

A message at the bottom right says 'Activate Windows Go to Settings to activate Windows.'

Login to WHM using Instance Ext IP:2087



WHM Account Function select

Once you access the WHM panel, you can Create a new cPanel Account

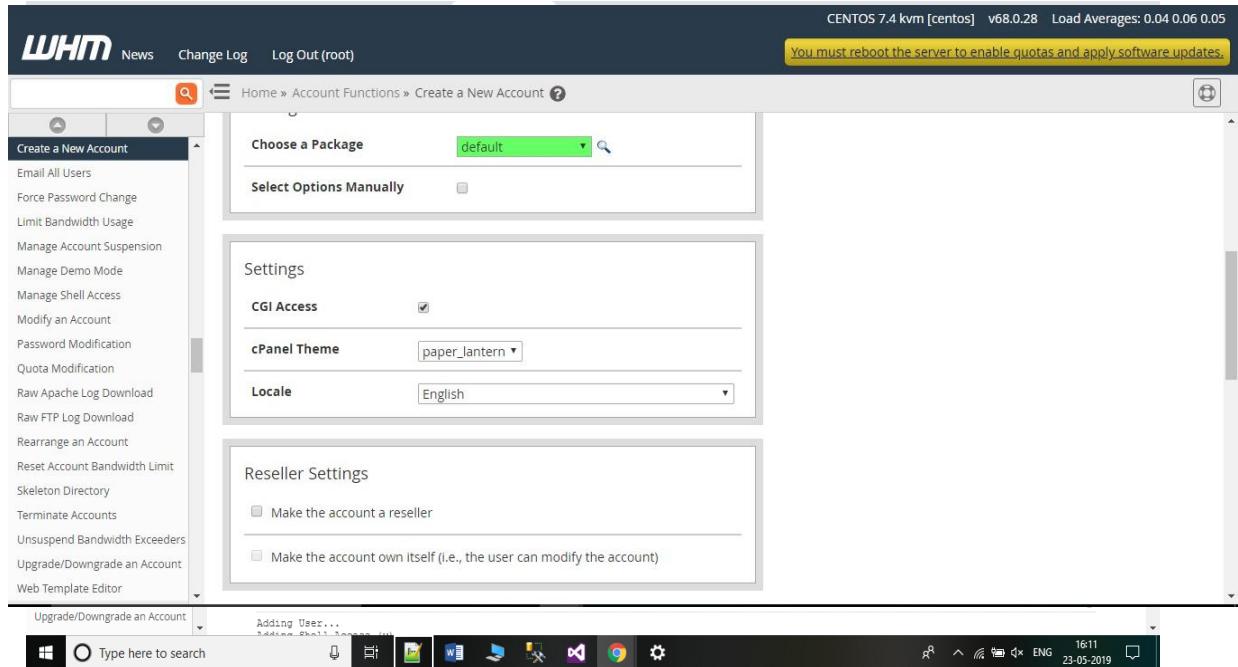
The screenshot shows the WHM interface with the following details:

- Page Title:** Home > Account Functions
- Banner:** You must reboot the server to enable quotas and apply software updates.
- Section:** Account Functions
- Options:**
  - Change Site's IP Address
  - Create a New Account
  - Email All Users
  - Force Password Change
  - Limit Bandwidth Usage
  - Manage Account Suspension
  - Modify an Account
  - Raw Apache Log Download
  - Raw FTP Log Download
  - Rearrange an Account
  - Reset Account Bandwidth Limit
  - Skeleton Directory
  - Terminate Accounts
- Grid of Icons:** A grid of 12 icons representing various account management functions.

cPanel Account creation with your registered domain name

The screenshot shows the 'Create a New Account' form in WHM:

- Domain:** autoshop.ml
- Username:** autoshop
- Password:** [REDACTED]
- Re-type Password:** [REDACTED]
- Strength:** Very Strong (83/100)
- Email:** jishnumonpb@mca.ajc
- Package:** Choose a Package: default



### Step 14-Select File Manager Upload Project In Public HTML

Open Public\_html folder to store your project files.

**cP File Manager**

Search: All Your Files for: Go Settings

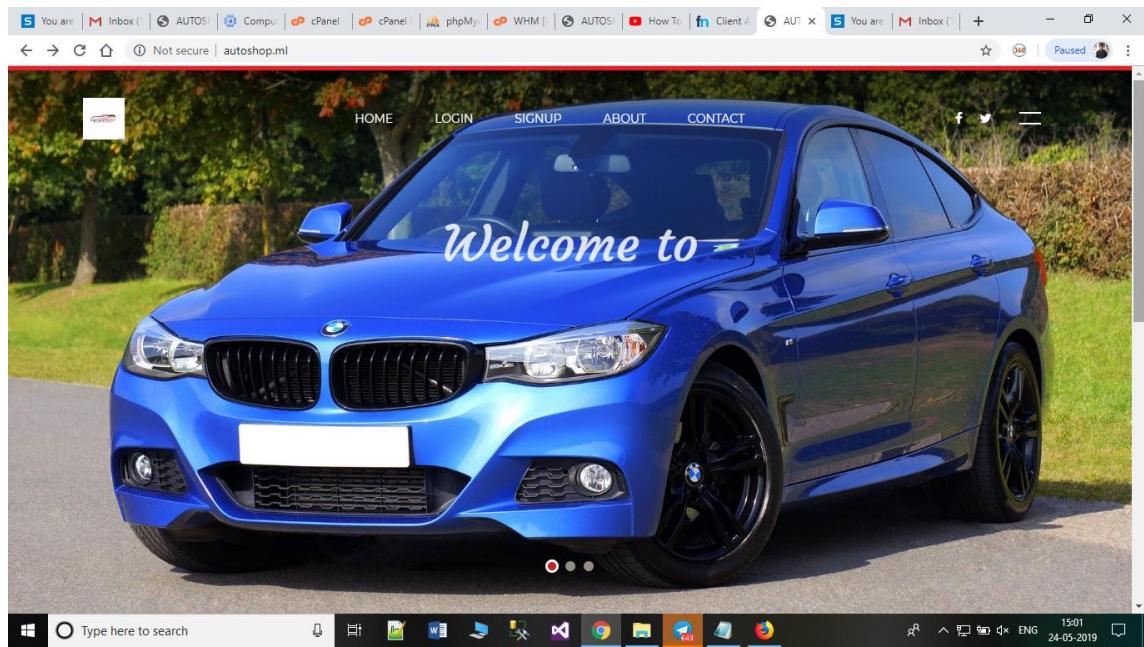
+ File + Folder Copy Move Upload Download Delete Restore Rename Edit HTML Editor Permissions View Extract Compress

Home Up One Level Back Forward Reload Select All Unselect All View Trash Empty Trash

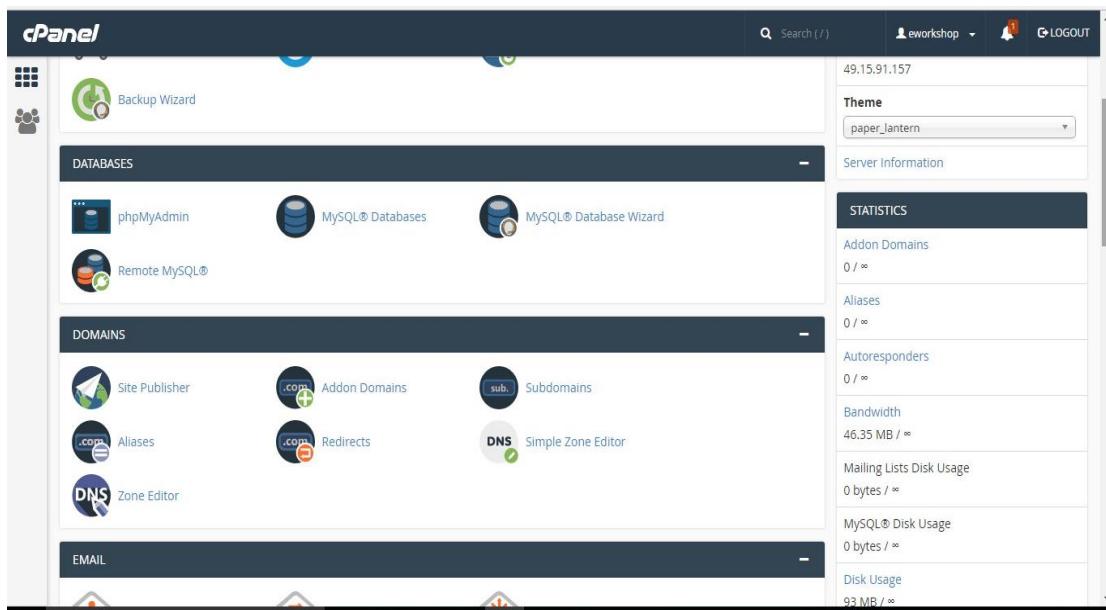
Name	Size	Last Modified	Type	Permissions
etc	41 bytes	Today 3:26 PM	httpd/unix-directory	0750
mail	143 bytes	Today 3:19 PM	mail	0751
public_ftp	22 bytes	Today 3:19 PM	publicftp	0750
public_html	40 bytes	Today 3:20 PM	publhtml	0750
ssl	77 bytes	Today 3:19 PM	httpd/unix-directory	0755
tmp	6 bytes	Today 3:19 PM	httpd/unix-directory	0755
www	11 bytes	Today 3:19 PM	publhtml	0777

https://104.196.209.75:2083/cpsess3996098297/frontend/paper\_lantern/filemanager/index.html#

### Successfully Hosted Project



Connect Database go to mysql database



## Create New Database

The screenshot shows the 'MySQL® Databases' section of cPanel. A yellow banner at the top left states: "TRIAL LICENSE: This copy is a trial version and will expire at the end of the trial term. You will need to upgrade to a paid copy to continue using the software after that term." Below the banner, there's a heading 'MySQL® Databases' with a sub-section titled 'Create New Database'. The 'New Database:' field contains 'eworksho\_ eworkshop'. A blue 'Create Database' button is below the input field. To the right, a link 'Jump to MySQL Users' is visible. Below this, a 'Current Databases' section includes a search bar and a table with columns: Database, Size, Privileged Users, and Actions. The table currently has one row: 'eworkshop'.

Database	Size	Privileged Users	Actions
eworkshop			

## Create New User and Password

The screenshot shows the 'MySQL Users' section of the cPanel interface. A new user is being created with the following details:

- Username:** eworkshop\_user
- Password:** (obscured)
- Password (Again):** (obscured)
- Strength:** Very Strong (99/100)
- Create User** button

A message at the bottom says "Waiting for 104.196.209.75..."

The screenshot shows the 'MySQL® Databases' section of the cPanel interface. A success message indicates that a MySQL user named "eworkshop\_user" was successfully created.

Message: You have successfully created a MySQL user named "eworkshop\_user".

Buttons: Go Back

Footer: cPanel 68.0.28, Home, Trademarks, Documentation

## Set Connection Page

```

1 <?php
2 $con=mysqli_connect("localhost","user","eworkshop@123","eworkshop_eworkshop");
3
4 ?>
5

```

## Upload Database File in Php Myadmin

Importing into the database "eworkshop\_eworkshop"

**File to import:**

File may be compressed (gzip, bzip2, zip) or uncompressed.  
A compressed file's name must end in **[format].[compression]**. Example: **.sql.zip**

Browse your computer:  **eworkshop.sql** (Max: 50MB)  
You may also drag and drop a file on any page.

Character set of the file:

**Partial import:**

Allow the interruption of an import in case the script detects it is close to the PHP timeout limit. *(This might be a good way to import large files, however it can break transactions.)*

Skip this number of queries (for SQL) starting from the first one:

**Other options:**

Enable foreign key checks

**Format:**

Console

The screenshot shows the phpMyAdmin interface for the 'autoshop' database. The left sidebar lists the database structure with 9 table(s). The main area displays the table list with columns: Table, Action, Records, Type, Collation, Size, and Overhead. The 'Structure' tab is active. A message at the bottom indicates that the data may be approximate.

Table	Action	Records	Type	Collation	Size	Overhead
addvehicle		13	InnoDB	latin1_swedish_ci	16.0 KiB	-
auction		43	InnoDB	latin1_swedish_ci	16.0 KiB	-
login_autoshop		24	InnoDB	latin1_swedish_ci	16.0 KiB	-
login_autoshop1		16	InnoDB	latin1_swedish_ci	16.0 KiB	-
registration		7	InnoDB	latin1_swedish_ci	16.0 KiB	-
tbl_addauction		2	InnoDB	latin1_swedish_ci	16.0 KiB	-
tbl_bank_details		3	InnoDB	latin1_swedish_ci	16.0 KiB	-
tbl_send_sms		13	InnoDB	latin1_swedish_ci	16.0 KiB	-
ureg		49	InnoDB	latin1_swedish_ci	16.0 KiB	-
9 table(s)	Sum	170	InnoDB	latin1_swedish_ci	144.0 KiB	0 B

Check All / Uncheck All    With selected: ▾

Print view Data Dictionary

Create new table on database **autoshop**

Name:  Number of fields:

Go

1 May be approximate. See FAQ 3.11

Activate Windows  
Go to Settings to activate Windows.

## Set Data Base privilages

The screenshot shows the cPanel interface for managing database privileges. It lists various permissions for the 'eworkshop' user. A success message indicates that the privileges have been saved for the 'eworkshop' database.

<input checked="" type="checkbox"/> CREATE TEMPORARY TABLES	<input checked="" type="checkbox"/> CREATE VIEW
<input checked="" type="checkbox"/> DELETE	<input checked="" type="checkbox"/> DROP
<input checked="" type="checkbox"/> EVENT	<input checked="" type="checkbox"/> EXECUTE
<input checked="" type="checkbox"/> INDEX	<input checked="" type="checkbox"/> INSERT
<input checked="" type="checkbox"/> LOCK TABLES	<input checked="" type="checkbox"/> REFERENCES
<input checked="" type="checkbox"/> SELECT	<input checked="" type="checkbox"/> SHOW VIEW
<input checked="" type="checkbox"/> TRIGGER	<input checked="" type="checkbox"/> UPDATE

Make Changes    Reset

You saved "eworkshop\_user"'s privileges on the database "eworkshop".

Go Back

cPanel 68.0.28

Home    Trademarks    Documentation

Create Database In Cloud

## P1.1.5 Web Host Management Tools P1.1.5.1 Web Host Manager(WHM)

Web Host Manager, or WHM, is a powerful program that allows administrative access to the back end of cPanel. There are two versions that Host Gator uses. Reseller accounts get basic WHM. Dedicated Servers and VPS accounts get root WHM (also called rWHM), which has features that require root access to the server enabled. Resellers cannot have rWHM. WHM gives you a lot more control and flexibility when managing either a few very popular and resource intensive sites, or large number of sites. On top of giving you the ability to sell hosting services to other people, WHM also gives you the option to create and manage multiple cPanels. There are lots of really good reasons, if you have business oriented or popular sites, to place them on separate cPanels. Here are a few of the more common reasons we see:

- If one of your sites is hacked or attacked, the odds that the hacker can get into your other sites is dramatically reduced, which increases your security.
- There is no way for someone to tell if accounts on different cPanels are attached to the same WHM account, which increases your privacy.
- If you have multiple sites that need to take credit cards, using WHM saves you a lot of time,

- stress, and money. To be able to process credit cards you need an SSL certificate.
- You have the ability to monitor and adjust your bandwidth and disk space, which can be key to keeping a quickly growing or popular site from being suspended or going down due to bandwidth overages.
- Managing a large number of domains in one cPanel can be frustrating, especially if you update the files regularly. While we allow unlimited domains on a shared cPanel account, that does not mean it is always pleasant to work on that many domains in one cPanel.
- You need to have several web sites that take credit cards, and each one needs its own cPanel for its own dedicated IP address.

WHM gives you a suite of tools to easily do the following things:

- Create, delete, and suspend your cPanel accounts.
- Manage and monitor your sites (password resets).
- Access to check and change all of your domains' DNS zones.
- The ability to configure your own customers' support requests through cPanel.
- Permission to check the server information and status.
- Ability to create your own default page when you create a new account.
- Access to customize your hosting and control panel with extensive branding.
- Ability to change your client domain names and user names.
- Hop between every cPanel on your account and access/change anything that does not require SQL access.

#### **P1.1.5.1 Control Panel (cPanel)**

cPanel is an online Linux-based web hosting control panel that provides a graphical interface and automation tools designed to simplify the process of hosting a web site. cPanel utilizes a 3-tier structure that provides capabilities for administrators, resellers, and end-user website owners to control the various aspects of website and server administration through a standard web browser.

In addition to the GUI, cPanel also has command line and API-based access that allows third party software vendors, web hosting organizations, and developers to automate standard system administration processes.

cPanel is designed to function either as a dedicated server or virtual private server. The latest cPanel version supports installation on CentOS, Red Hat Enterprise Linux (RHEL), and CloudLinux OS. cPanel 11.30 is the last major version to support FreeBSD. Application-based support includes Apache, PHP, MySQL, PostgreSQL, Perl, and BIND (DNS). Email based support includes POP3, IMAP, and SMTP services. cPanel is accessed via https on port 2083.

Once installed, cPanel cannot be easily removed. cPanel's FAQ states that the best way to uninstall cPanel is by reformatting the server. However, uninstall guides are available online for expert server administrators who do not wish to reformat their server. Similarly, it should only be installed on a freshly installed operating system with minimal prior configuration.

The tools provided are designed to simplify running and controlling a website. It uses a tiered structure that allows different levels of access. Administrators and end users can control the different aspects of the server and the website directly through their browser. cPanel is generally accessed using https on port 2083 or simply by adding “/cpanel” to the end of the host name.

Depending on the hosting provider the cPanel will generally have some sort of auto installer or package dedicated to content management systems like WordPress.

Some of the great features that cPanel includes are:

- Email: Within cPanel you can create new email accounts, view/modify your existing accounts, modify your MX records, change email passwords, set up mail box quotas and much more.
  - Domains: Under the domains section of cPanel, you can configure new domains to your account, set up parked domains, create subdomains, setup redirects, and much more.
  - File Management: In the files section of cPanel, you can back up your cpanel account, access/ modify files stored in your account, review your disk usage, and create/manage FTP accounts
  - Databases: Here you can create new databases, set up remote access to MySQL, access the
-

- databases using phpMyAdmin, and much more

cPanel is very user friendly and is quite robust. There's numerous tools within cPanel to handle a wide variety of tasks. It contains a full help menu that is easy to use.

#### P1.1.5.3 Plesk Panel

Plesk is the leading WebOps hosting platform to run, automate and grow applications, websites and hosting businesses. Being the only OS-agnostic platform, Plesk is running on more than 380,000 servers, automating 11M+ websites and 19M mailboxes. Available in more than 32 languages across 140 countries, 50% of the top 100 service providers worldwide are partnering with Plesk today. Plesk has simplified the life of SysAdmins and SMBs since the early 2000's and continues to add value across multiple cloud services. The Plesk hosting platform effectively enables application developers by providing access to a simple and more secure web infrastructure managed by web pros and hosting companies.

The worldwide developer market consists of over 20M cloud developers who are looking for access to faster, more secure and efficient infrastructures. The Plesk vision is to constantly elevate customer and partner profitability by providing them with a cloud platform that grants application developers a ready-to-code environment. Besides simplifying complexity, Plesk increases its efforts to enable customers and partners alike to extend and customize Plesk as an open hosting platform. The rich ecosystem of Plesk extensions not only provides access to even more relevant features targeted at specific audiences but also allows service providers of any size to generate unique upsell opportunities.

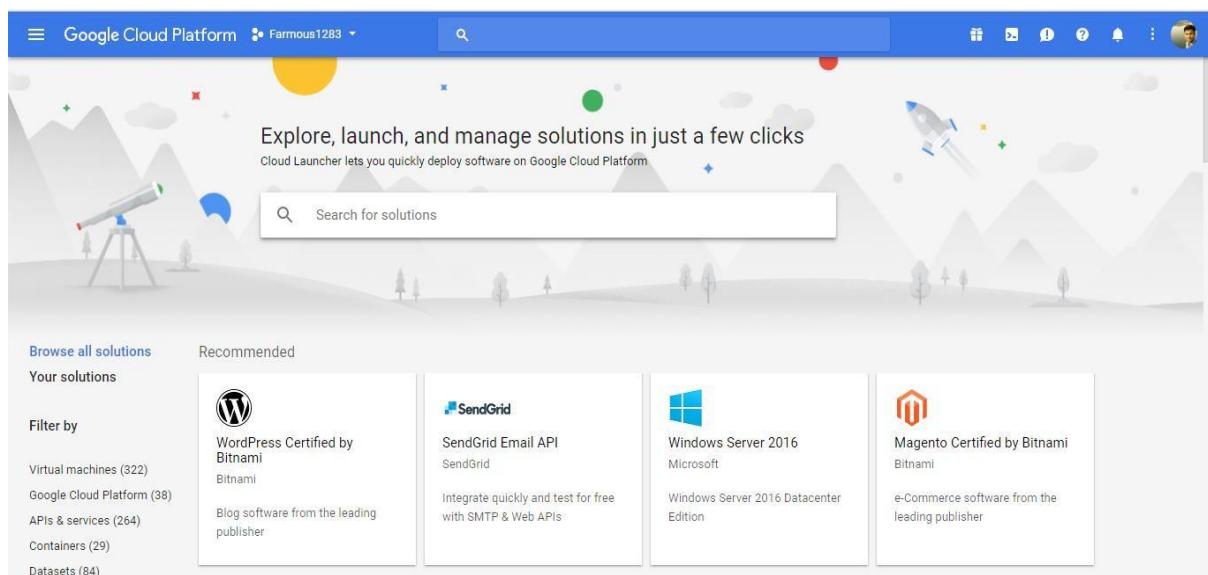
---

*Plesk culture*

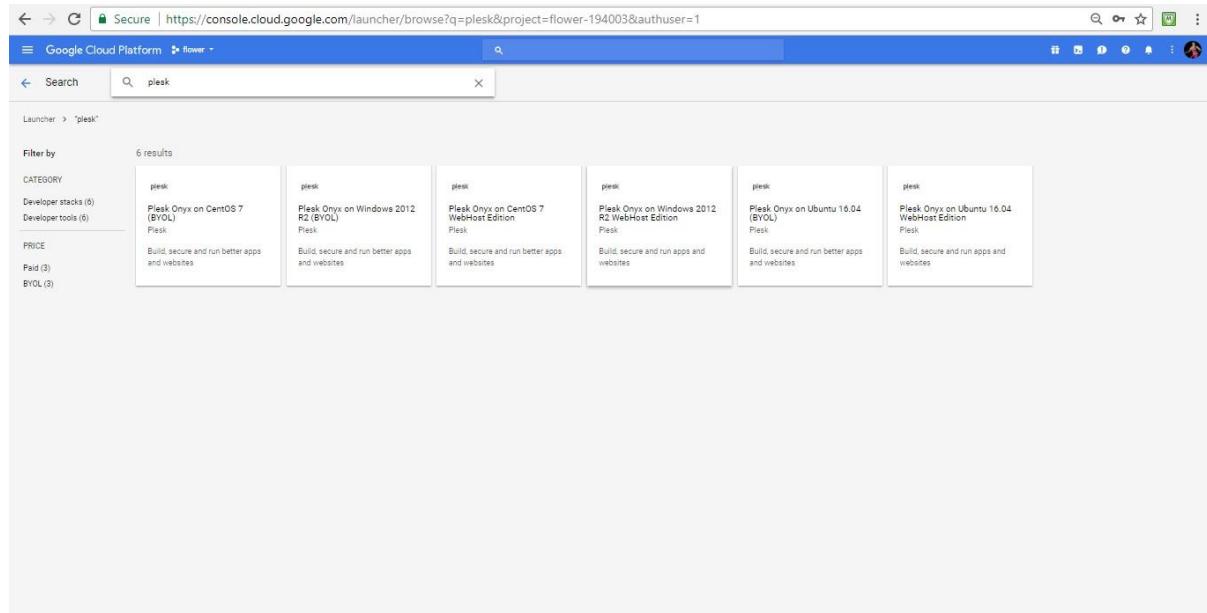
As a team, we thrive on excellence, innovation, collaboration, and efficiency. We enjoy what we do, understand our customers and build a hosting platform that clients love and need. The relentless commitment of our team to accept new business challenges guarantees that we are creative and respectful of time and resources as well as the environment. We keep our actions and goals transparent, cultivate a culture of leadership, inclusion, execution, and respect. As a former member of the Parallels group of companies, our background is global, innovative and diverse. January 2016 was the right time for Plesk to become a separate business, enabling us to accelerate development cycles, drive innovation and focus on the needs of our partners, customers and employees.

lunching Plesk on google cloud

- Go to Google Cloud Launcher



Search for Plesk or choose Plesk Onyx on Windows 2012 R2 Webhost Edition from the solutions



The screenshot shows the Google Cloud Platform Launcher interface. A search bar at the top has "plesk" typed into it. Below the search bar, a list of results is shown, with the first item being "Plesk Onyx on Windows 2012 R2 WebHost Edition". This item has a large circular icon with the word "plesk" in the center. To the right of the icon, the title "Plesk Onyx on Windows 2012 R2 WebHost Edition" is displayed, along with a brief description: "Plesk", "Estimated costs: \$87.52/month", and "Build, secure and run apps and websites". A blue "LAUNCH ON COMPUTE ENGINE" button is at the bottom. On the left side of the main content area, there is a sidebar with sections for "Runs on", "Type", "Last updated", and "Category". The "Runs on" section shows "Google Compute Engine". The "Type" section shows "Virtual machines" and "Single VM". The "Last updated" section shows "12/23/17, 4:13 AM". The "Category" section is partially visible.

## Deploying new Plesk instance

The screenshot shows the "New Plesk Onyx on Windows 2012 R2 WebHost Edition deployment" configuration page. At the top, the URL is https://console.cloud.google.com/launcher/config/plesk-public/plsk-win-hst-gcp-m?src=console&project=flower-194003&authuser=1. The page header includes the Google Cloud Platform logo and a project dropdown set to "flower". The main form fields include:

- Deployment name:** plesk1
- Zone:** us-west1-c
- Machine type:** 1 vCPU, 3.75 GB memory, Customize (disabled)
- Boot Disk:** Boot disk type: SSD Persistent Disk, Boot disk size in GB: 50
- Networking:** Network name: default, Subnetwork name: default

To the right of the form, there is a summary section titled "Plesk Onyx on Windows 2012 R2 WebHost Edition overview". It includes:

- Solution provided by Plesk
- \$87.52 per month** estimated (Effective hourly rate \$0.12 (730 hours per month))
- Details** and **Terms of Service** links
- A note about the software or service being not a Google product and the terms of service for Plesk.
- Information that Google is providing the software "as-is" and any support will be provided by Plesk under their terms of service.

New Plesk Onyx on Windows 2012 R2 WebHost Edition deployment

Subnetwork name: default

**Firewall**

- Add tags and firewall rules to allow specific network traffic from the Internet
- Allow TCP port 20 traffic
- Allow TCP port 21 traffic
- Allow TCP port 25 traffic
- Allow UDP port 53 traffic
- Allow TCP port 53 traffic
- Allow HTTP traffic
- Allow TCP port 110 traffic
- Allow TCP port 143 traffic
- Allow HTTPS traffic
- Allow TCP port 465 traffic
- Allow TCP port 587 traffic
- Allow TCP port 953 traffic
- Allow TCP port 990 traffic
- Allow TCP port 993 traffic
- Allow TCP port 995 traffic
- Allow TCP port 1433 traffic
- Allow TCP port 1434 traffic
- Allow TCP port 3306 traffic
- Allow TCP port 3389 traffic
- Allow TCP port 8443 traffic
- Allow TCP port 8447 traffic
- Allow TCP port 8880 traffic

More

Deploy

New Plesk Onyx on Windows 2012 R2 WebHost Edition deployment

Subnetwork name: default

**Firewall**

- Add tags and firewall rules to allow specific network traffic from the Internet
- Allow TCP port 20 traffic
- Allow TCP port 21 traffic
- Allow TCP port 25 traffic
- Allow UDP port 53 traffic
- Allow TCP port 53 traffic
- Allow HTTP traffic
- Allow TCP port 110 traffic
- Allow TCP port 143 traffic
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- Allow TCP port 465 traffic
- Allow TCP port 587 traffic
- Allow TCP port 953 traffic
- Allow TCP port 990 traffic
- Allow TCP port 993 traffic
- Allow TCP port 995 traffic
- Allow TCP port 1433 traffic
- Allow TCP port 1434 traffic
- Allow TCP port 3306 traffic
- Allow TCP port 3389 traffic
- Allow TCP port 8443 traffic
- Allow TCP port 8447 traffic
- Allow TCP port 8880 traffic

More

Once successfully deployed, you will be redirected to Deployment Manager window

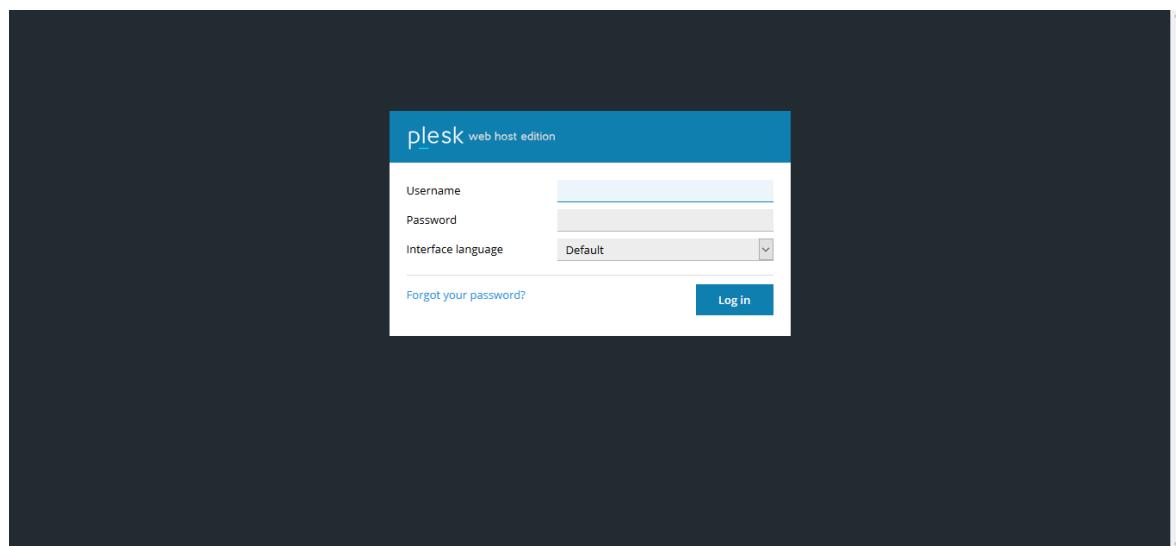
The screenshot shows the Google Cloud Platform Deployment Manager interface. The left sidebar has 'Deployments' selected. In the main area, a deployment named 'plesk1' is listed with a green checkmark indicating it has been deployed. The deployment details pane shows the configuration for 'plesk-win-hst-gcp-m', which is a 'Plesk Onyx on Windows 2012 R2 WebHost Edition' solution provided by Plesk. Key details include:

- Site address:** http://35.200.193.29:80/ [edit]
- Admin URL:** https://35.200.193.29:8443/ [edit]
- Admin user:** admin
- Admin password (Temporary):** fYm2Fw\*8vv96
- Instance:** plesk1-vm
- Instance zone:** asia-south1-c
- Instance machine type:** n1-standard-1

Below the configuration details, there are links to 'Get started with Plesk Onyx on Windows 2012 R2 WebHost Edition' and 'Log into the admin panel' (which is currently selected) or 'RDP'. A 'Suggested next steps' section lists:
 

- Change the temporary password: For additional security, it is recommended that you change the password.
- Assign a static external IP address to your VM instance: An ephemeral external IP address has been assigned to the VM instance. If you require a static external IP address, you may promote the address to static. Learn

Use the Login credentials provided by the Deployment Manager to access the Admin panel. Use the Admin URL to log in, with Admin user and Admin password(temporary)



## Choosing compatible edition

will use the product? \*

For establishing an online presence through the management of your business websites and email.

Individual / Personal Use  
For running few personal email accounts and websites, such as blogs, image galleries, and so on.

Education / Academic Use  
For running websites and other internet services related to your university, college, or school.

Commercial Web Hosting  
For offering web hosting services to your customers using features such as automated ordering / billing.

Web Designers  
For web design studios that may run their own as well as their customers' websites and other services.

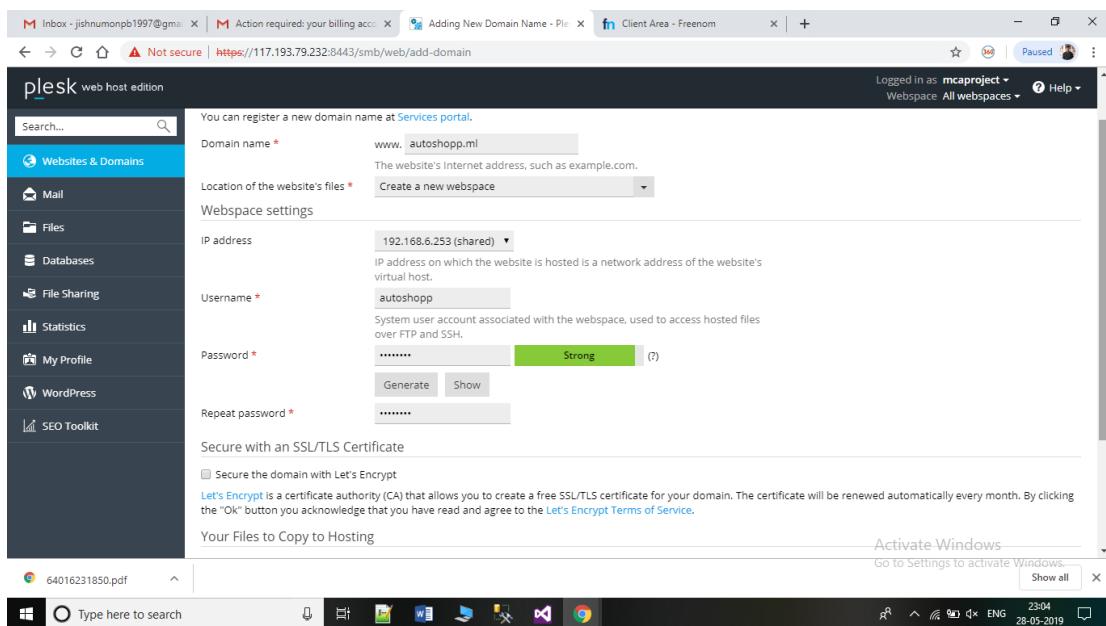
Online Gaming / Game Servers  
For running a website, forum, or game server related to online gaming or your online gaming team.

Other

Select your interface \*

Power User view  
  
This view is intended for enabling a single, simplified interface for server administrators to manage their own websites, email accounts, and other services.  
★ We recommend this view for Education / Academic Use

## Create a dns zone and record

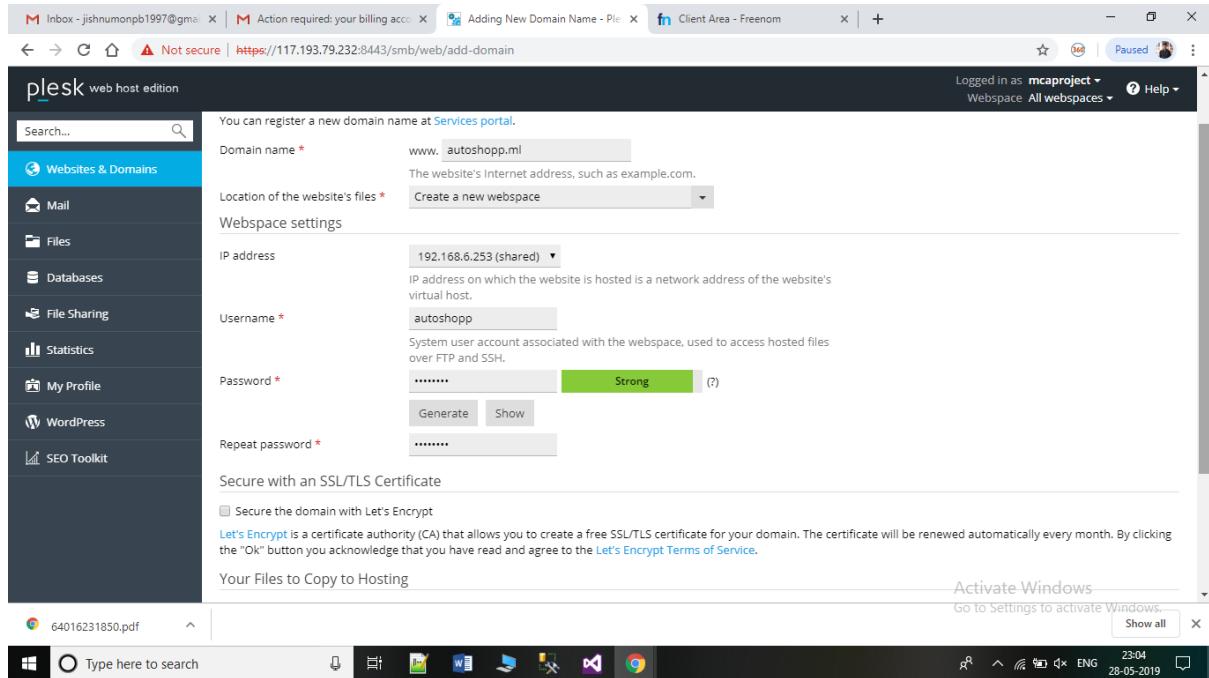


The screenshot shows the Plesk Web Host Edition interface. On the left, there's a sidebar with various options like Websites & Domains, Mail, Files, Databases, etc. The main area is titled 'Adding New Domain Name - Plesk' and shows the following fields:

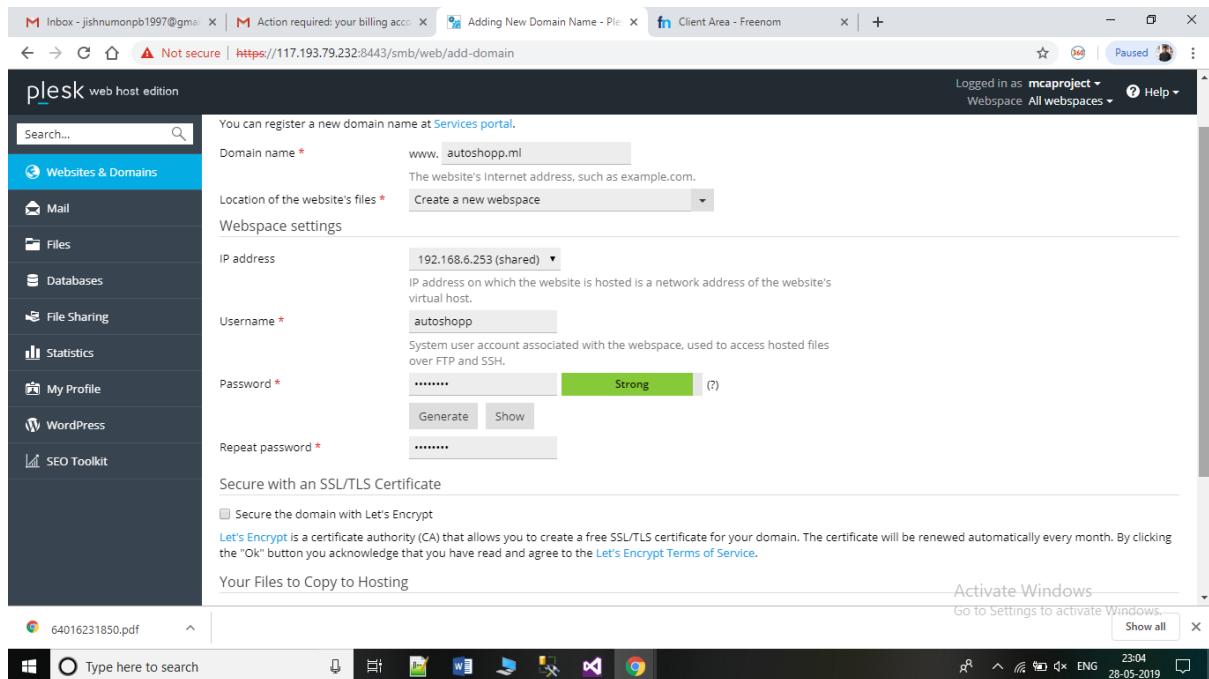
- Domain name: www.autoshopp.ml
- Location of the website's files: Create a new webspace
- Webspace settings:
  - IP address: 192.168.6.253 (shared)
  - Username: autoshopp
  - Password: [REDACTED] (Strong)
  - Repeat password: [REDACTED]
- Secure with an SSL/TLS Certificate: Secure the domain with Let's Encrypt
- Your Files to Copy to Hosting: [REDACTED]

At the bottom, there's a status bar showing system information like battery level, signal strength, and date/time (23:04 28-05-2019).

## Add Record Set



## Specify Plesk panel settings



## Create a new domain for hosting

The screenshot shows the Freenom Client Area - DNS Management page for the domain `autoshopp.ml`. It displays two successfully added DNS records:

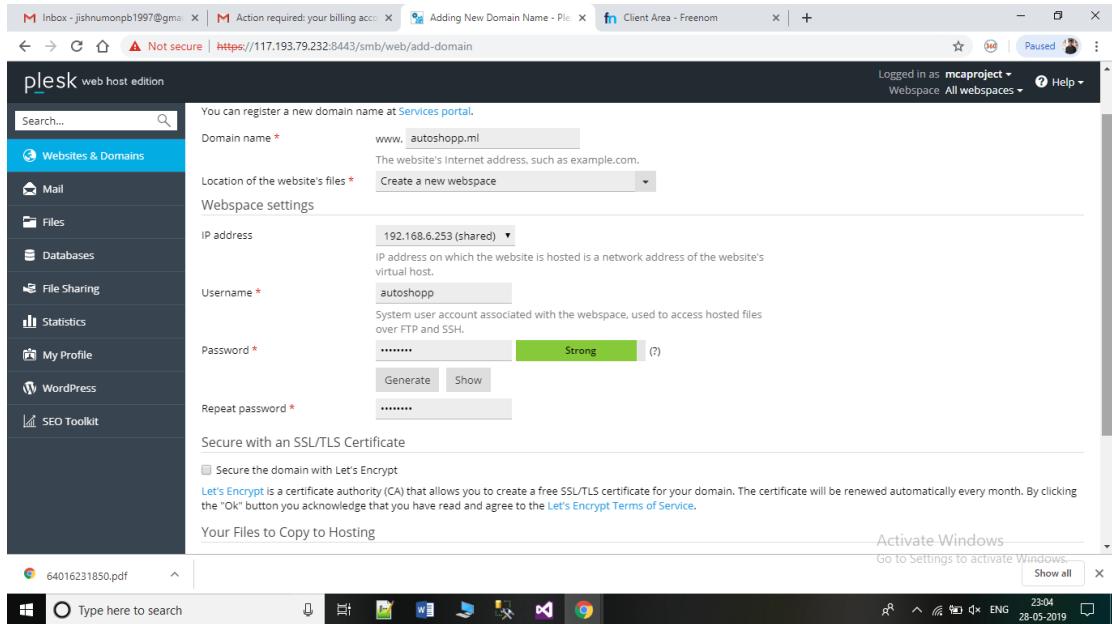
Name	Type	TTL	Target
	A	3600	192.168.6.253
WWW	CNAME	3600	autoshopp.ml

Below the table, there is a message: "Record added successfully" and "Record added successfully". The browser's address bar shows the URL `https://my.freenom.com/clientarea.php?managedns=autoshopp.ml&domainid=1064468708`.

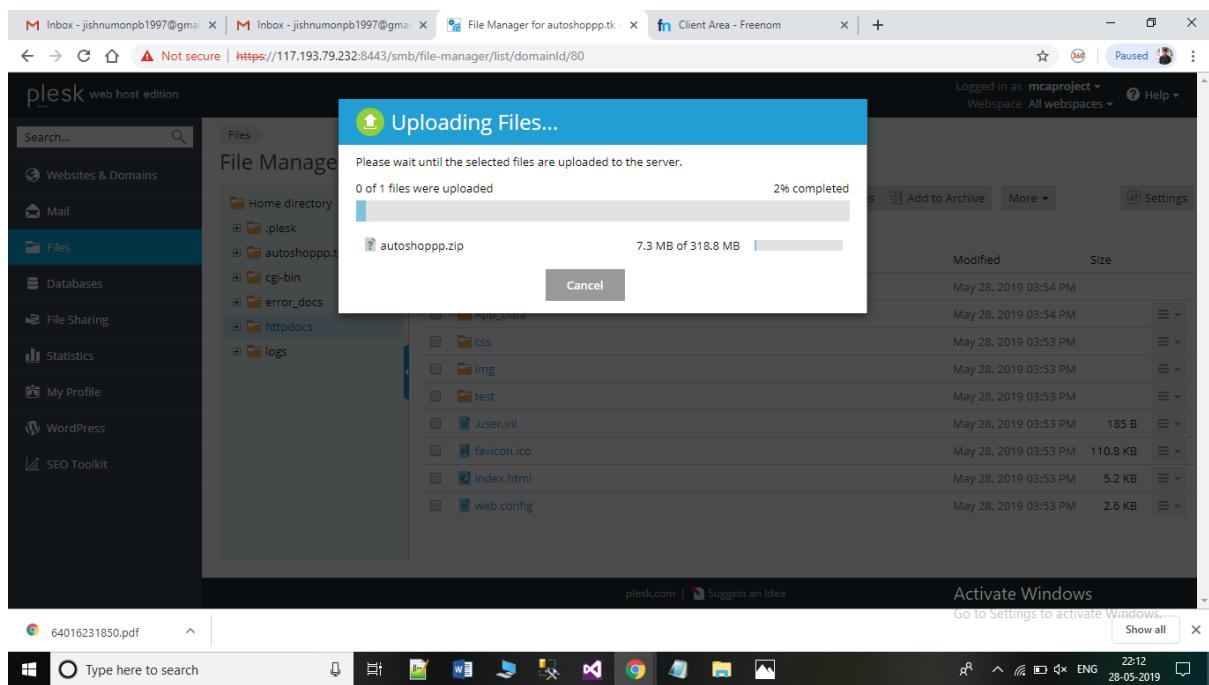
The screenshot shows the Freenom search and purchase interface at `https://my.freenom.com/cart.php?a=confdomains&language=english`. A large blue button labeled "Check Availability" is highlighted with a circular selection.

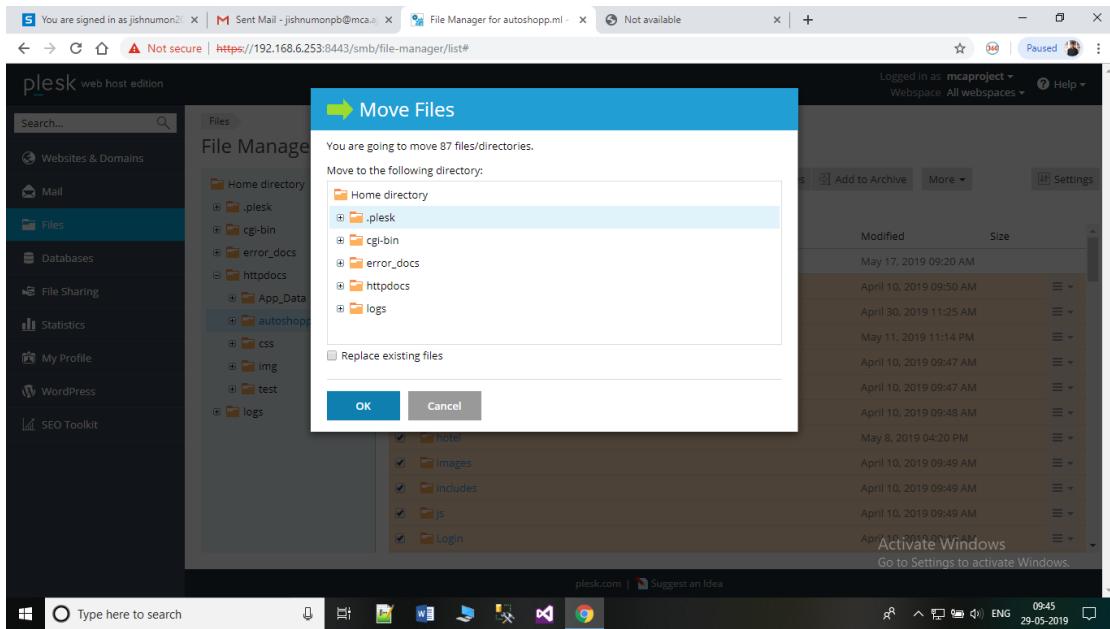
The form below includes fields for "Domain" (set to `eworkshop.ga`), "IDSHIELD" (with a question mark icon), "Use your new domain", "Forward this domain" (radio button selected), "Use DNS" (checkbox), and "Period" (set to "12 Months @ FREE"). A "Continue" button is located at the bottom right.

## Create webspace

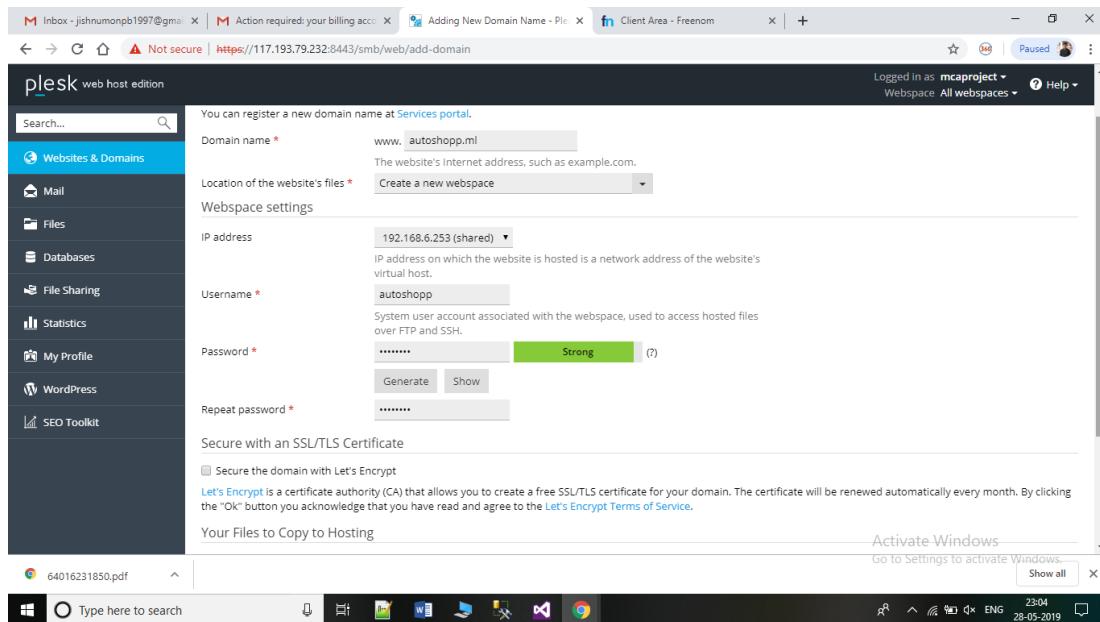


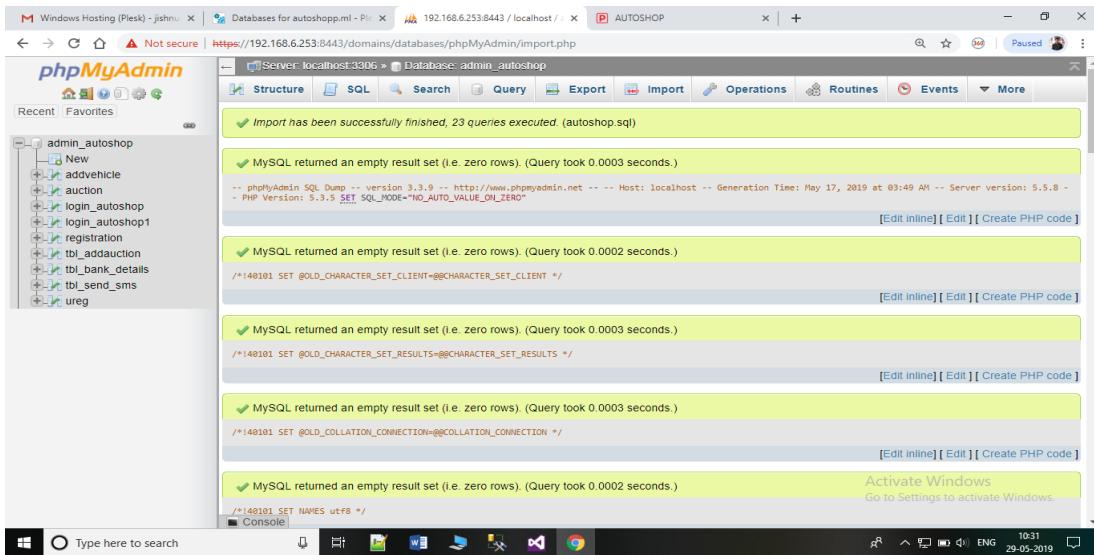
## Upload project file



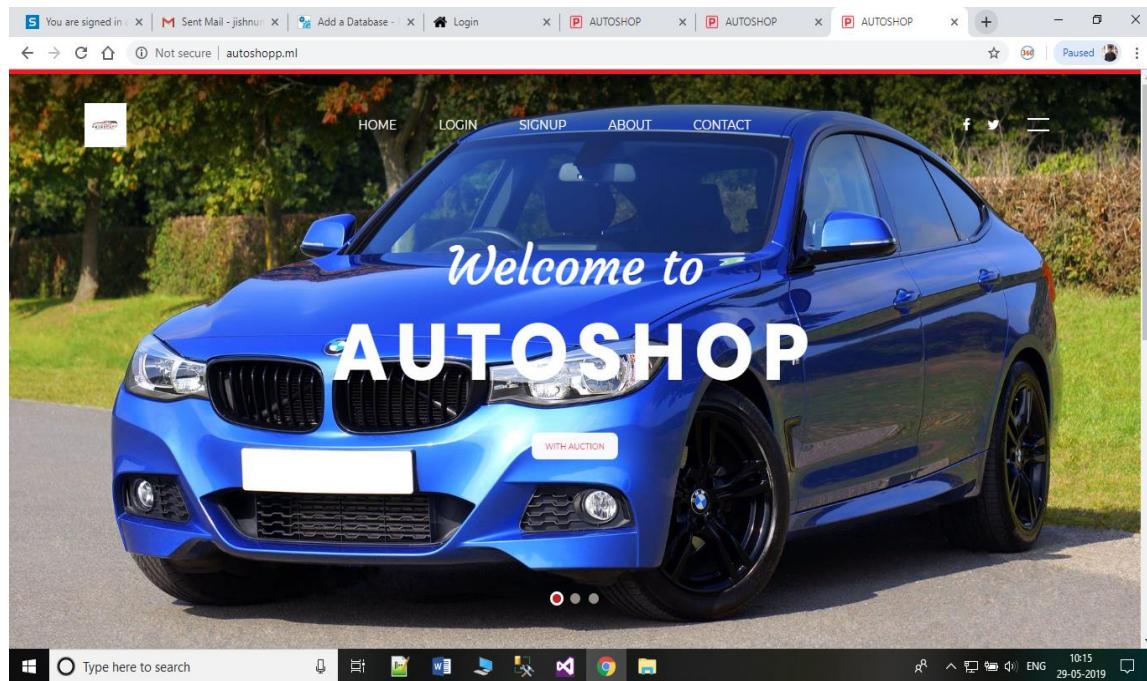


## Add Database to the project





## Site Hosted



## P1.2 AWS (AMAZON WEB SERVICES)

### P1.2.1 INTRODUCTION AMAZON WEB SERVICES CLOUD

In 2006, Amazon Web Services (AWS) began offering IT infrastructure services to businesses in the form of web services -- now commonly known as cloud computing. One of the key benefits of cloud computing is the opportunity to replace up-front capital infrastructure expenses with low variable costs that scale with your business. With the Cloud, businesses no longer need to plan for and procure servers and other IT infrastructure weeks or months in advance. Instead, they can instantly spin up hundreds or thousands of servers in minutes and deliver results faster.

Today, Amazon Web Services provides a highly reliable, scalable, low-cost infrastructure platform in the cloud that powers hundreds of thousands of businesses in 190 countries around the world. With data center locations in the U.S., Europe, Brazil, Singapore, Japan, and Australia, customers across all industries are taking advantage of the following benefits:

#### **Low Cost**

AWS offers low, pay-as-you-go pricing with no up-front expenses or long-term commitments. We are able to build and manage a global infrastructure at scale and pass the cost saving benefits onto you in the form of lower prices. With the efficiencies of our scale and expertise, we have been able to lower our prices on 15 different occasions over the past four years. Visit the Economics Centre to learn more.

#### **Agility and Instant Elasticity**

AWS provides a massive global cloud infrastructure that allows you to quickly innovate, experiment and iterate. Instead of waiting weeks or months for hardware, you can instantly deploy new applications, instantly scale up as your workload grows, and instantly scale down based on demand. Whether you need one virtual server or thousands, whether you need them for a few hours or 24/7, you still only pay for what you use. Visit the Architecture Centre to learn more.

---

## **Open and Flexible**

AWS is a language and operating system agnostic platform. You choose the development platform or programming model that makes the most sense for your business. You can choose which services you use, one or several, and choose how you use them. This flexibility allows you to focus on innovation, not infrastructure. Download the AWS Overview Whitepaper.

## **Secure**

AWS is a secure, durable technology platform with industry-recognized certifications and audits: PCI DSS Level 1, ISO 27001, FISMA Moderate, FedRAMP, HIPAA, and SOC 1 (formerly referred to as SAS 70 and/or SSAE 16) and SOC 2 audit reports. Our services and data centers have multiple layers of operational and physical security to ensure the integrity and safety of your data. Visit the Security Centre to learn more.

## **Solutions**

The AWS cloud computing platform provides the flexibility to launch your application regardless of your use case or industry. Learn more about popular solutions customers are running on AWS.

### **Application Hosting**

Use reliable, on-demand infrastructure to power your applications, from hosted internal applications to SaaS offerings.

### **Websites**

Satisfy your dynamic web hosting needs with AWS's scalable infrastructure platform.

### **Backup and Storage**

Store data and build dependable backup solutions using AWS's inexpensive data storage services.

### **Enterprise IT**

Host internal- or external-facing IT applications in AWS's secure environment.

### **Content Delivery**

Quickly and easily distribute content to end users worldwide, with low costs and high data transfer speeds.

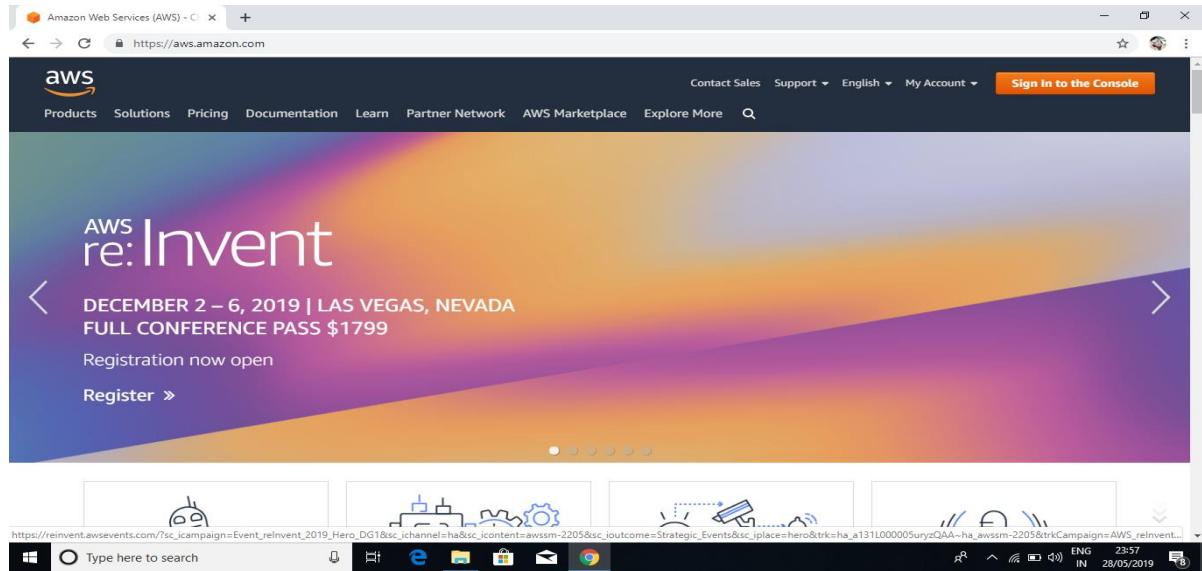
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## Databases

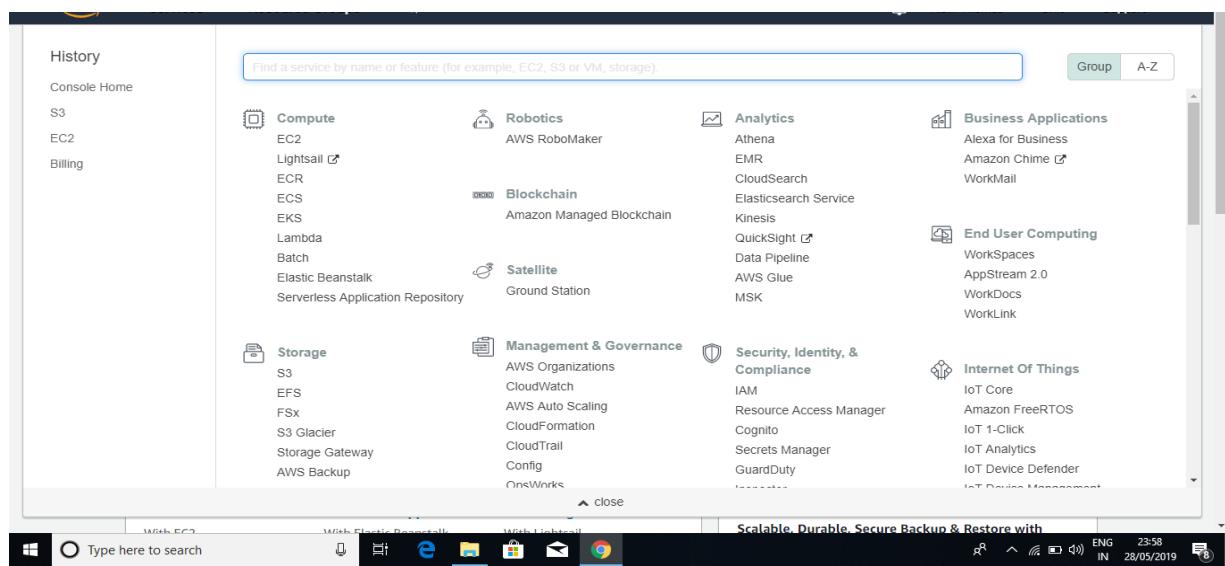
Take advantage of a variety of scalable database solutions, from hosted enterprise database software or non-relational database solutions.

## Get Started

- Sign up for AWS, by signing up for AWS, you have access to Amazon's cloud computing services.



- Once you successfully logged in, you will be redirected to AWS Dashboard.

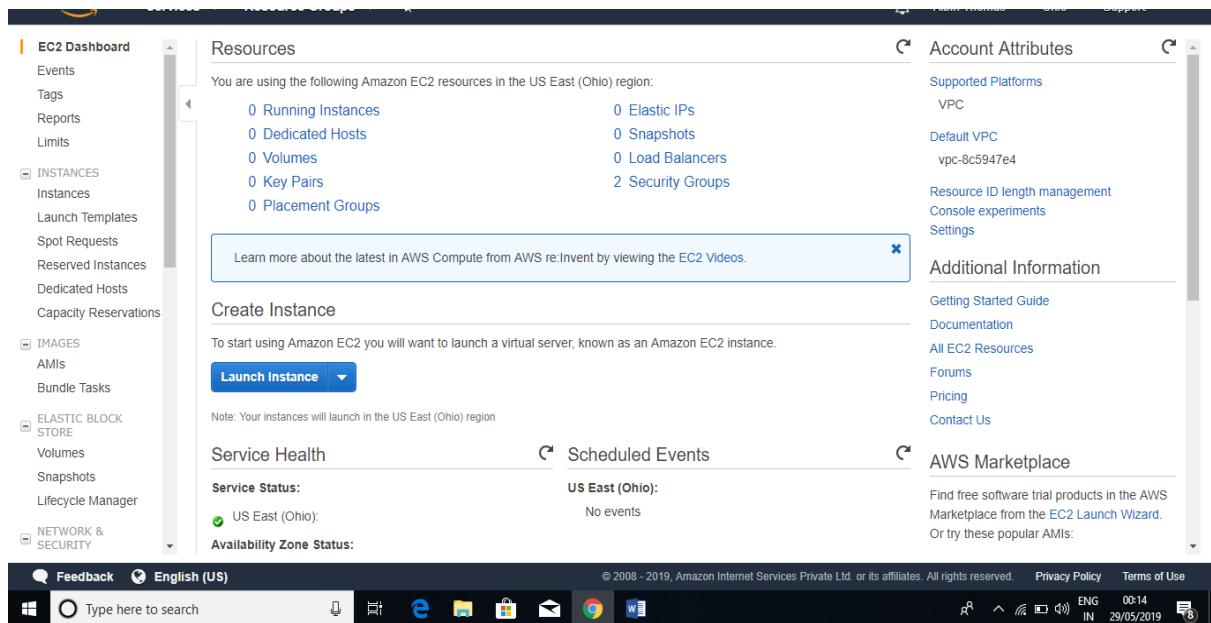


## P1.2.2 AMAZON ELASTIC COMPUTE CLOUD (EC2)

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides secure, resizable compute capacity in the cloud. It is designed to make web-scale cloud computing easier for developers.

Amazon EC2's simple web service interface allows you to obtain and configure capacity with minimal friction. It provides you with complete control of your computing resources and lets you run on Amazon's proven computing environment. Amazon EC2 reduces the time required to obtain and boot new server instances to minutes, allowing you to quickly scale capacity, both up and down, as your computing requirements change. Amazon EC2 changes the economics of computing by allowing you to pay only for capacity that you actually use. Amazon EC2 provides developers the tools to build failure resilient applications and isolate them from common failure scenarios.

### Step 1: Go to EC2 Console and then press 'Launch Instance'



## Step 2: We are Creating a Windows Server Instance

The screenshot shows the AWS EC2 Dashboard. On the left, a sidebar lists navigation options: EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES (Instances, Launch Templates, Spot Requests, Reserved Instances, Dedicated Hosts, Capacity Reservations), IMAGES (AMIs, Bundle Tasks), ELASTIC BLOCK STORE (Volumes, Snapshots, Lifecycle Manager), and NETWORK & SECURITY. The main area displays 'Resources' for the US East (Ohio) region, showing 0 Running Instances, 0 Dedicated Hosts, 0 Volumes, 0 Key Pairs, 0 Placement Groups, 0 Elastic IPs, 0 Snapshots, 0 Load Balancers, and 2 Security Groups. A message encourages viewing EC2 Videos. Below this is a 'Create Instance' section with a 'Launch Instance' button. To the right are sections for 'Account Attributes' (Supported Platforms: VPC, Default VPC: vpc-8c5947e4, Resource ID length management, Console experiments, Settings), 'Additional Information' (Getting Started Guide, Documentation, All EC2 Resources, Forums, Pricing, Contact Us), and 'AWS Marketplace' (Find free software trial products). The bottom of the page includes a feedback link, language selection (English (US)), and copyright information (© 2008 - 2019, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Use).

## Step 3: Continue the Installation Step as follows

The screenshot shows the 'Choose an Instance Type' step of the EC2 instance creation wizard. At the top, a progress bar indicates steps 1. Choose AMI through 7. Review. Below it, a note says 'Step 2: Choose an Instance Type'. A sub-note explains that Amazon EC2 provides a wide selection of instance types optimized for different use cases. It highlights the t2.micro instance type as being free tier eligible. A table lists various instance types: t2.nano, t2.micro (selected and free tier eligible), t2.small, t2.medium, and t2.large. The table columns include Family, Type, vCPUs, Memory (GiB), Instance Storage (GiB), EBS-Optimized Available, Network Performance, and IPv6 Support. Buttons at the bottom allow canceling, previous steps, reviewing, launching, or moving to the next step.

**Step 3: Configure Instance Details**

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances	<input type="text" value="1"/>	Launch into Auto Scaling Group
Purchasing option	<input type="checkbox"/> Request Spot instances	
Network	Network: vpc-8c5947e4 (default) <a href="#">Create new VPC</a>	
Subnet	Subnet: No preference (default subnet in any Availability Zone) <a href="#">Create new subnet</a>	
Auto-assign Public IP	Auto-assign Public IP: Use subnet setting (Enable) <a href="#">Create new Capacity Reservation</a>	
Placement group	<input type="checkbox"/> Add instance to placement group	
Capacity Reservation	Capacity Reservation: Open <a href="#">Create new Capacity Reservation</a>	
IAM role	IAM role: None <a href="#">Create new IAM role</a>	
Shutdown behavior	Shutdown behavior: Stop	
<a href="#">Cancel</a> <a href="#">Previous</a> <b>Review and Launch</b> <a href="#">Next: Add Storage</a>		

**Step 4: Add Storage**

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/xvda	snap-0073ecc81c3f0f9e5	<input type="text" value="8"/>	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/> Not Encrypted

**Add New Volume**

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

<a href="#">Cancel</a>	<a href="#">Previous</a>	<b>Review and Launch</b>	<a href="#">Next: Add Tags</a>
------------------------	--------------------------	--------------------------	--------------------------------

**Step 5: Add Tags**

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.

A copy of a tag can be applied to volumes, instances or both.

Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key	(127 characters maximum)	Value	(255 characters maximum)
-----	--------------------------	-------	--------------------------

This resource currently has no tags

Choose the Add tag button or [click here](#) to add a Name tag.  
Make sure your [IAM policy](#) includes permissions to create tags.

**Add Tag** (Up to 50 tags maximum)

Cancel Previous Review and Launch Next: Configure Security Group

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**Step 6: Configure Security Group**

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

**Assign a security group:**

- Create a new security group
- Select an existing security group

**Security group name:** launch-wizard-2

**Description:** launch-wizard-2 created 2019-05-29T00:15:28.068+05:30

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	Custom	0.0.0.0/0

e.g. SSH for Admin Desktop

**Add Rule**

**Warning**  
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Cancel Previous Review and Launch

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## Step 4: Create a New Key Pair

**Step 7: Review Instance Launch**

Please review your instance launch details. You can always change them later in the launch process.

**AMI Details**

Amazon Linux AMI 2018.03.0 (x86\_64) - ami-0f628bc948db4e

**Instance Type**

Instance Type	ECUs	Memory (GiB)	Storage (GiB)	Network Performance
t2.micro	Variable	1	1 EBS only	Low to Moderate

**Select an existing key pair or create a new key pair**

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Proceed without a key pair

I acknowledge that I will not be able to connect to this instance unless I already know the password built into this AMI.

**Launch Instances**

## Step 5: The Instance will be Created.

**Launch Status**

**Your instances are now launching**

The following instance launches have been initiated: i-0f628bc948db4e [View launch log](#)

**Get notified of estimated charges**

Create [billing alerts](#) to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

**How to connect to your instances**

Your instances are launching, and it may take a few minutes until they are in the **running** state, when they will be ready for you to use. Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances.

Click [View Instances](#) to monitor your instances' status. Once your instances are in the **running** state, you can [connect](#) to them from the Instances screen. [Find out](#) how to connect to your instances.

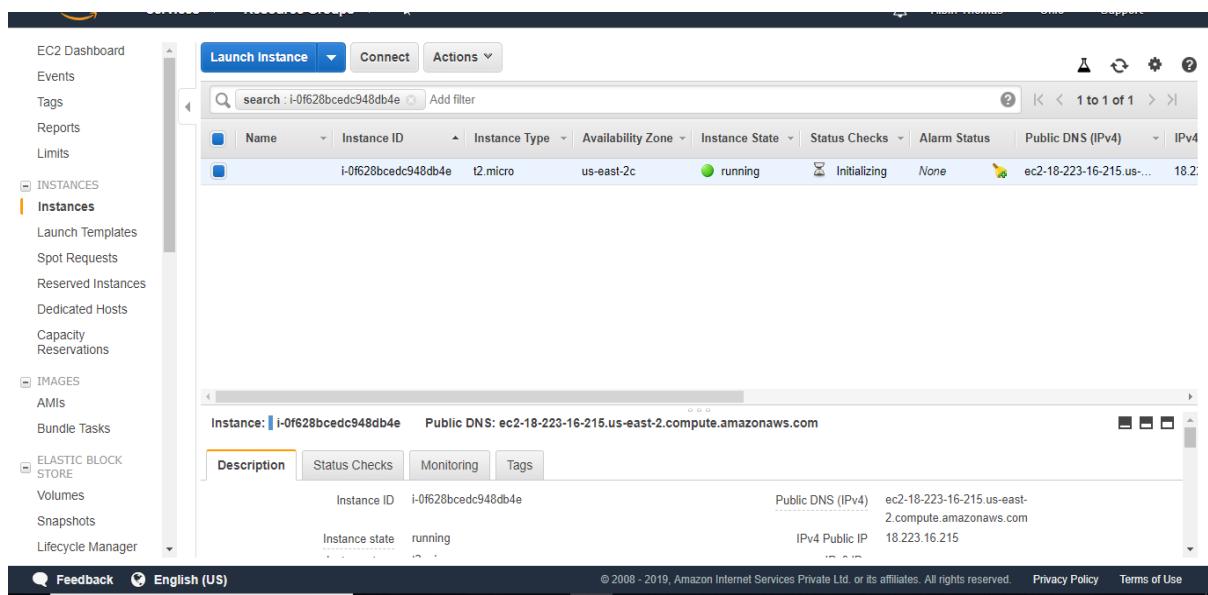
**Here are some helpful resources to get you started**

- [How to connect to your Linux instance](#)
- [Amazon EC2: User Guide](#)
- [Learn about AWS Free Usage Tier](#)
- [Amazon EC2: Discussion Forum](#)

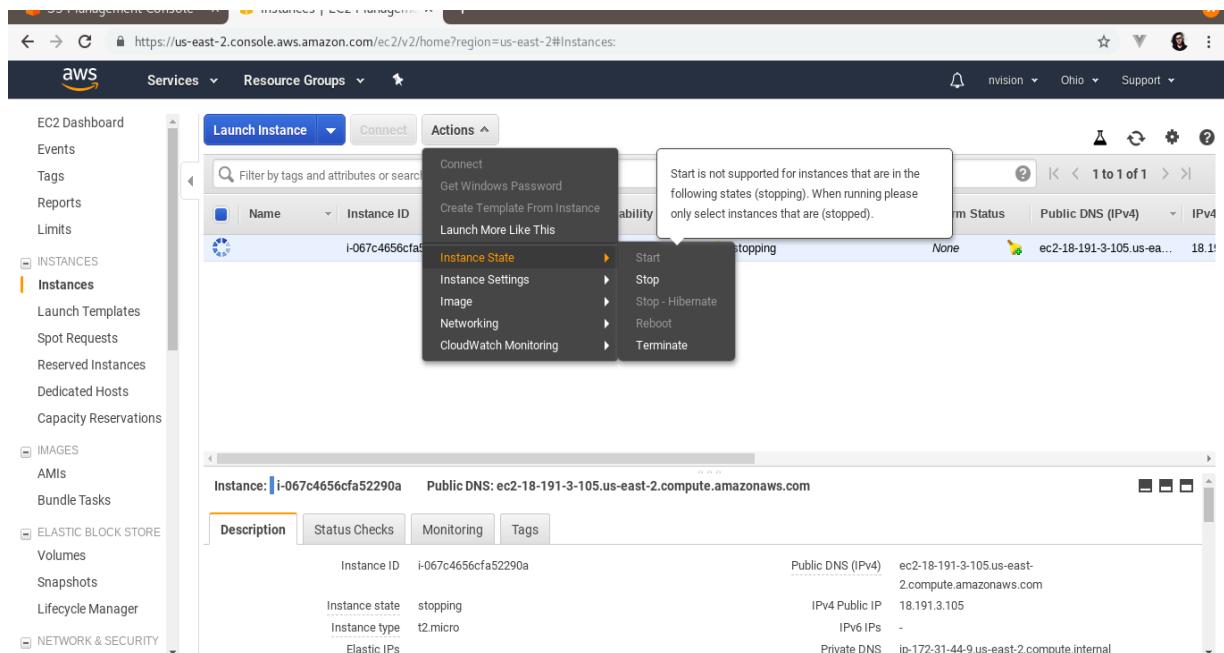
While your instances are launching you can also

**Feedback** **English (US)**

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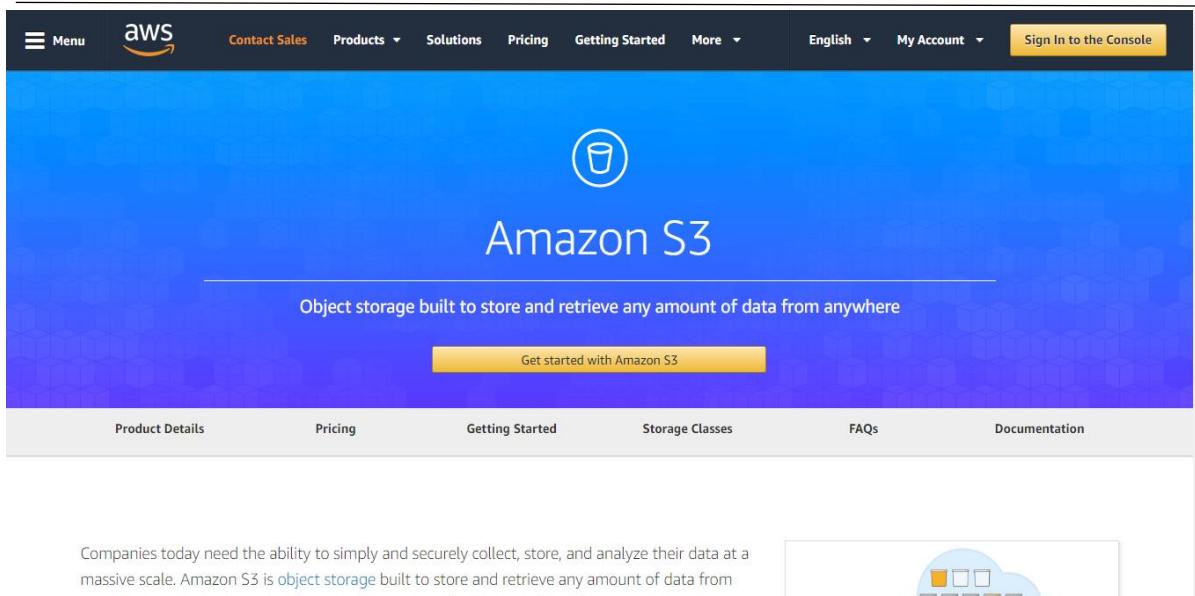
**You can remove the instance by selecting the instance and choose stop then terminate from instance state from dropdown.**



### P1.2.3 AMAZON SIMPLE STORAGE SERVICE (S3)

Amazon S3 is a web service offered by Amazon Web Services. Amazon S3 provides storage through web services interfaces. S3 is a scalable, high-speed, low-cost, web-based cloud storage service designed for online backup and archiving of data and application programs. S3 was designed with a minimal feature set and created to make web-scale computing easier for developers. Amazon S3 is an object storage service, which differs from block and file cloud storage. Each object is stored as a file with its metadata included and given an ID number. Applications use this ID number to access an object. Unlike file and block cloud storage, a developer can access an object via a rest API.

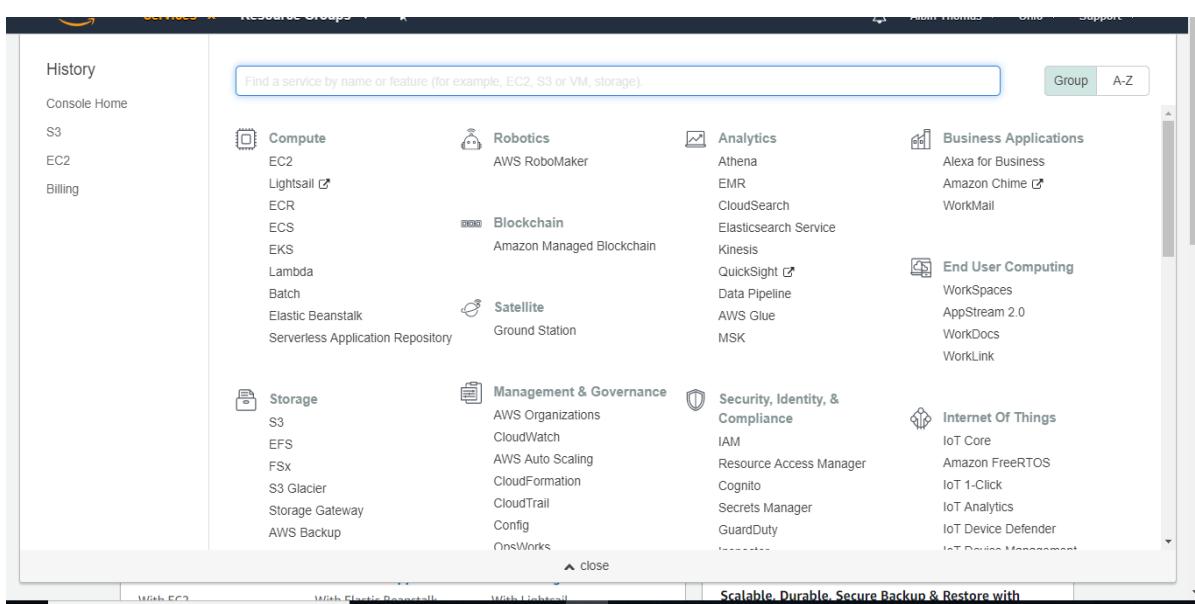
The S3 cloud storage service gives a subscriber access to the same systems that Amazon uses to run its own websites. S3 enables a customer to upload, store and download practically any file or object that is up to five gigabytes (5 GB) in size. Amazon S3 comes in two storage classes: S3 Standard and S3 Infrequent Access. S3 Standard is suitable for frequently accessed data that needs to be delivered with low latency and high throughput. S3 Standard targets applications, dynamic websites, content distribution and big data workloads. S3 Infrequent Access offers a lower storage price for backups and long-term data storage.



Companies today need the ability to simply and securely collect, store, and analyze their data at a massive scale. Amazon S3 is object storage built to store and retrieve any amount of data from anywhere – web sites and mobile apps, corporate applications, and data from IoT sensors or



## Step 1: Login into the AWS platform



## Step 2: We are going to create an Amazon S3 Bucket

The screenshot shows the 'Create bucket' wizard in the Amazon S3 console. The first step, 'Name and region', is completed with the bucket named 'beautyandspa' in the 'Asia Pacific (Mumbai)' region. The second step, 'Configure options', is partially completed. The third step, 'Set permissions', is also partially completed. The fourth step, 'Review', is shown with a summary of the settings. At the bottom, there are 'Previous' and 'Create bucket' buttons.

## Review the Changes

The screenshot shows the 'Create bucket' wizard in the Amazon S3 console. The first step, 'Name and region', is completed with the bucket named 'beautyandspa' in the 'Asia Pacific (Mumbai)' region. The second step, 'Configure options', is partially completed. The third step, 'Set permissions', is also partially completed. The fourth step, 'Review', is shown with a summary of the settings. At the bottom, there are 'Previous' and 'Create bucket' buttons.

## Our Bucket has been created

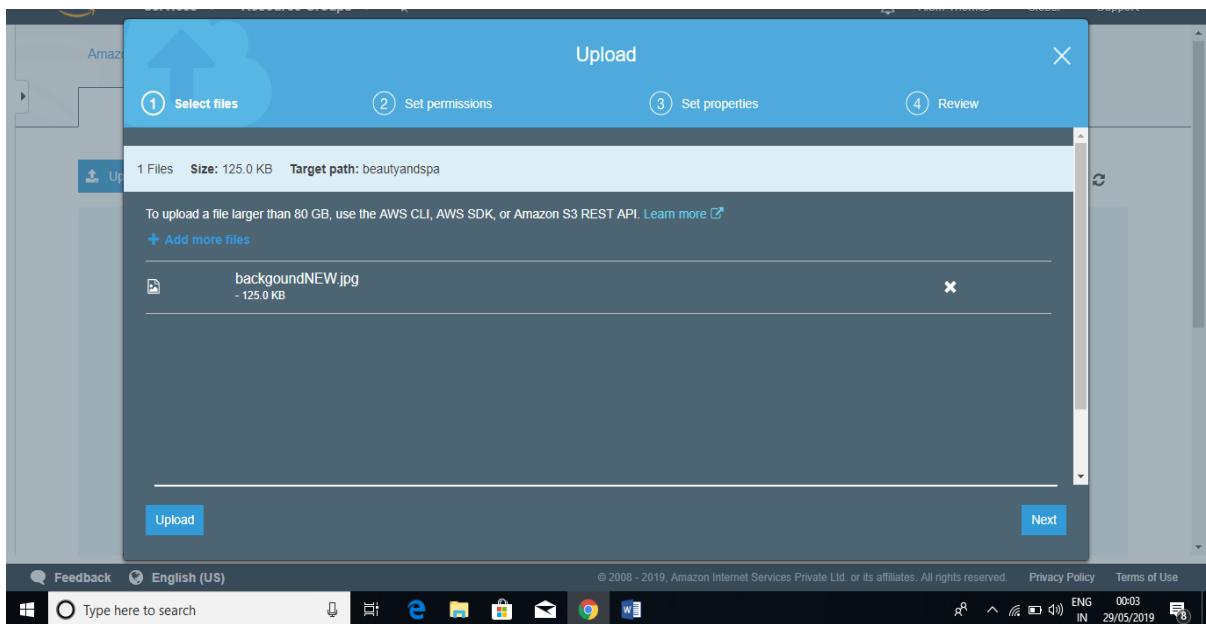
The screenshot shows the AWS S3 buckets list. On the left, there's a sidebar with options like 'Buckets' and 'Create bucket'. The main area displays two buckets:

Bucket name	Access	Region	Date created
beautyandspa	Bucket and objects not public	Asia Pacific (Mumbai)	May 29, 2019 12:02:42 AM GMT+0530
elasticbeanstalk-us-east-2-539408707321	Objects can be public	US East (Ohio)	May 3, 2019 2:55:50 PM GMT+0530

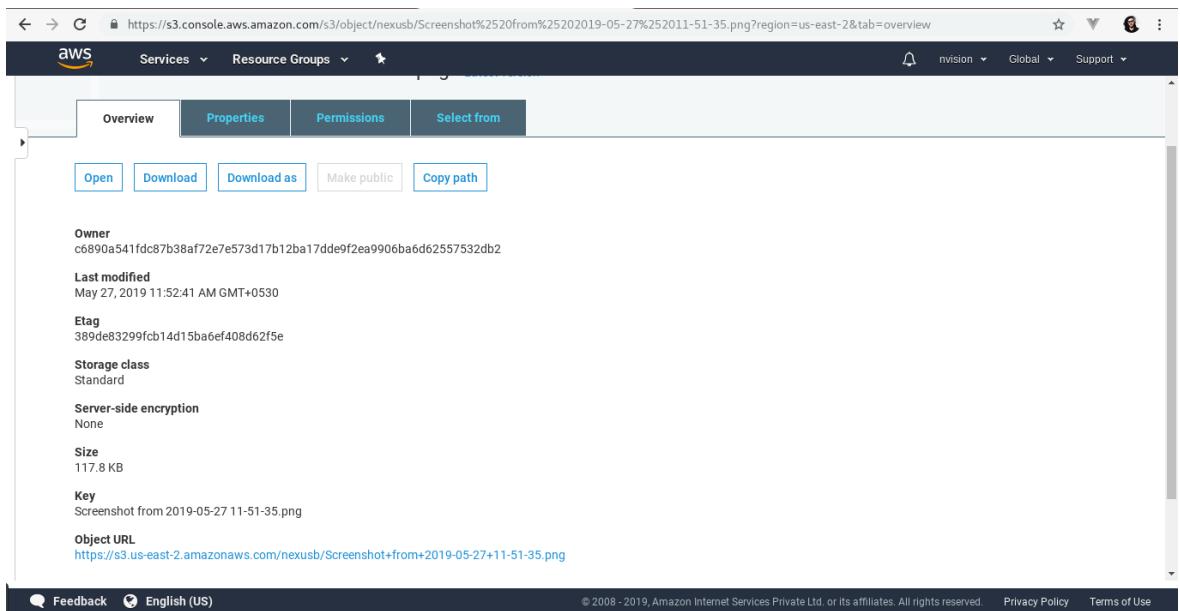
**Step 3: We can upload files to this Bucket.**

The screenshot shows the 'Upload' wizard for AWS S3. It's step 1: 'Select files'. The interface includes a large blue arrow icon, four numbered steps (1-4), and instructions to drag files or click 'Add files'. A note at the top says: 'To upload a file larger than 80 GB, use the AWS CLI, AWS SDK, or Amazon S3 REST API. Learn more'.

**Just drag and drop the files, that we need to upload.**



**We have to set the permissions. Otherwise it will not be publicly available.**



Block public access (bucket settings)

Block all public access

Block public access to buckets and objects granted through new access control lists (ACLs)

Block public access to buckets and objects granted through any access control lists (ACLs)

Block public access to buckets and objects granted through new public bucket policies

Block public and cross-account access to buckets and objects through any public bucket policies

Cancel Save

Operations 0 In progress 1 Success 0 Error

Block public access (bucket settings)

Block all public access

Block public access to buckets and objects granted through new access control lists (ACLs)

Block public access to buckets and objects granted through any access control lists (ACLs)

Block public access to buckets and objects granted through new public bucket policies

Block public and cross-account access to buckets and objects through any public bucket policies

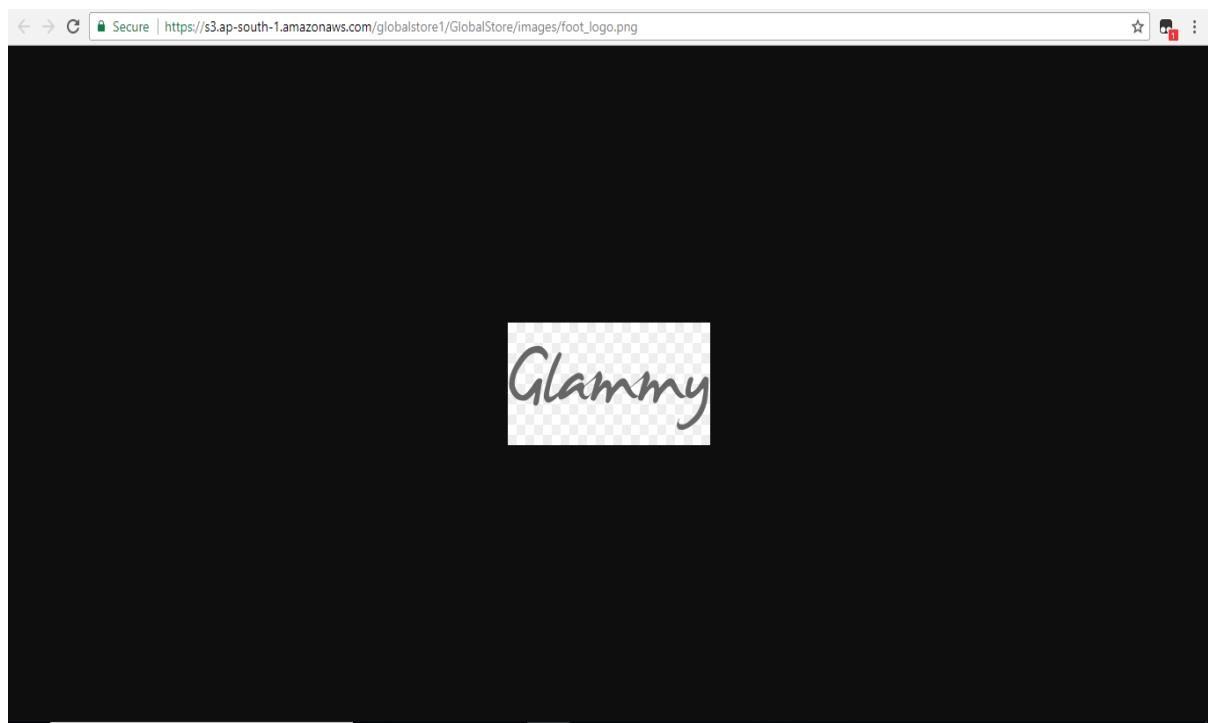
Cancel Save

Operations 0 In progress 1 Success 0 Error

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Then the file will be publicly available.

The screenshot shows the AWS S3 console under the 'Block public access (bucket settings)' section. A success message 'Public access settings updated successfully' is displayed. Under the 'Block all public access' section, the setting is set to 'Off'. There are four detailed sub-options, each also set to 'Off': 'Block public access to buckets and objects granted through new access control lists (ACLs)', 'Block public access to buckets and objects granted through any access control lists (ACLs)', 'Block public access to buckets and objects granted through new public bucket policies', and 'Block public and cross-account access to buckets and objects through any public bucket policies'. At the bottom, the status bar shows 'Operations 0 In progress 1 Success 0 Error'.



## Step 4: For the purpose of hosting a Website we create another Bucket

The screenshot shows the 'Static website hosting' section of the Amazon S3 console for the bucket 'beautyandspa'. The 'Permissions' tab is selected. The 'Static website hosting' feature is enabled, indicated by the 'Enabled' status. Other features like 'Object-level logging' and 'Default encryption' are also listed.

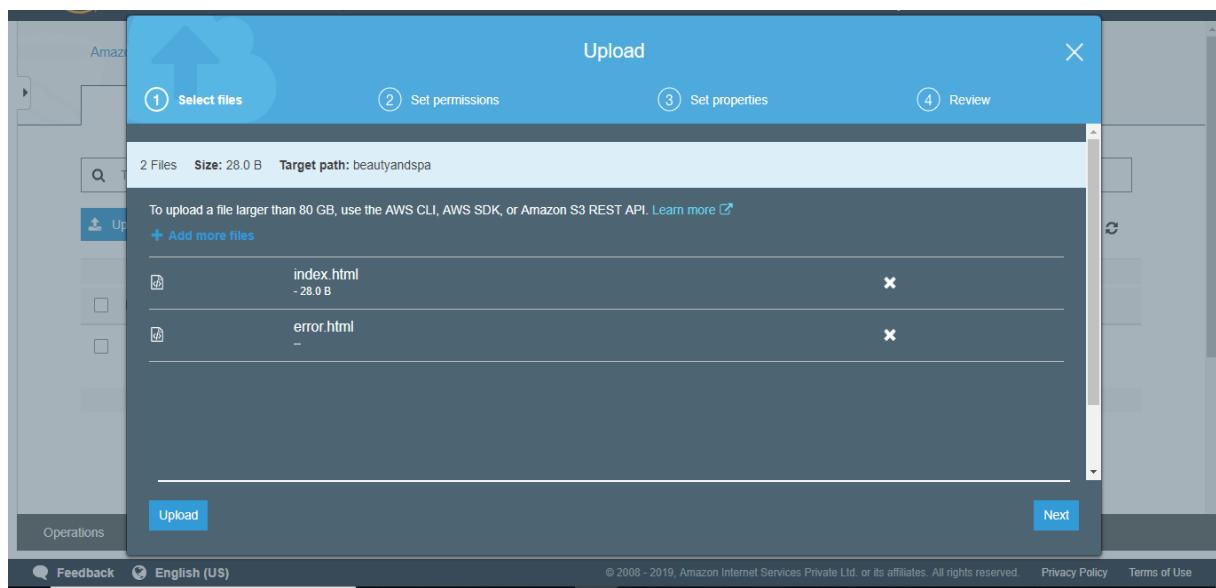
Operations	0 In progress	1 Success	0 Error	
<a href="#">Feedback</a>	<a href="#">English (US)</a>	© 2008 - 2019, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. <a href="#">Privacy Policy</a> <a href="#">Terms of Use</a>		

Specify the name of the Index document and Error document. Save it.

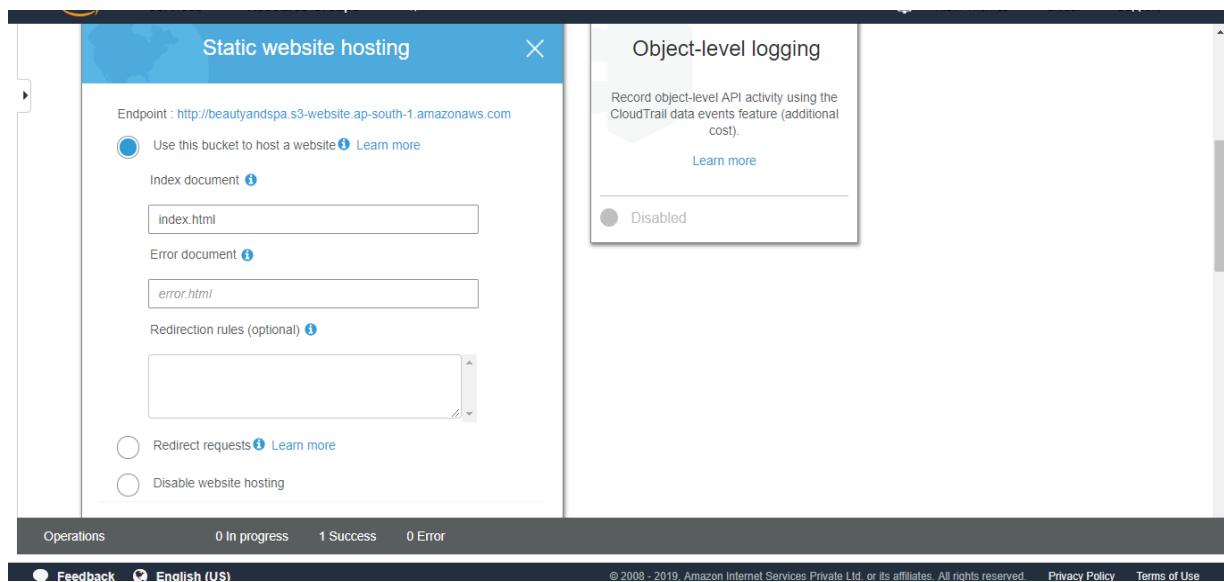
The screenshot shows the 'Static website hosting' configuration dialog. It includes fields for the 'Index document' (set to 'index.html') and 'Error document' (set to 'error.html'). There are also options for 'Redirection rules' (empty), 'Redirect requests' (unchecked), and 'Disable website hosting' (unchecked). The 'Object-level logging' section is visible on the right.

Operations	0 In progress	1 Success	0 Error	
<a href="#">Feedback</a>	<a href="#">English (US)</a>	© 2008 - 2019, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. <a href="#">Privacy Policy</a> <a href="#">Terms of Use</a>		

## Upload the Index document and Error Document.



Now you can access the static site by the url provided here:





## P1.2.4 AWS ELASTIC BEANSTALK

AWS Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.

You can simply upload your code and Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring. At the same time, you retain full control over the AWS resources powering your application and can access the underlying resources at any time. There is no additional charge for Elastic Beanstalk - you pay only for the AWS resources needed to store and run your applications.

### Benefits

#### a. Fast and Simple to Begin

Elastic Beanstalk is the fastest and simplest way to deploy your application on AWS. You simply use the AWS Management Console, a Git repository, or an integrated development environment (IDE) such as Eclipse or Visual Studio to upload your application, and Elastic Beanstalk automatically handles the deployment details of capacity provisioning, load balancing, auto-scaling, and application health monitoring. Within minutes, your application will be ready to use without any infrastructure or resource configuration work on your part.

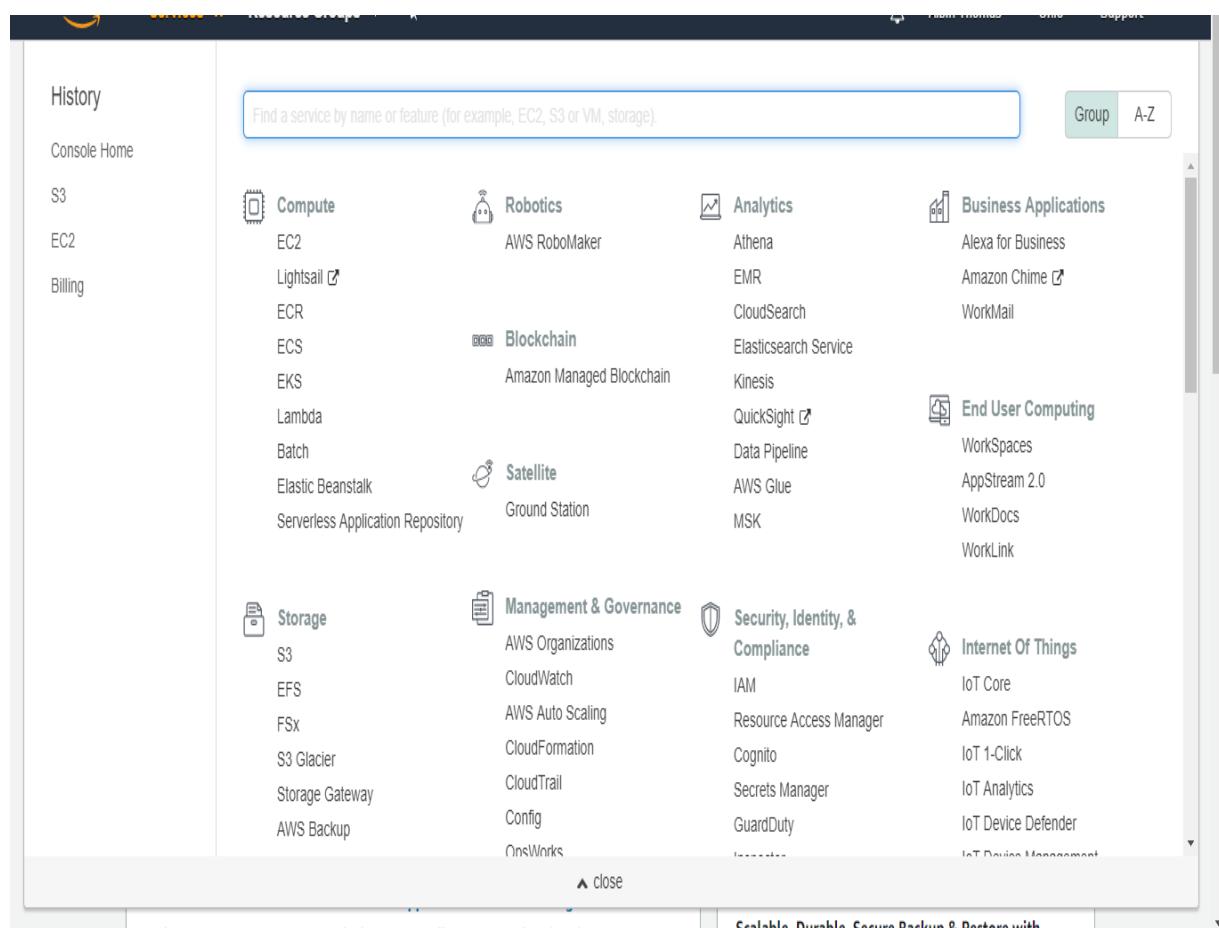
#### b. impossible to Outgrow

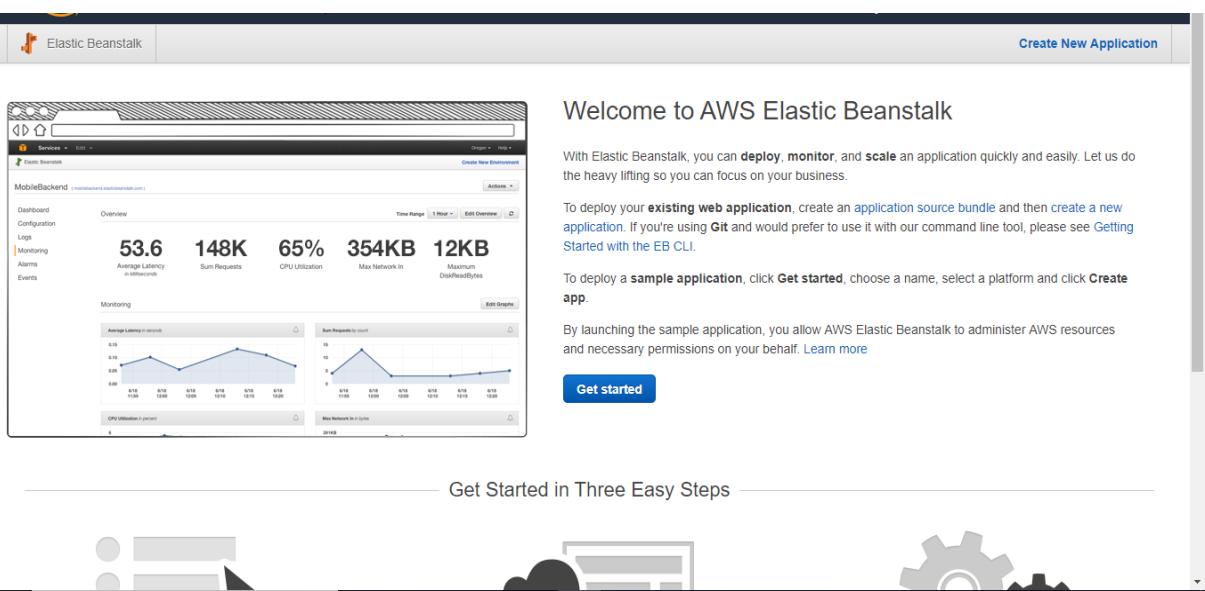
Elastic Beanstalk automatically scales your application up and down based on your application's specific need using easily adjustable Auto Scaling settings. For example, you can use CPU utilization metrics to trigger Auto Scaling actions. With Elastic Beanstalk, your application can handle peaks in workload or traffic while minimizing your costs.

### c. Developer Productivity

Elastic Beanstalk provisions and operates the infrastructure and manages the application stack (platform) for you, so you don't have to spend the time or develop the expertise. It will also keep the underlying platform running your application up-to-date with the latest patches and updates. Instead, you can focus on writing code rather than spending time managing and configuring servers, databases, load balancers, firewalls, and networks.

#### Step 1: Login to AWS and click Elastic Beanstalk





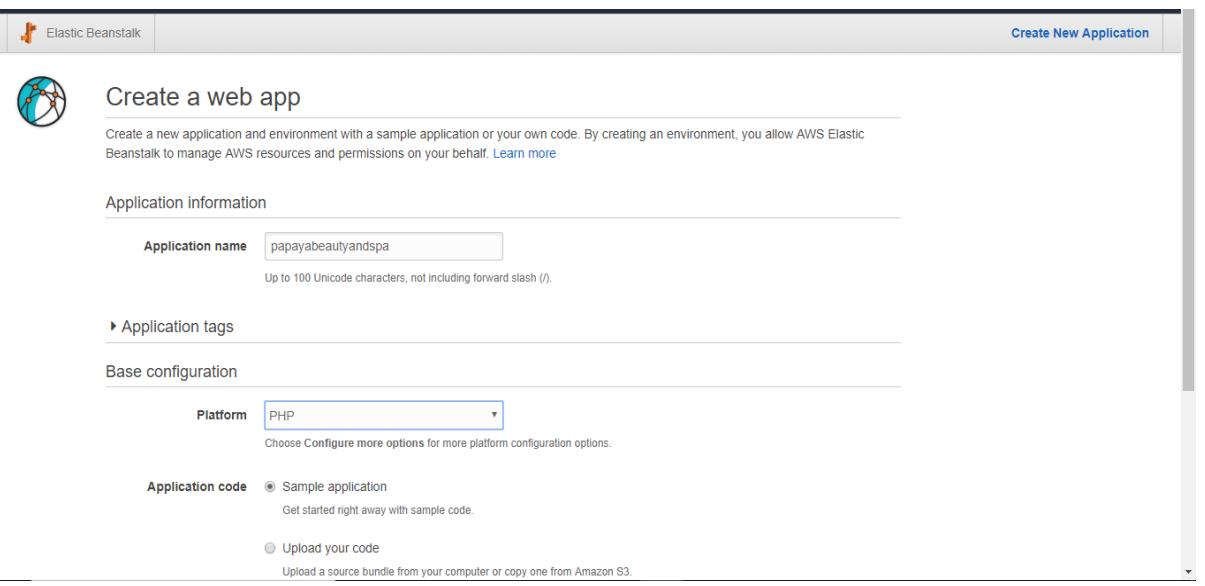
The screenshot shows the AWS Elastic Beanstalk dashboard for the 'MobileBackend' application. The top navigation bar includes 'Elastic Beanstalk' and 'Create New Application'. The left sidebar has links for Dashboard, Configuration, Logs, Monitoring (which is selected), Alarms, and Events. The main area displays an 'Overview' section with key metrics: Average Latency (53.6 ms), Sum Requests (148K), CPU Utilization (65%), Max Network In (354 KB), and Maximum DiskReadBytes (12KB). Below this is a 'Monitoring' section with three line graphs: Average Latency in seconds, Sum Requests per second, and CPU Utilization in percent. A 'Get started' button is located at the bottom right of the dashboard.

Get Started in Three Easy Steps



## Step 2: Create Web App with Elastic Beanstalk

Choose the application name, select platform and you may upload the source code too.



The screenshot shows the 'Create a web app' configuration page. At the top, there's a circular icon with a globe and the text 'Create a web app'. To the right, it says 'Create a new application and environment with a sample application or your own code. By creating an environment, you allow AWS Elastic Beanstalk to manage AWS resources and permissions on your behalf. [Learn more](#)'. Below this is a 'Application information' section with an 'Application name' field containing 'papayabeautyandspa'. A note below the field says 'Up to 100 Unicode characters, not including forward slash (/)'. There are sections for 'Application tags', 'Base configuration', 'Platform' (set to 'PHP'), and 'Application code' (with options for 'Sample application' and 'Upload your code').

**Creating Papayabeautyandspa-env**  
This will take a few minutes..

12:23am Environment health has transitioned to Pending. Initialization in progress (running for 17 seconds). There are no instances.

12:23am Created security group named: awseb-e-mur7zaeiu-stack-AWSEBSecurityGroup-PS9WWCLLJ92U

12:23am Using elasticbeanstalk-us-east-2-539408707321 as Amazon S3 storage bucket for environment data.

12:23am createEnvironment is starting.

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## Beanstalk Web App has successfully created.

**Dashboard**

**Configuration**

**Logs**

**Health**

**Monitoring**

**Alarms**

**Managed Updates**

**Events**

**Tags**

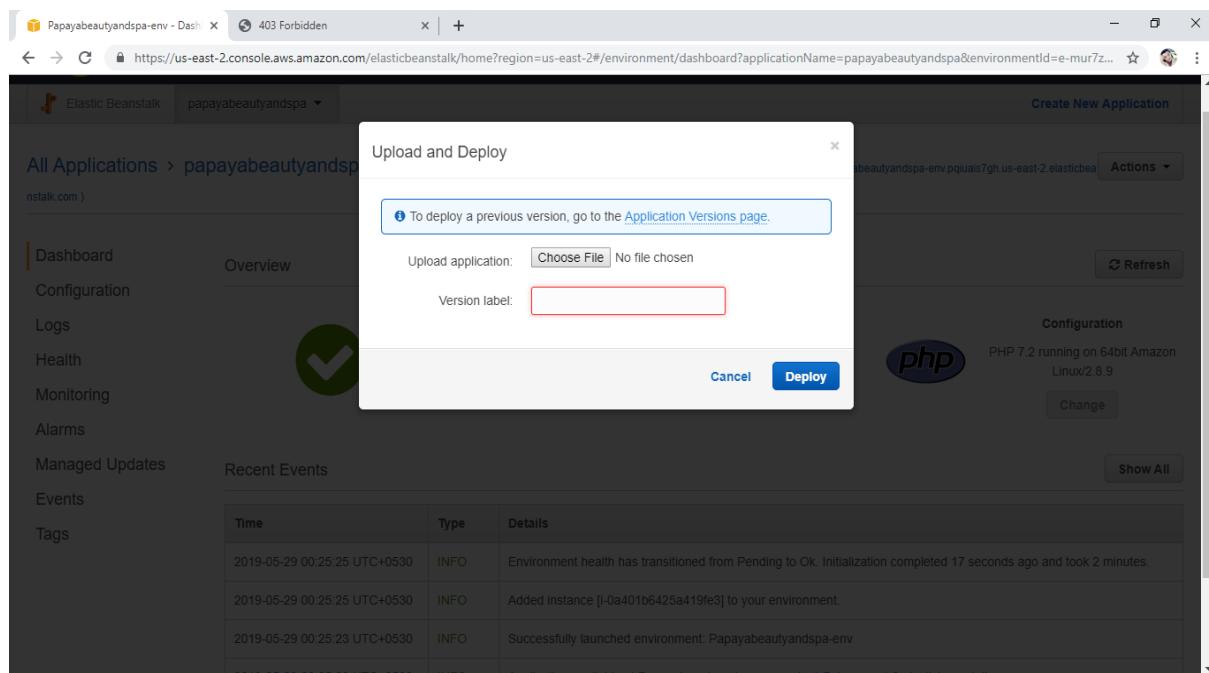
**Recent Events**

Time	Type	Details
2019-05-29 00:25:25 UTC+0530	INFO	Environment health has transitioned from Pending to Ok. Initialization completed 17 seconds ago and took 2 minutes.
2019-05-29 00:25:25 UTC+0530	INFO	Added instance [i-0a401b6425a419fe3] to your environment.
2019-05-29 00:25:23 UTC+0530	INFO	Successfully launched environment: Papayabeautyandspa-env

### Step 3: Create Web App with Elastic Beanstalk

Click upload and deploy button on the dashboard.

Upload the source code for the web app.



**Use the url displayed in the dashboard to access the beanstalk web app.**

The screenshot shows the AWS Elastic Beanstalk console with the following details:

- Application Details:** Papayabeautyandspa > Papayabeautyandspa-env (Environment ID: e-mur7zaeiu, URL: Papayabeautyandspa-env.pjquais7gh.us-east-2.elasticbeanstalk.com)
- Health:** Ok
- Running Version:** Sample Application
- Configuration:** PHP 7.2 running on 64bit Amazon Linux/2.8.9
- Recent Events:**

Time	Type	Details
2019-05-29 00:25:25 UTC+0530	INFO	Environment health has transitioned from Pending to Ok. Initialization completed 17 seconds ago and took 2 minutes.
2019-05-29 00:25:25 UTC+0530	INFO	Added instance [i-0a401b6425a419fe3] to your environment.
2019-05-29 00:25:23 UTC+0530	INFO	Successfully launched environment: Papayabeautyandspa-env

The screenshot shows a Microsoft Edge browser window displaying the deployed application. The URL in the address bar is `http://papayabeautyandspa-env.pjquais7gh.us-east-2.elasticbeanstalk.com`. The page content is "Hai".

**Beanstalk offers a number of options to configure the web app.**

All Applications > papayabeautyandspa > Papayabeautyandspa-env (Environment ID: e-mur7zaeiup, URL: Papayabeautyandspa-env.pquals7gh.us-east-2.elasticbeanstalk.com) Actions ▾

Dashboard Configuration overview Configuration

Logs Health Monitoring Alarms Managed Updates Events Tags

Software Instances Capacity

Rotate logs: disabled (default)  
Log streaming: disabled (default)  
Environment properties: 0

EC2 instance type: t2.micro  
EC2 image ID: ami-068937fd903a23b47  
Monitoring interval: 5 minute  
Root volume type: container default  
Root volume size (GB): container default  
Root volume IOPS: container default  
Security groups: sg-0f5a0db3d8ffae47e

Environment type: single instance

Load balancer Rolling updates and deployments Security

This configuration does not contain a load balancer.

Deployment policy: All at once  
Rolling updates: disabled

Service role: aws-elasticbeanstalk-service-role  
Virtual machine key pair: --  
Virtual machine instance profile: aws-elasticbeanstalk-ec2-role

Modify Modify Modify

You may modify the instance capacity or more.

All Applications > papayabeautyandspa > Papayabeautyandspa-env (Environment ID: e-mur7zaeiup, URL: Papayabeautyandspa-env.pquals7gh.us-east-2.elasticbeanstalk.com) Actions ▾

aws Services Resource Groups Albin Thomas Ohio Support Create New Application

Elastic Beanstalk papayabeautyandspa

Dashboard Configuration

Logs Health Monitoring Alarms Managed Updates Events Tags

Modify capacity

Auto Scaling Group

Configure the compute capacity of your environment and Auto Scaling settings to optimize the number of instances used.

Environment type: Single instance

Instances: Min 1 Max 1

Availability Zones: Any

Number of Availability Zones (AZs) to use.

Placement: us-east-2a, us-east-2b, us-east-2c

Specify Availability Zones (AZs) to use.

## P1.2.5 AWS DB PRODUCTS

### P1.2.5.1 Amazon Relational Database Service (RDS)

Amazon Relational Database Service (Amazon RDS) is a web service that makes it easy to set up, operate, and scale a relational database in the cloud. It provides cost-efficient and resizable capacity while managing time-consuming database administration tasks, freeing you up to focus on developing your applications.

Amazon RDS gives you access to the capabilities of a familiar MySQL, PostgreSQL, Oracle or Microsoft SQL Server database engine. This means that the code, applications, and tools you already use today with your existing databases can be used with Amazon RDS. Amazon RDS automatically patches the database software and backs up your database, storing the backups for a user-defined retention period and enabling point-in-time recovery. You benefit from the flexibility of being able to scale the compute resources or storage capacity associated with your Database Instance (DB Instance) via a single API call.

### P1.2.5.2 Amazon DynamoDB

DynamoDB is a fast, fully managed NoSQL database service that makes it simple and cost-effective to store and retrieve any amount of data and serve any level of request traffic. All data items are stored on Solid State Drives (SSDs) for high availability and durability.

### P1.2.5.3 Amazon ElastiCache

ElastiCache is a web service that makes it easy to deploy, operate, and scale an in-memory cache in the cloud. The service improves the performance of web applications by allowing you to retrieve information from fast, managed, in-memory caches, instead of relying entirely on slower disk-based databases. ElastiCache supports two widely adopted open-source engines – Memcached and Redis. The service is protocol compliant with both engines, so popular tools that you use today with existing Memcached and Redis environments will work seamlessly with ElastiCache.

---

## P1.2.6 DEVOPS IN AWS

AWS provides a set of flexible services designed to enable companies to more rapidly and reliably build and deliver products using AWS and DevOps practices. These services simplify provisioning and managing infrastructure, deploying application code, automating software release processes, and monitoring your application and infrastructure performance. And it is the combination of cultural philosophies, practices, and tools that increase an organization's ability to deliver applications and services at high velocity: evolving and improving products at a faster pace than organizations using traditional software development and infrastructure management processes. This speed enables organizations to better serve their customers and compete more effectively in the market.

Under a DevOps model, development and operations teams are no longer “siloed.” Sometimes, these two teams are merged into a single team where the engineers work across the entire application lifecycle, from development and test to deployment to operations, and develop a range of skills not limited to a single function. Quality assurance and security teams may also become more tightly integrated with development and operations and throughout the application lifecycle. These teams use practices to automate processes that historically have been manual and slow. They use a technology stack and tooling which help them operate and evolve applications quickly and reliably. These tools also help engineers independently accomplish tasks (for example, deploying code or provisioning infrastructure) that normally would have required help from other teams, and this further increases a team’s velocity.

## P1.3 MICROSOFT AZURE CLOUD

### P1.3.1 INTRODUCTION TO MICROSOFT AZURE CLOUD

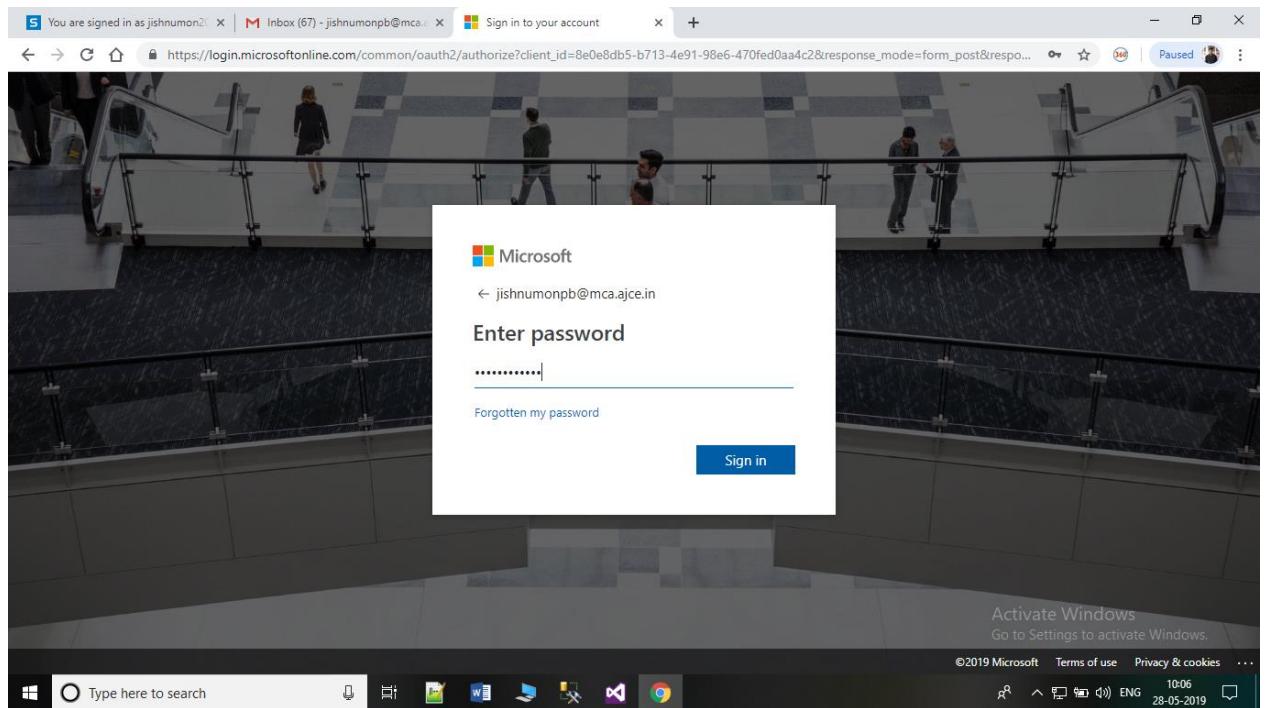
Microsoft Azure (formerly Windows Azure) is a cloud computing service created by Microsoft for building, testing, deploying, and managing applications and services through a global network of Microsoft-managed data centers. It provides software as a service (SaaS), platform as a service (PaaS) and infrastructure as a service (IaaS) and supports many different programming languages, tools, and frameworks, including both Microsoft-specific and third-party software and systems. Windows Azure is designed to make IT management easier. The main purpose of developing Windows Azure was to minimize the overhead and personnel expenses associated with the creation, distribution, and upgrade of the Web applications.

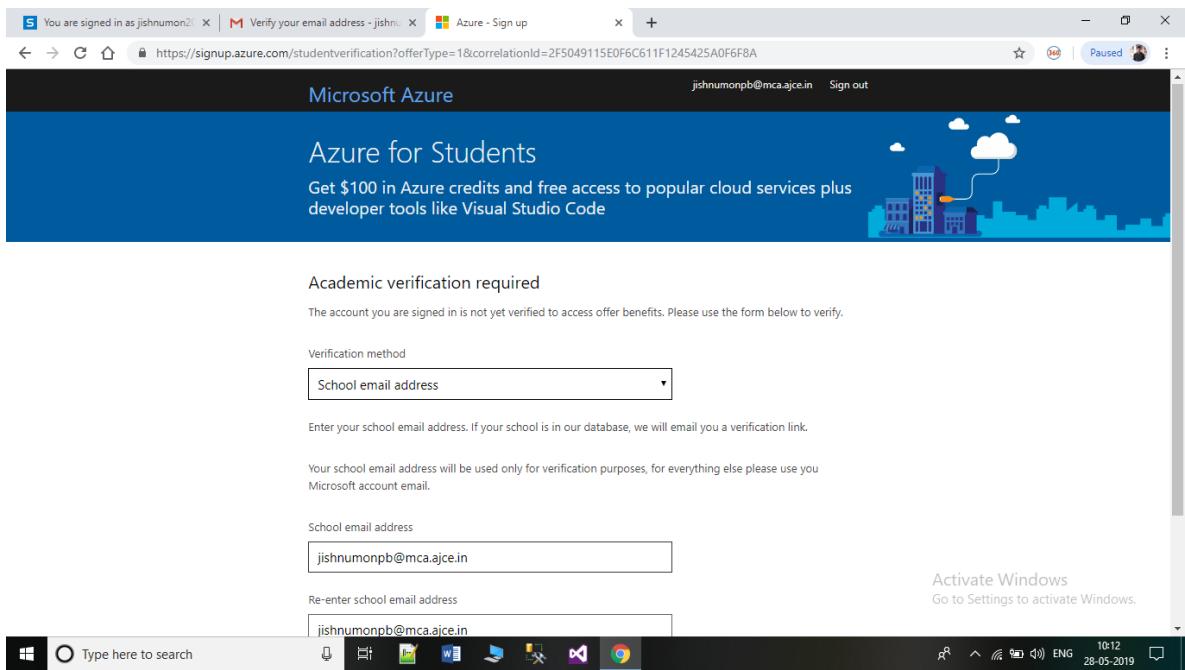
The Windows Azure platform is considered a platform as a service, which is an imperative component of a cloud computing platform. It consists of various on-demand services hosted in Microsoft's data centers and is commoditized through three product brands. The services and applications developed using the Azure platform run on the Windows Azure operating system, which provides a runtime environment for Web applications along with an extensive set of services that facilitate the building, hosting and management of applications without requiring maintenance too expensive onsite resources. Windows Azure is designed to support both Microsoft and non-Microsoft platforms. The three main components that constitute Windows Azure are:

- Compute layer
- Storage layer
- Fabric layer

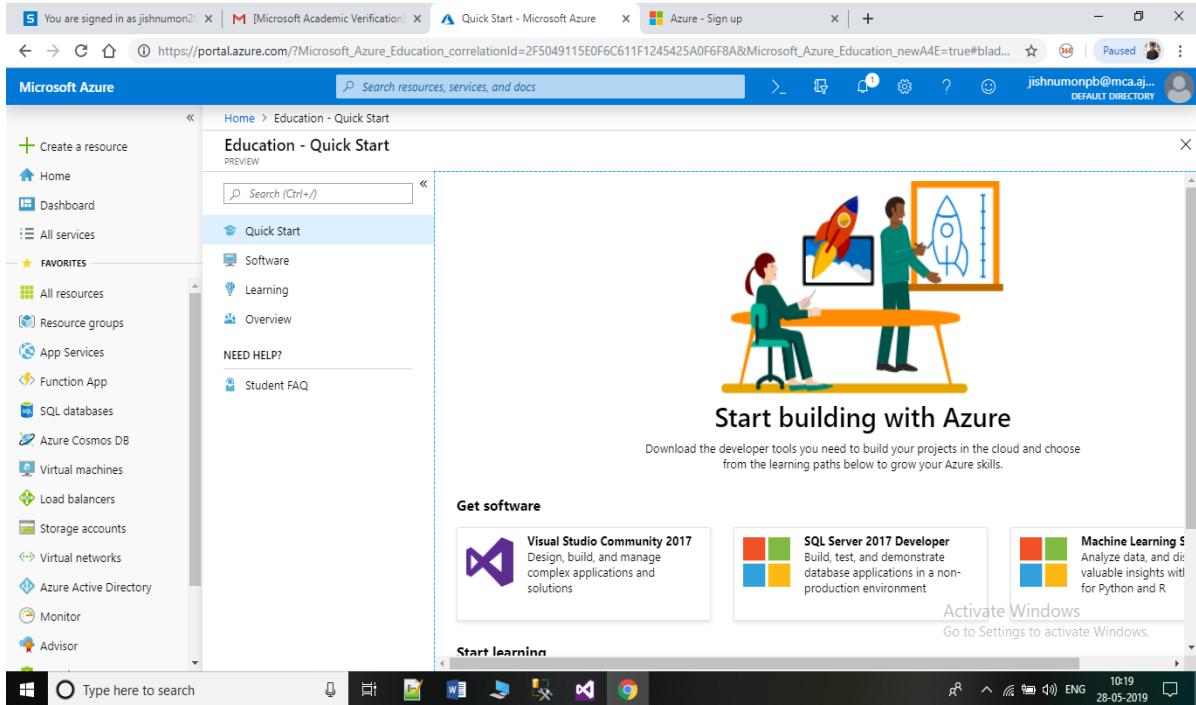
Windows Azure also includes an automated service management feature that allows the upgrading of applications without affecting their performance. Windows Azure is designed to support a number of platforms and programming languages. Some of the languages supported are extensible markup language (XML), representational state transfer (REST), Simple Object Access Protocol (SOAP), Ruby, Eclipse, Python, and PHP.

---

**Step 1: For Registration go to <http://imagine.microsoft.com>**



## Step 2: After registration you will get Azure Dashboard



### Step 3: Create Resource Group: All Resources > Resource Group

Click Add Button > Select Subscription Model > Give Resource Group name

This screenshot shows the Microsoft Azure 'All resources' page. The left sidebar includes 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES' sections with links to 'All resources', 'Resource groups', 'App Services', 'Function App', 'SQL databases', 'Azure Cosmos DB', 'Virtual machines', 'Load balancers', 'Storage accounts', 'Virtual networks', 'Azure Active Directory', 'Monitor', and 'Advisor'. The main content area is titled 'All resources' and shows a table with columns: NAME, TYPE, RESOURCE GROUP, LOCATION, and SUBSCRIPTION. A message at the bottom says 'No resources to display' and 'Try changing your filters if you don't see what you're looking for. Learn more'. A blue 'Create resources' button is visible.

This screenshot shows the 'Create a resource group' page. The left sidebar is identical to the previous screenshot. The main content area has a title 'Create a resource group' with tabs for 'Basics', 'Tags', and 'Review + Create'. Under 'PROJECT DETAILS', there is a 'Subscription' dropdown set to 'Azure for Students' and a 'Resource group' input field. Under 'RESOURCE DETAILS', there is a 'Region' dropdown set to '(US) Central US'. A message at the bottom says 'No resource groups to display' and 'Try changing your filters if you don't see what you're looking for. Learn more'. A blue 'Create resource group' button is visible. At the bottom right, there is an 'Activate Windows' message.

You are signed in as jishnumon... | Microsoft Academic Verification | Create a resource group - Microsoft | Azure - Sign up | https://portal.azure.com/?Microsoft\_Azure\_Education\_correlationId=2F5049115E0F6C611F1245425A0F6F8A&Microsoft\_Azure\_Education\_newA4E=true#crea...

**Create a resource group**

**Basics** Tags Review + Create

Resource group - A container that holds related resources for an Azure solution. The resource group can include all the resources for the solution, or only those resources that you want to manage as a group. You decide how you want to allocate resources to resource groups based on what makes the most sense for your organization. [Learn more](#)

**PROJECT DETAILS**

- Subscription: Azure for Students
- Resource group: autoshop

**RESOURCE DETAILS**

- Region: (Asia Pacific) Southeast Asia

No resource groups to display. Try changing your filters if you don't see what you're looking for. [Learn more](#)

**Create resource group**

Activate Windows Go to Settings to activate Windows.

Review + Create Next : Tags

## 4: Select App Service

### Create Instance and Configure It.

You are signed in as jishnumon... | Microsoft Academic Verification | Web App - Microsoft Azure | Azure - Sign up | https://portal.azure.com/?Microsoft\_Azure\_Education\_correlationId=2F5049115E0F6C611F1245425A0F6F8A&Microsoft\_Azure\_Education\_newA4E=true#crea...

**Web App**

Looking for the classic Web App create experience? [→](#)

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

**INSTANCE DETAILS**

- Name: autoshoppp
- Publish: Code, Docker Image
- Runtime stack: Select a runtime stack.
- Operating System: Linux, Windows
- Location: Central US

**APP SERVICE PLAN**

Activate Windows Go to Settings to activate Windows.

Review and create Next: Monitoring >

**Web App**

**SUMMARY**

**DETAILS**

Subscription	7e704dc3-3463-4aca-a5a5-316ebfaf223c
Resource Group	autoshop
Name	autoshoppp
Publish	Code
Runtime stack	PHP 7.2

**APP SERVICE PLAN**

Name	ASP-autoshop-8e7a
Operating System	Linux
Location	South India
SKU	Premium V2
Size	Small
ACU	210 total ACU

**Create** **Previous** **Download a template for automation**

No app services to display.

Create, build, deploy, and manage powerful web, mobile, and API apps for employees or customers using a single back-end. Build standards-based web apps and APIs using .NET, Java, Node.js, PHP, and Python. Learn more about App Service

**Create app service**

**Deployment**

**... Your deployment is underway**

Check the status of your deployment, manage resources, or troubleshoot deployment issues. Pin this page to your dashboard to easily find it next time.

Deployment name: WebApp-301f0d69-ba5c  
Subscription: Azure for Students  
Resource group: autoshop

**DEPLOYMENT DETAILS** (Download)

Start time:	28/05/2019, 10:41:46
Duration:	2 minutes 42 seconds
Correlation ID:	44997e7e-ae3d-4780-a2c8-79b458a42590

**RESOURCE** **TYPE** **STATUS** **OPERATION DETAILS**

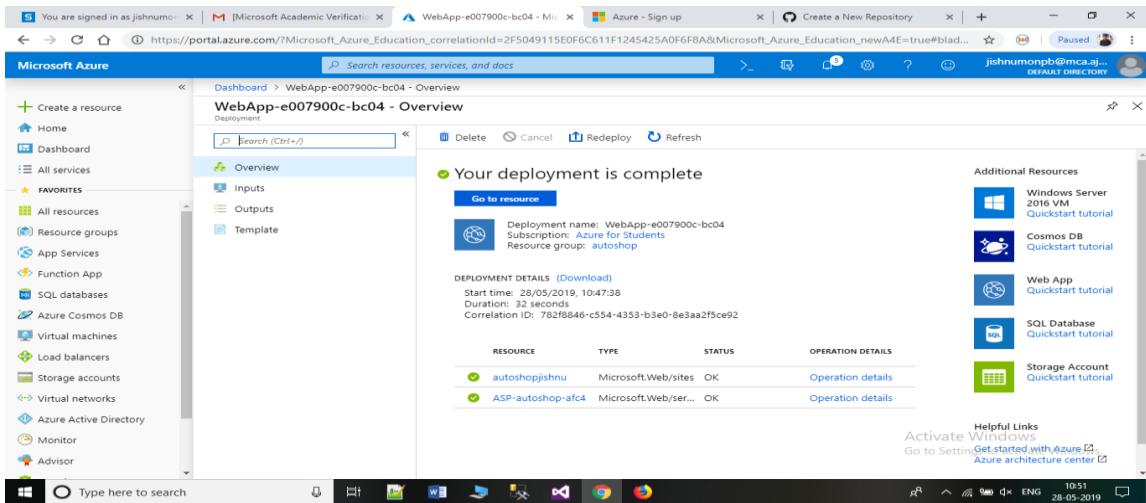
No results.			
-------------	--	--	--

**Additional Resources**

- Windows Server 2016 VM Quickstart tutorial
- Cosmos DB Quickstart tutorial
- Web App Quickstart tutorial
- SQL Database Quickstart tutorial
- Storage Account Quickstart tutorial

**Helpful Links**

Activate Windows Go to Settings to activate Windows.  
Get started with Azure [Get started with Azure](#)  
Azure architecture center



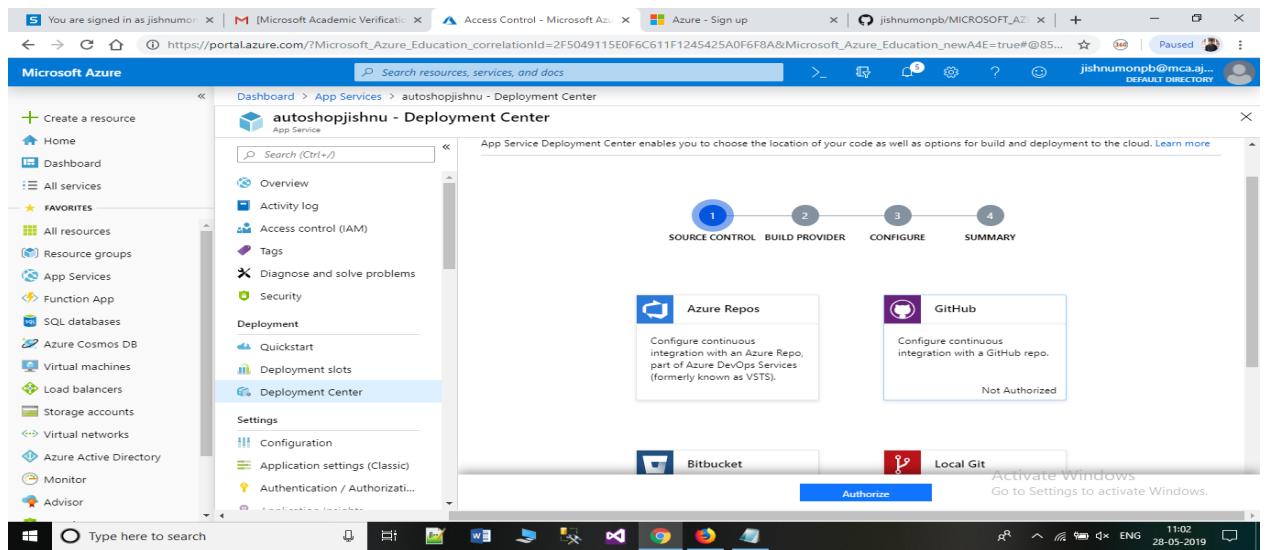
**After Deployment is Complete.**

### Step 5: Open Github account and create a new repository.

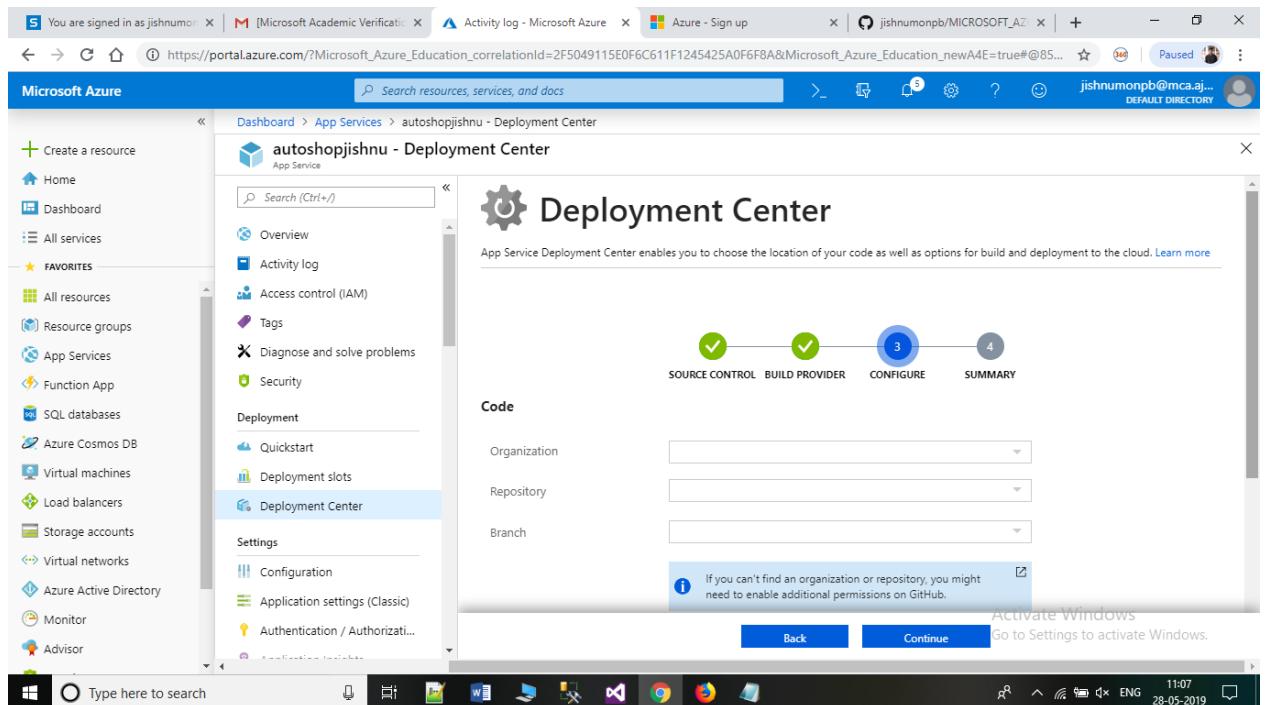
The screenshot shows a GitHub repository page. The URL is "jishnumonpb/MICROSOFT\_AZURE". The repository has 2 commits, 1 branch, 0 releases, and 1 contributor. The README.md file contains the text "MICROSOFT\_AZURE". The GitHub interface includes a search bar, navigation tabs for Code, Issues, Pull requests, Projects, Wiki, Security, Insights, and Settings, and a "Clone or download" button.

## Step 6: Select Deployment Center from Azure Dashboard.

### a. Choose GitHub



### b. Integration of GitHub Repository

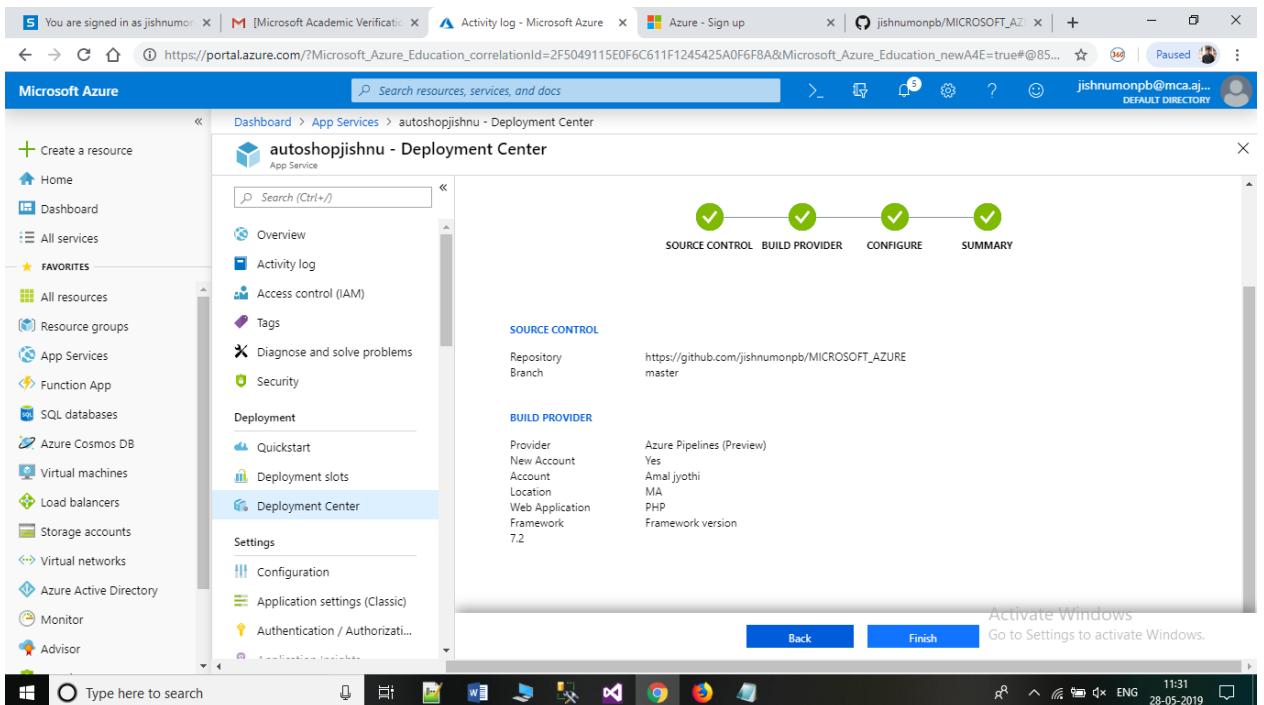


### c. Select Build Provider

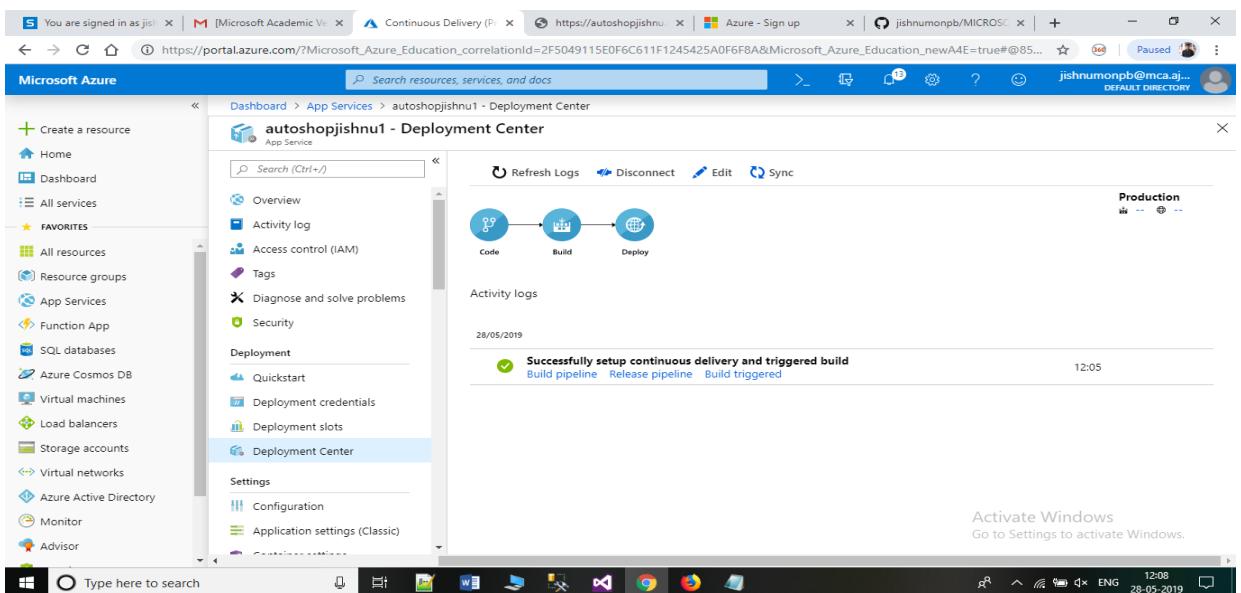
The screenshot shows the Microsoft Azure Deployment Center for the app 'autoshopjishnu'. In the 'Build' section, the 'Existing' tab is selected for the Azure DevOps Organization, with 'autoshopjishnu' chosen. The location is set to 'South India', the web application framework to 'PHP', and the framework version to 'PHP 7.2'. The startup command field is empty. A note at the bottom right says 'Activate Windows Go to Settings to activate Windows.'

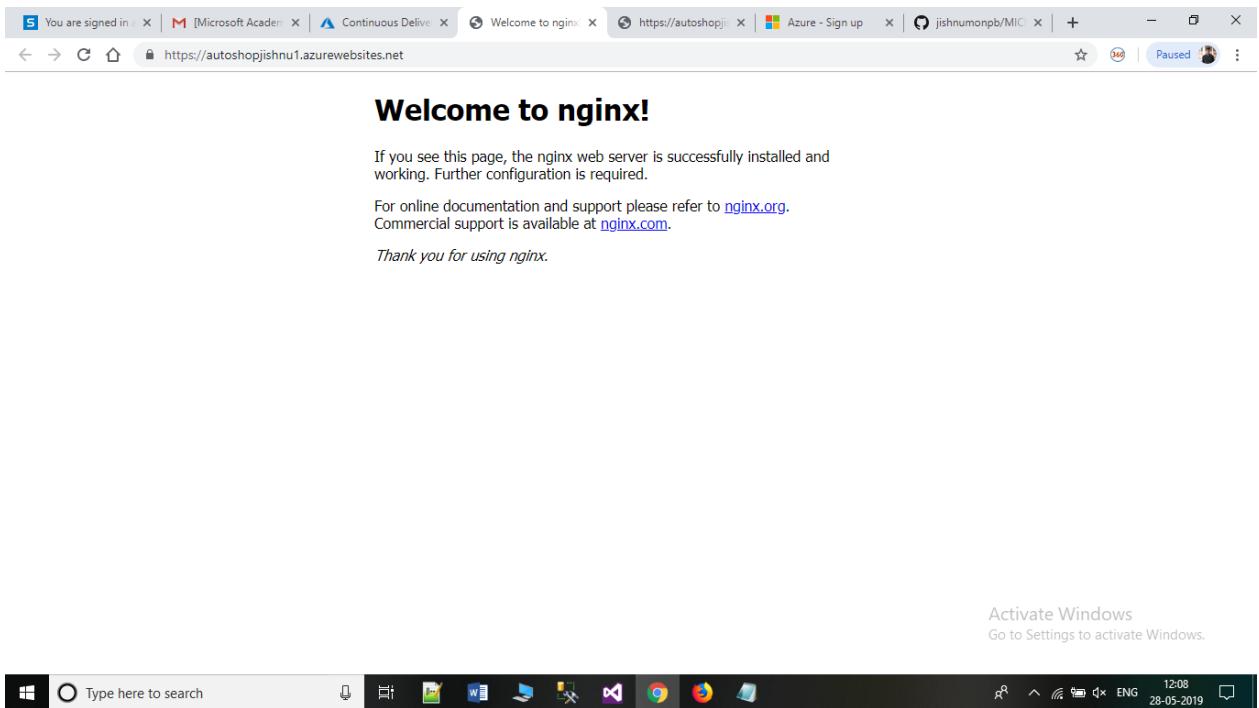
### d. complete other Configurations

The screenshot shows the Microsoft Azure Deployment Center for the app 'autoshopjishnu'. In the 'Build' section, the 'Existing' tab is selected for the Azure DevOps Organization, with 'autoshopjishnu' chosen. The location is set to 'South India', the web application framework to 'PHP', and the framework version to 'PHP 7.2'. The startup command field is empty. A note at the bottom right says 'Activate Windows Go to Settings to activate Windows.'



**Now the app is hosted and you can access it from the URL given in resource instance dashboard. (Dashboard > All Resources > instance-name)**





### P1.3.2 VIRTUAL MACHINES

It is an operating system or application environment that is installed on software, which reproduces dedicated hardware. The end user has the same experience on a virtual machine as they would have on dedicated hardware. Azure Virtual Machines gives you the flexibility of virtualization for a wide range of computing solutions with support for Linux, Windows Server, SQL Server, Oracle, IBM, SAP, and more. All current generation Virtual Machines include load balancing and auto-scaling, for free. For optimal performance, we recommend pairing your Virtual Machines with Managed Disks. Standard egress charges apply.

#### Benefits

- Limits cost by reducing the need for physical hardware systems.
- Efficiently use hardware, which lowers the quantities of hardware and associated maintenance costs, and reduces power and cooling demand
- Ease of management because the virtual hardware does not fail.

## Vendors?

- VMware - mature product portfolio, with many years of use in the IT industry
- Microsoft - a bit of a late player to virtualization, Microsoft is showing considerable progress.

### P1.3.3 DEVOPS IN AZURE

In order to release quickly and have stable application environments with minimal errors, it is of vital importance that developers work well with IT operations people and vice versa. To do this, they need to communicate well and sometimes work on the same team.

Ideally, they work in the same environment. Makes sense, right? This is called DevOps. DevOps is a hyped-up term, but it comes down to implementing common sense by working better together. One of the most important goals that DevOps helps to achieve is:

- Faster and more reliable releases of the application through Continuous Integration (CI)\* and Continuous Deployment (CD) Microsoft provides some awesome services and features that can help your team to achieve this goal. You'll learn about them in this article.
- Continuous Deployment of Azure App Services
- Azure DevOps Projects
- Visual Studio Team Services

#### Continuous deployment of Azure App Services

Azure App Services are services that you use to host your web application or API. When you have the source code of your application in source control somewhere, you can easily have it deployed automatically to the App Service, every time you push up a change.

You do this by configuring the Deployment Options feature in App Services. This is really simple to do.

1. In your App Service (like a Web App), go to the Deployment Options blade
2. Here, it asks you to choose a source. So, choose where your source code lives
3. When you've chosen your source code repository, you'll need to authenticate so that Azure can use those credentials to access the source code
4. Next, you can choose the details of your deployment, which can include setting up a performance test as part of the process. In my case, I have chosen GitHub as my source
5. Once this is done, the process starts to run and builds and deploys your source code into the App Service

Once this is configured, every time that you commit changes to the source code repository, it will get built and deployed to the App Service automatically.

You can see the deployments in the Deployment Options blade in the App Service. This is a pretty cool feature and very useful. Especially when you work with a team of developers that are all checking in code to the same repository. However, the Deployment Options feature in App Service is pretty restricted. It is easy to set up, but that also means that you do not have a lot of configuration choices if you need to do more.

## **PART 2**

### **USING GIT AS A VERSION CONTROL SYSTEM**

## P2.1 INTRODUCTION TO GITHUB

GitHub is a web-based version-control and collaboration platform for software developers. GitHub, which is delivered through a software-as-a-service (SaaS) business model, was started in 2008 and was founded on Git, an open source code management system created by Linus Torvalds to make software builds faster. And it is used to store the source code for a project and track the complete history of all changes to that code. It allows developers to collaborate on a project more effectively by providing tools for managing possibly conflicting changes from multiple developers. GitHub allows developers to change, adapt and improve software from its public repositories for free, but it charges for private repositories, offering various paid plans. Each public or private repository contains all of a project's files, as well as each file's revision history. Repositories can have multiple collaborators and can be either public or private.

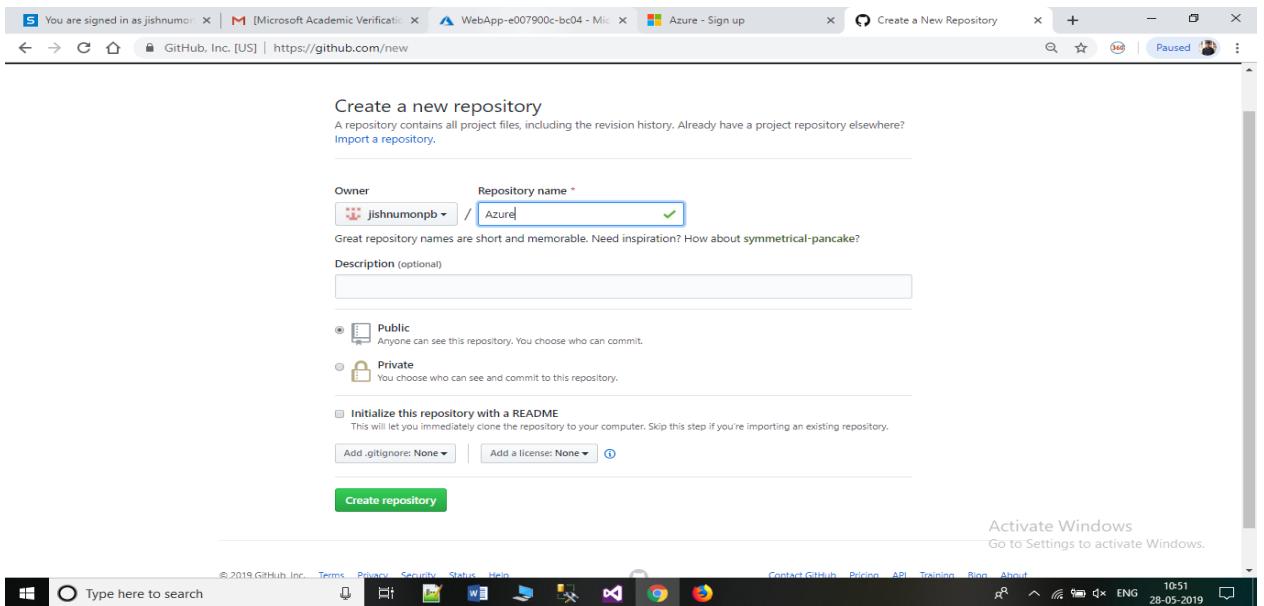
GitHub facilitates social coding by providing a web interface to the Git code repository and management tools for collaboration. GitHub can be thought of as a serious social networking site for software developers. Members can follow each other, rate each other's work, receive updates for specific projects and communicate publicly or privately.

### **GitHub products and features**

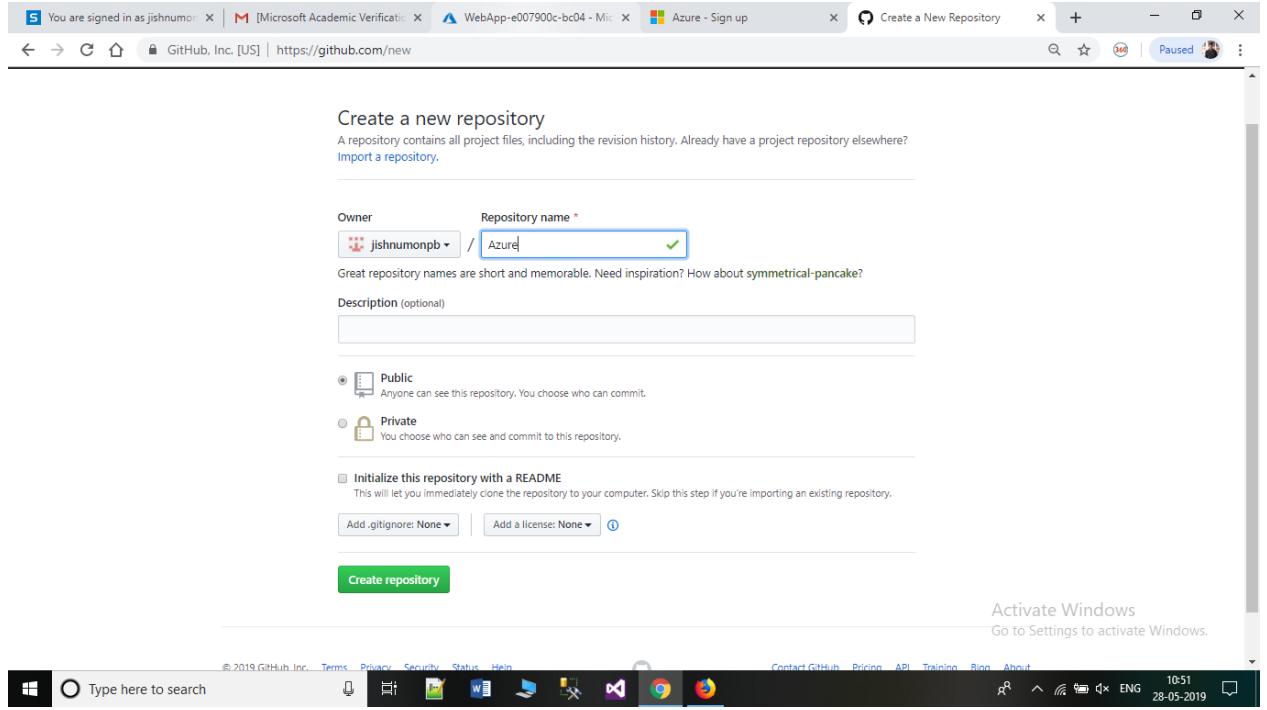
GitHub offers an on-premises version in addition to the well-known SaaS product. GitHub Enterprise supports integrated development environments and continuous integration tool integration, as well as a litany of third-party apps and services. It offers increased security and auditability than the SaaS version.

## P2.2 WORKING WITH GIT

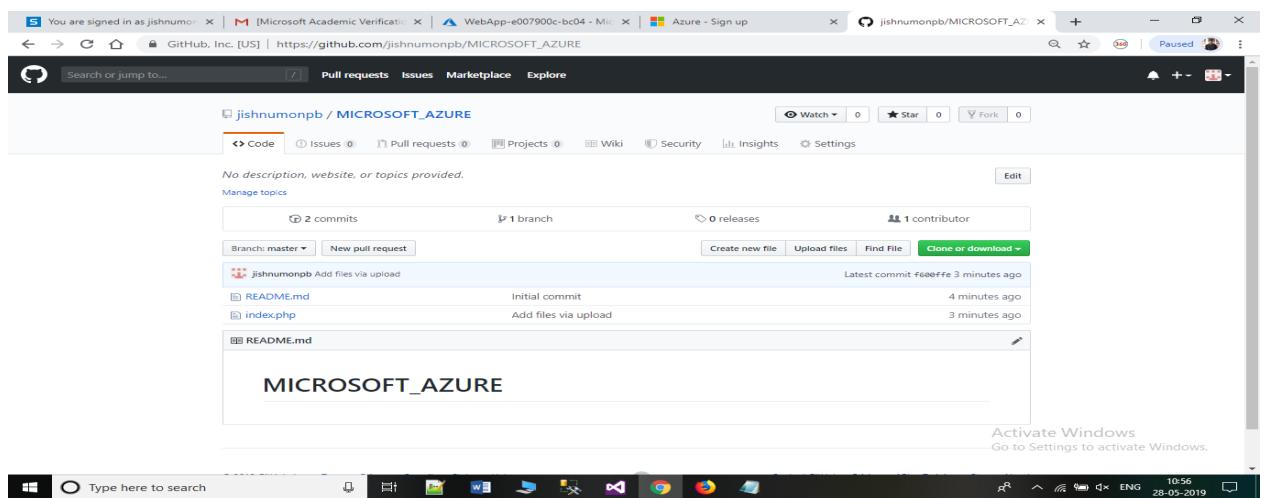
### Step 1: Sign in to GitHub



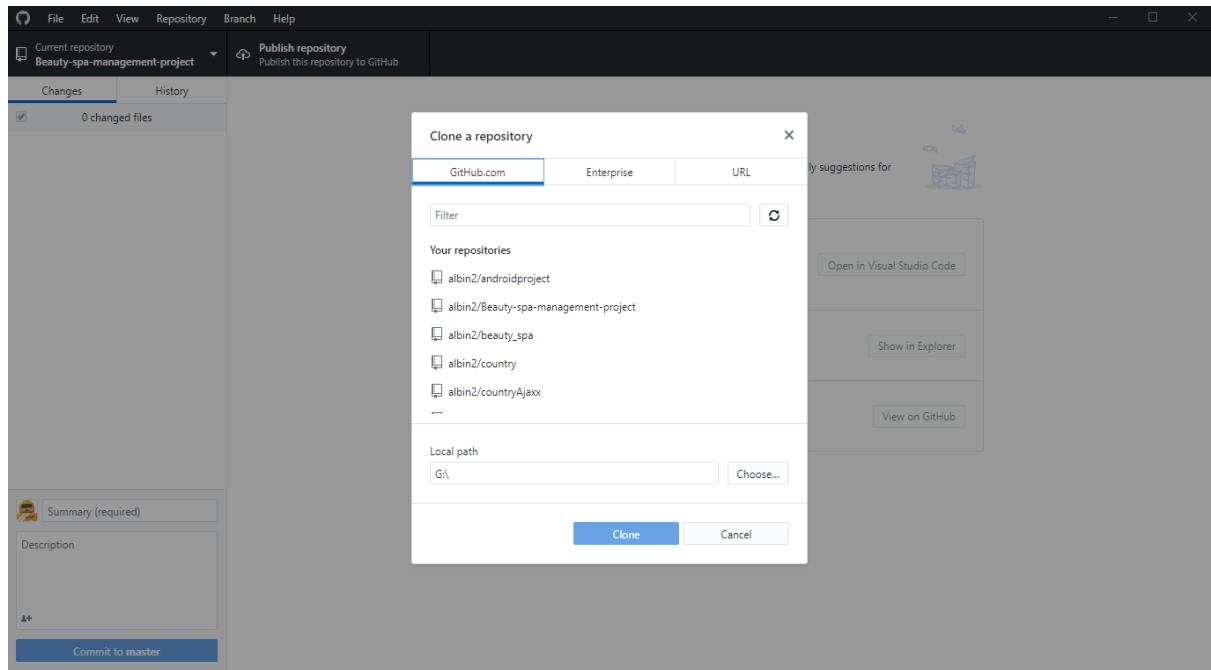
**Step 2:** Once successfully sign in, set up personal account, create a repository.



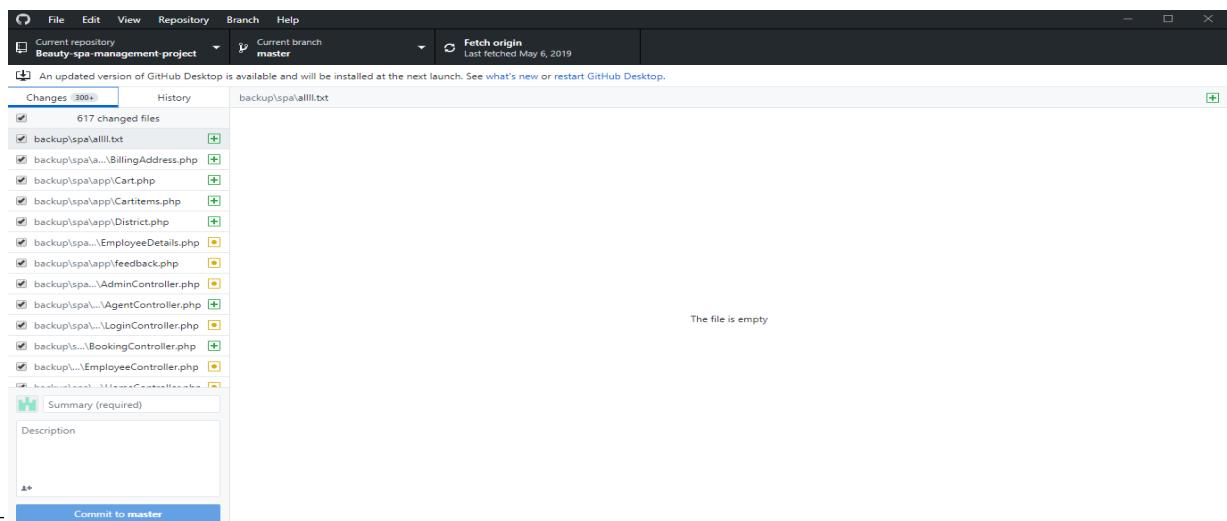
**Step 3:** Once repository is completed, you can setup the repository



**Step 4:** Download and install GitHub desktop application. Once installed Go to Repository > Clone repository, and select your repository which was created in GitHub.com or Select a local system folder

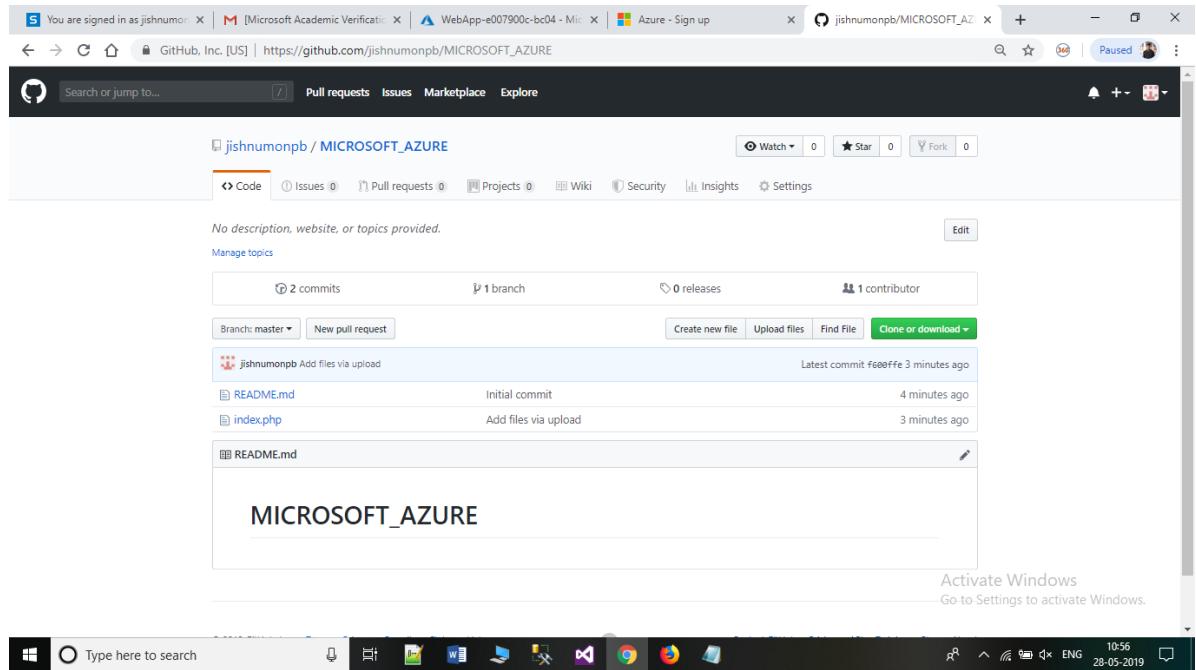


**Step 5:** Once repository is created, make changes on the file which is stored inside the local repository and commit to master.



---

**Step 6:** Push the local repository to origin. Refresh GitHub.com repository to fetch commits.



## **PART 3**

### **DATA DESIGN IN NOVEL TECHNOLOGIES**

## P3.1 MONGODB

### P3.1.1 INTRODUCTION TO MONGODB

MongoDB is an open source database that uses a document-oriented data model. And it is one of several database types to arise in the mid-2000s under the NoSQL banner. Instead of using tables and rows as in relational databases, MongoDB is built on an architecture of collections and documents. Documents comprise sets of key-value pairs and are the basic unit of data in MongoDB. Collections contain sets of documents and function as the equivalent of relational database tables. Like other NoSQL databases, MongoDB supports dynamic schema design, allowing the documents in a collection to have different fields and structures. The database uses a document storage and data interchange format called BSON, which provides a binary representation of JSON-like documents. Automatic sharding enables data in a collection to be distributed across multiple systems for horizontal scalability as data volumes increase.

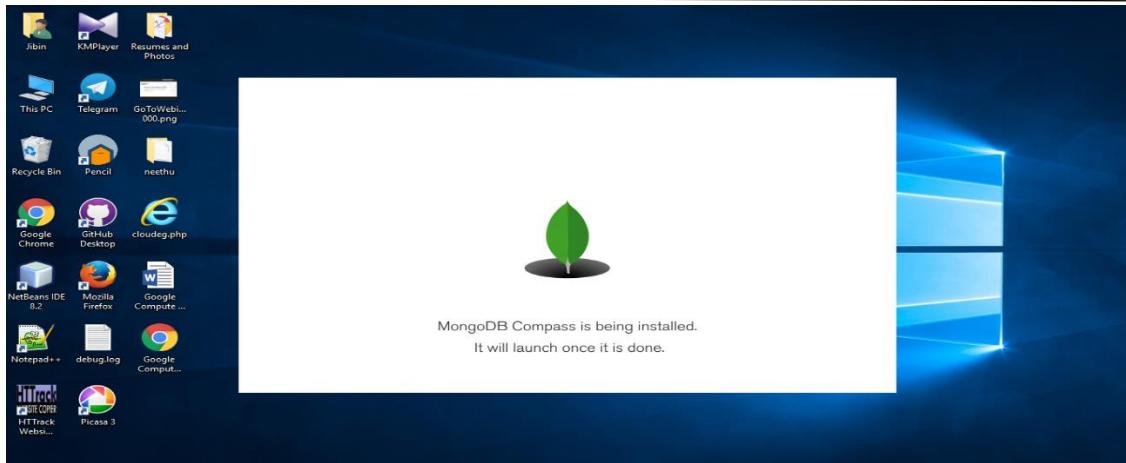
MongoDB was created by Dwight Merriman and Eliot Horowitz, who had encountered development and scalability issues with traditional relational database approaches while building Web applications at DoubleClick, an Internet advertising company that is now owned by Google Inc.

### P3.1.2 IMPLEMENTATION OF MONGODB

1. Download and Install MongoDB server for Windows.

[https://www.mongodb.com/dr/fastdl.mongodb.org/win32/mongodb-win32-x86\\_64-2008plusssl-3.6.2-signed.msi/download](https://www.mongodb.com/dr/fastdl.mongodb.org/win32/mongodb-win32-x86_64-2008plusssl-3.6.2-signed.msi/download)

---



## 2. Download and extract MongoDB PHP driver

[https://s3.amazonaws.com/drivers.mongodb.org/php/php\\_mongo-1.6.8.zip](https://s3.amazonaws.com/drivers.mongodb.org/php/php_mongo-1.6.8.zip)

3. Rename any one file (Eg. php\_mongo-1.6.8-5.6-vc11.dll) to php\_mongo.dll and copy it to Extension directory known as ext directory. XAMPP: xampp\php\ext WAMPP: wamp\bin\php\php\ext

4. Add the following line to your php.ini extension=php\_mongo.dll

5. Add Environment variable (Control Panel -> System and Security -> System -> Advanced system settings -> Environment variables) by editing PATH variable. C:\Program Files\MongoDB\Server\3.6\bin C:\xampp\php OR C:\wamp\bin\php

6. Create directory C:\data\db

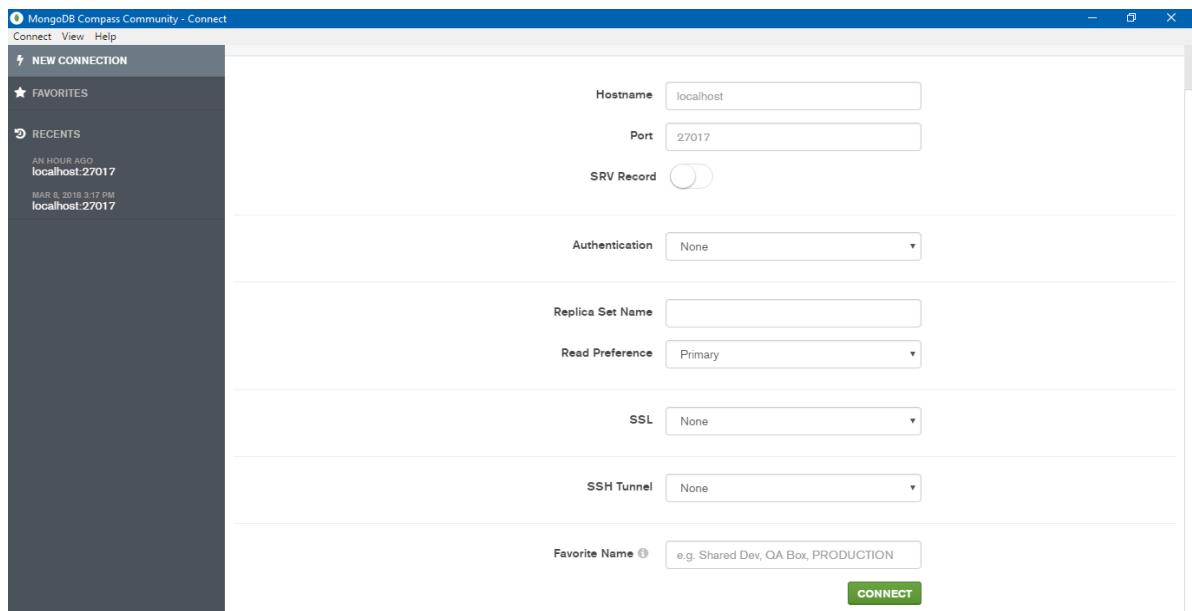
7. Restart Apache server

8. Open CMD and start MongoDB server by using command Mongod

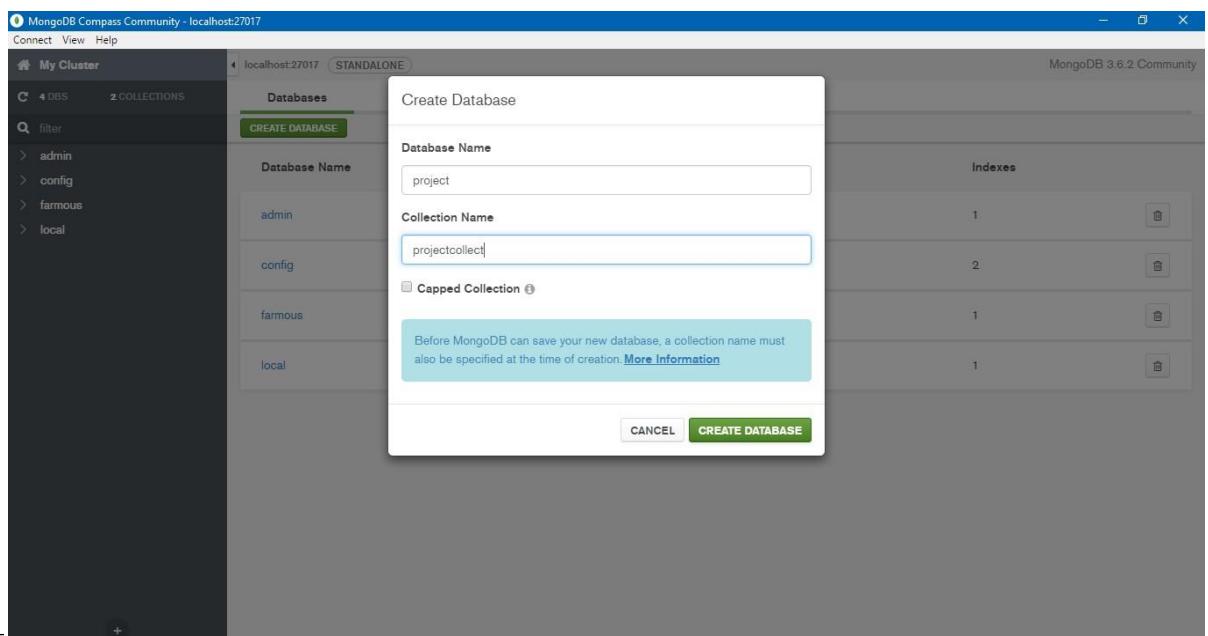
## Working with MongoDB Server

1. Open the MongoDB Server (MongoDB Compass community: localhost)

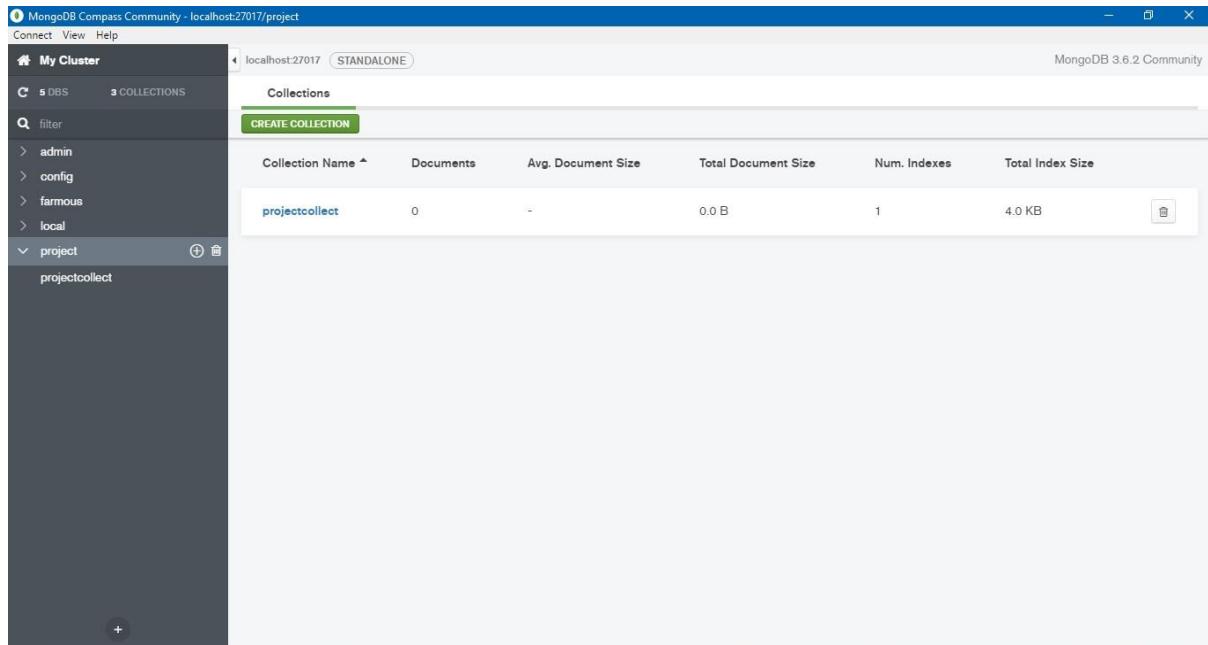
## 2. Connect to localhost



## 3. Once connected to the server, Create a database and collection as well. A collection in MongoDB is equivalent to RDBMS table



4. Once the database and collection are created, insert your documents into the collection. Documents in MongoDB is equivalent to the rows in RDBMS.



MongoDB Compass Community - localhost:27017/project

My Cluster

5 DBS 3 COLLECTIONS

filter

admin config famous local project

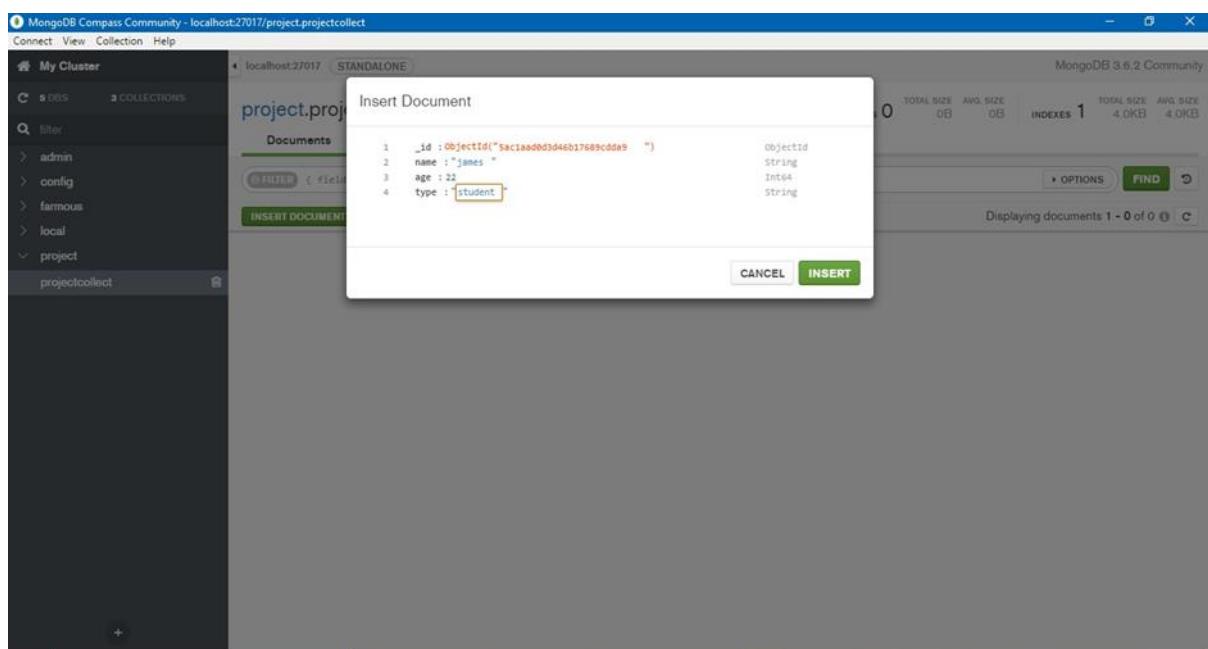
projectcollect

Collections

CREATE COLLECTION

Collection Name	Documents	Avg. Document Size	Total Document Size	Num. Indexes	Total Index Size
projectcollect	0	-	0.0 B	1	4.0 KB

5. Document ID is the default and unique value provided by the MongoDB



MongoDB Compass Community - localhost:27017/project.projectcollect

My Cluster

5 DBS 3 COLLECTIONS

filter

admin config famous local project

projectcollect

Documents

INSERT DOCUMENT

Insert Document

```
1 _id : ObjectId("5ac1aa0d3d46b17689cdde9")
2 name : "james"
3 age : 22
4 type : "student"
```

ObjectID  
String  
Int64  
String

CANCEL INSERT

**Basic queries to access your database**

1. MongoDB Connection \$con = new MongoClient();
2. Selection or Creation of Database (MySQL: Database) \$db = \$con->database\_name;
3. Collection Creation (MySQL: Table) \$collection = \$db->  
createCollection("collection\_name");
4. Document Insertion (MySQL: Insert - Row) \$document = array ("key-1" => "value-1", "key-n" => "value-n"); \$collection->insert(\$document);
5. View data (MySQL: Select) \$cursor = \$collection->find (); foreach (\$cursor as \$document)  
{echo \$document["key"];}
6. Updating data (MySQL: Update) \$collection->update(array("key"=>"old-value"),  
array('\$set'=>array("key"=>"new-value")));
7. Deletion of data (MySQL: Delete) \$collection->remove(array("condition-key"=>"condition-value"));

## P3.2 BIGTABLE IN GCP

### P3.2.1 INTRODUCTION TO BIGTABLE

Google Bigtable is a distributed, column-oriented data store created by Google Inc. to handle very large amounts of structured data associated with the company's Internet search and Web services operations. And it was designed to support applications requiring massive scalability; from its first iteration, the technology was intended to be used with petabytes of data. The database was designed to be deployed on clustered systems and uses a simple data model that Google has described as "a sparse, distributed, persistent multidimensional sorted map." Data is assembled in order by row key and indexing of the map is arranged according to row, column keys, and timestamps. Compression algorithms help achieves high capacity. Google Bigtable serves as the database for applications such as the Google App Engine Datastore, Google Personalized Search, Google Earth and Google Analytics. Google has maintained the software as a proprietary, in-house technology. Nevertheless, Bigtable has had a large impact on NoSQL database design. Google software developers publicly disclosed Bigtable details in a technical paper presented at the USENIX Symposium on Operating Systems and Design Implementation in 2006.

Google's thorough description of Bigtable's inner workings has allowed other organizations and open source development teams to create Bigtable derivatives, including the Apache HBase database, which is built to run on top of the Hadoop Distributed File System (HDFS). Other examples include Cassandra, which originated at Facebook Inc., and Hyper table, an open source technology that is marketed in a commercial version as an alternative to HBase.

---

### P3.2.2 IMPLEMENTATION OF BIGTABLE

#### 1. Creating a Cloud Bigtable Instance through the Google Cloud Platform Console.

A Cloud Bigtable instance is a container for your clusters. [Learn more](#)

**Instance name**  
For display purposes only

**Instance ID**  
ID is permanent

**Instance type** [?](#)  
 **Production (recommended)**  
Minimum of 3 nodes. High availability. Cannot downgrade later.  
 **Development**  
Low-cost instance for development and testing. Does not provide high availability or replication. Can upgrade to Production later.

**Storage type** [?](#)  
 **SSD**  
Lower latency and more rows read per second. Typically used for real-time serving use cases, such as ad serving and mobile app recommendations.  
 **HDD**  
Higher latency for random reads. Good performance on scans and typically used for batch analytics, such as machine learning or data mining.

**Clusters**

Cluster
Cluster ID ID is permanent

**Cost estimate**

**Monthly resource costs**

Monthly costs reflect Bigtable resources only. Network traffic (replication and internet egress) costs are dependent on the location of your clusters and application request behavior. [Learn more](#)

Try another storage size (per cluster)  
 GB

Item	Estimated cost
1 cluster	\$1,423.50/month
1000 GB SSD	\$170.00/month
Total	\$1,593.50/month

**Summary**

Monthly charge: \$1,593.50 per month (1,000 GB data, 3 nodes)  
Effective hourly rate: \$2.18

You've got a new instance! Connect to it with the cbt command-line tool. [Learn more](#)

**Filter Instances**

<input type="checkbox"/>	<input checked="" type="checkbox"/> <b>Instance ID</b>	<b>Instance name</b> <a href="#">↑</a>	Application profiles	Zones	Nodes <a href="#">?</a>	Storage utilization <a href="#">?</a>
<input type="checkbox"/>	<input checked="" type="checkbox"/> nexus_cbt	nexus_cbt	default <a href="#">Add</a>	us-central1-a <a href="#">Add</a>	3	<a href="#">Loading</a>

## Installing the Cloud SDK for Cloud Bigtable

gcloud components update beta

gcloud config set project [PROJECT\_ID]

gcloud beta Bigtable instances --help # help for all commands

gcloud beta bigtable instances create --help # help for the `create` command

```

nvision755@cloudshell:~ (nexus-1x)$ cbt createfamily courses cid
2019/05/27 15:06:29 -creds flag unset, will use gcloud credential
nvision755@cloudshell:~ (nexus-1x)$ cbt createfamily courses crs_name
2019/05/27 15:06:30 -creds flag unset, will use gcloud credential
nvision755@cloudshell:~ (nexus-1x)$ cbt set courses cid=1 crs_name="artificial intelligence"
2019/05/27 15:07:39 -creds flag unset, will use gcloud credential
2019/05/27 15:07:41 Bad set arg "crs_name=artificial intelligence"
nvision755@cloudshell:~ (nexus-1x)$ cbt set courses cid:c1=1 crs_name:c2="artificial intelligence"
2019/05/27 15:08:18 -creds flag unset, will use gcloud credential
nvision755@cloudshell:~ (nexus-1x)$ cbt read courses
2019/05/27 15:08:48 -creds flag unset, will use gcloud credential

cid:c1=1
      crs_name:c2
      "artificial intelligence"
@ 2019/05/27-15:08:20.667000
nvision755@cloudshell:~ (nexus-1x)$

```

Table ID	Cluster	Status	Storage utilization
courses	nexuscbt-c1	<span style="color: green;">Ready</span>	-

## **PART 4**

### **SEARCH ENGINE OPTIMIZATION**

---

**Search engine optimization** is a methodology of strategies, techniques, and tactics or it is the process of getting traffic from the free, organic, editorial or natural search results on search engines used to increase the number of visitors to a website by obtaining a high-ranking placement in the search results page of a search engine (SERP) — including Google, Bing, Yahoo and other search engines.

## P4.1 GOOGLE ADWORDS

### P4.1.1 INTRODUCTION TO GOOGLE ADWORDS

AdWords (Google AdWords) is an advertising service by Google for businesses wanting to display ads on Google and its advertising network. The AdWords program enables businesses to set a budget for advertising and only pay when people click the ads. The ad service is largely focused on keywords.

Businesses that use AdWords can create relevant ads using keywords that people who search the Web using the Google search engine would use. The keyword, when searched for triggers your ad to be shown. AdWords at the top ads that appear under the heading "Sponsored Links" found on the right-hand side or above Google search results. If your AdWords ad is clicked on, Google search users are then directed to your website.

When choosing keywords for your AdWords campaigns different matching options are available. The two main keyword match options include the following:

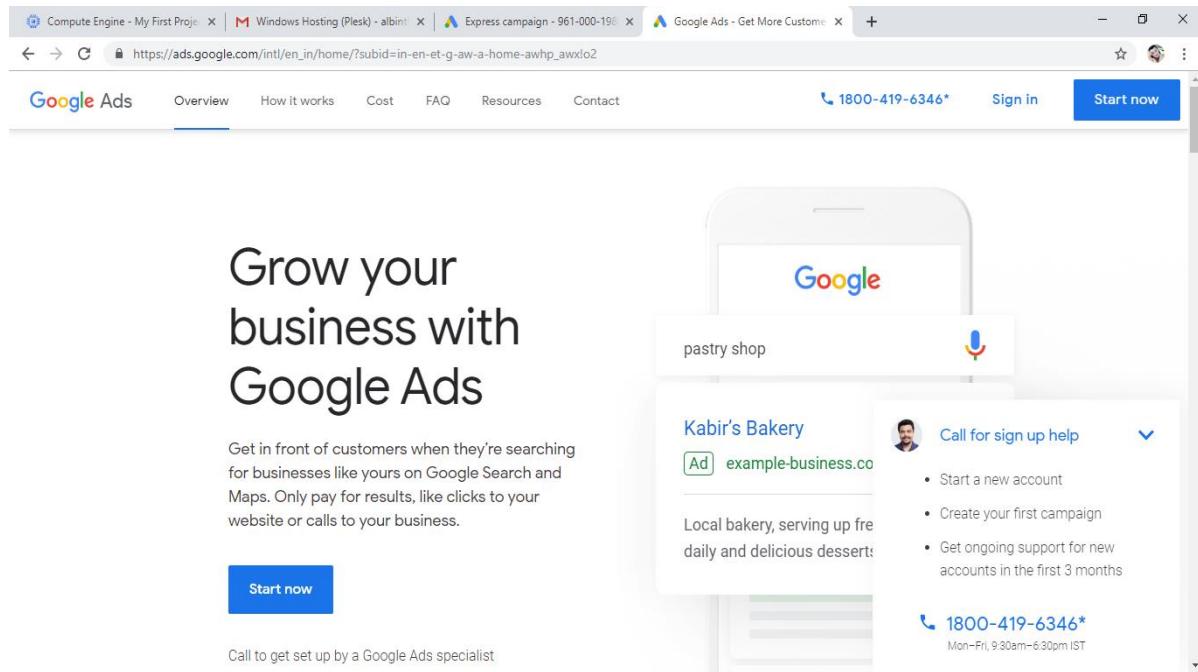
- **Broad Match:** This reaches the most users by showing your ad whenever your keyword is searched for.
- **Negative Match:** This option prevents your ad from showing when a word or phrase you specify is searched for.
- **Phrase Match:** Your ad is shown for searches that match the exact phrase.
- **Exact Match:** Your ad is shown for searches that match the exact phrase exclusively.

When using AdWords keywords are also used to determine your cost of advertising. Each keyword you choose will have a cost per click (CPC) bid amount. The bids specify the maximum amount you're willing to pay each time someone clicks your ad (the maximum cost-per-click). A higher CPC bid can allow your ad to show at a higher position on the page.

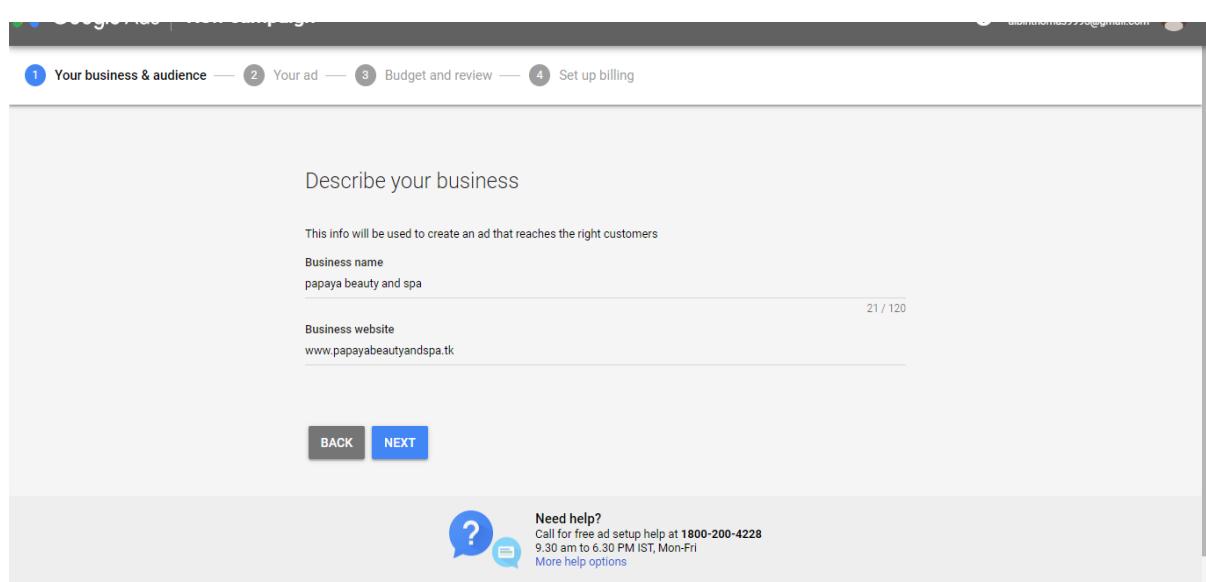
---

## P4.1.2 IMPLEMENTATION OF GOOGLE ADWORDS

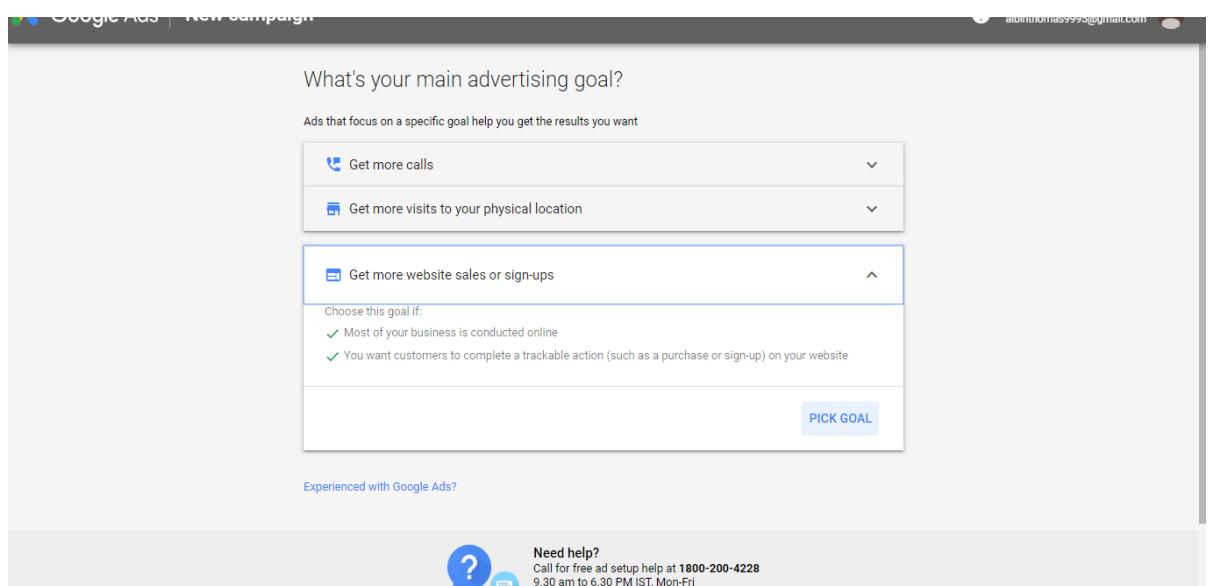
### Step 1: Go to Google AdWords Express and sign into your Google account



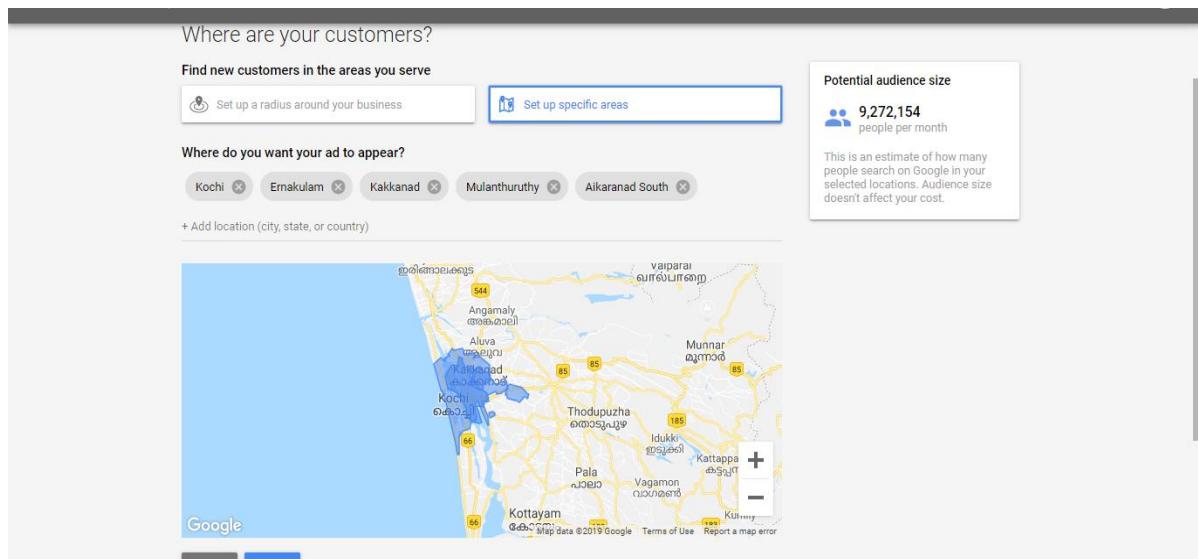
### Step 2: Describe your business and website URL.



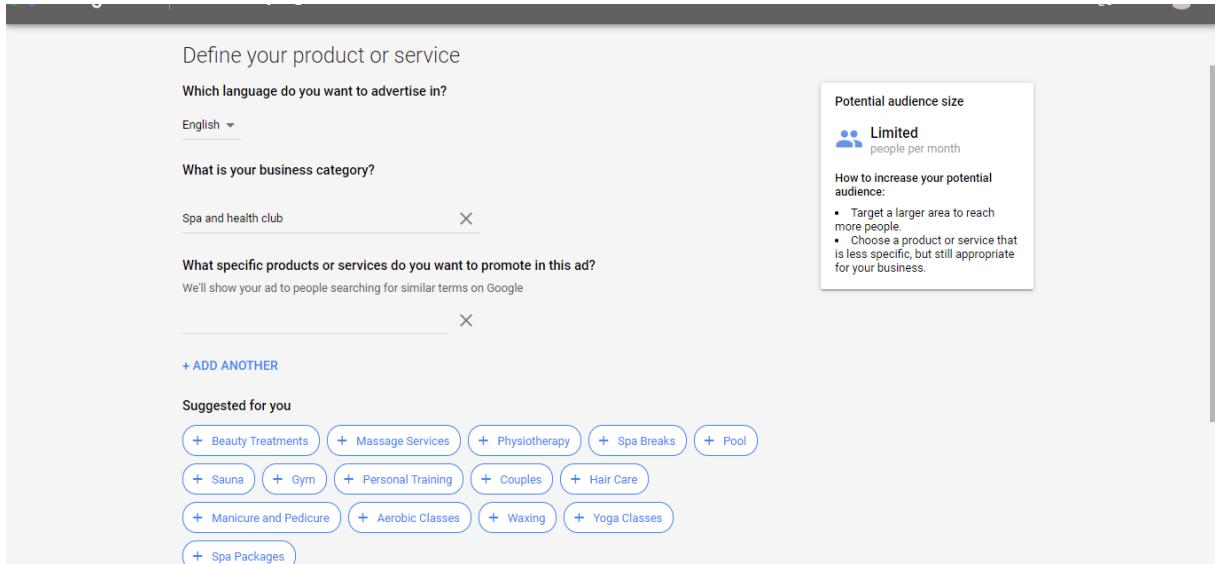
**Step 3: Pick a goal for your ad, which means, what action do you most want customers to take?**



**Step 4: Pick an area to show your ad in, Here Google is providing two options, one is Near my business (Which allows you to specify the distance of area from your location) and second is in specific cities, states or countries.**



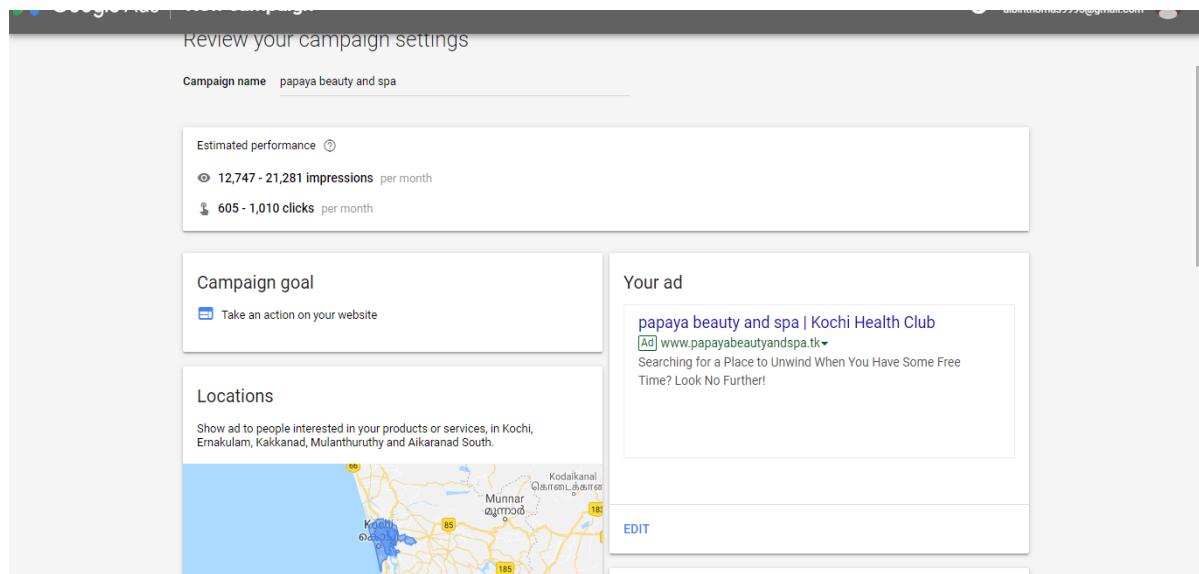
## Step 5: Define your products and services. Specifically, it aims for the business category.



## Step 6: Create your Ad preview including Headline, Description, Ad URL.

The screenshot shows the 'Your ad' step in the AdWords setup process. It displays an ad preview for 'papaya beauty and spa | Kochi Health Club'. The headline is 'papaya beauty and spa', the URL is 'http://www.papayabeautyandspa.tk', and the description is 'Searching for a Place to Unwind When You Have Some Free Time? Look No Further!'. The ad has a character count of 21/30. Below the ad, there's a link to 'SEE MORE AD LAYOUTS' and a button to 'WRITE ANOTHER AD'. At the bottom, there's a note about clicks on the ad going to a landing page.

### Step 7: Review your Ad and settings.



## P4.2 GOOGLE ADSENSE

### P4.2.1 INTRODUCTION TO GOOGLE ADSENSE

AdSense (*Google AdSense*) is an advertising placement service by Google. The program is designed for website publishers who want to display targeted text, video or image advertisements on website pages and earn money when site visitors view or click the ads. The advertisements are controlled and managed by Google and Web publishers simply need to create a free AdSense account and copy and paste provided code to display the ads. Revenue using AdSense is generated on a per-click or per-impression basis. It is free to become a verified website publisher in the Google AdSense program.

Google currently offers a number of different AdSense programs, depending on the type of content you will place the ads on (e.g. a webpage or RSS feed). Some of the more common programs include:

- AdSense for content: display ads on a website
- AdSense for search: display ads in search results on a website
- AdSense for mobile: display ads on a mobile site
- AdSense for feeds: display ads in RSS feeds
- AdSense for domains: display ads on unused domains

AdSense programs are also available to qualified publishers and developers. Qualified publishers may use AdSense to drive revenues for iPhone applications, video or Web browser games.

## P4.2.1 IMPLEMENTATION OD ADSENSE

### Step 1: Go to AdSense Custom Search Ads Generator

To use this code you must have an [AdSense account](#) with active permission to use AdSense Custom Search Ads.

**Note:** By leaving "default" for some settings, you will automatically receive future optimizations to maximize performance.

**Page Options**

Required		Ad Extensions	
Pub ID	pub-961638900	<input checked="" type="checkbox"/> Location extension	Note: Some Ad Extensions may not appear in the preview.
Query	hotels	<input checked="" type="checkbox"/> Seller Ratings	
Number of ad units	1	<input checked="" type="checkbox"/> Site Links	
Page Number	1		

### Step 2: Configure page options and page settings, such as Ad query string, no. of ad units, no. of pages, font, and color etc.

**Ad Unit 1 Options**

Required	
Container ID	afscontainer1
Width (px)	700
Configuration Settings	
Type of ad	BTF
Number of ads	2
Fonts	
Font family	ARIAL
Title font size	12 PX

### Step 3: Preview your Ad unit.

The screenshot shows the AdSense Custom Search Ads for the Web interface. At the top, there's a navigation bar with links for HOME, GUIDES, REFERENCE, and CODE GENERATOR. Below the navigation is a preview area titled "Ad Unit 1 Preview". Inside the preview, there are two examples of ads:

- hotels.com**: Shows a deal for "Hotels.com® - Official Site" with a "Visit Website" button. Below it, there are sections for "One Day Only" (with a "Book for Tonight" button) and "Secure Booking".
- vrbo.com**: Shows a deal for "Vrbo® - Official Site" with a "Visit Website" button. Below it, there are sections for "Ditch The Hotel", "Secure Booking", and "Hotels Near Me".

At the bottom of the preview area is a blue button labeled "Get the Code".

### Step 4: Place the JavaScript code in your <head> tag and HTML content in your <body> tag.

The screenshot shows the "Get the Code" section of the AdSense interface. It contains two main code snippets:

**Place this code in the <head> tag on your page.**

```
<script async="async" src="https://www.google.com/adsense/search/ads.js"></script>
<!-- other head elements from your page -->
<script type="text/javascript" charset="utf-8">
(function(g,o){g[o]||!function(){(g[o]['q']=g[o][['q']]||[]).push(
    arguments),g[o]['t']=1*new Date}()}(window,'_googCsa'));
</script>
```

**Place this code in the <body> tag on your page.**

```
<div id='afscontainer1'></div>
```

## P4.3 GOOGLE WEBMASTERS

### P4.3.1 INTRODUCTION TO GOOGLE WEBMASTERS

Google Webmaster Tools (GWT) is the primary mechanism for Google to communicate with webmasters. Google Webmaster Tools helps you to identify issues with your site and can even let you know if it has been infected with malware (not something you ever want to see, but if you haven't spotted it yourself, or had one of your users tweet at you to let you know, it's invaluable). And also, GWT let you evaluate and maintain your website's performance in search results. Offered as a free service to anyone who owns a website, Google Webmaster Tools (GWT) is a conduit of information from the largest search engine in the world to you, offering insights into how it sees your website and helping you uncover issues that need fixing. You do not need to use GWT for your website to appear in search results, but it can offer you valuable information that can help with your marketing efforts.

#### **How GWT can help monitor your website's performance**

1. It verifies that Google can access the content on your website.
2. GWT makes it possible to submit new pages and posts for Google to crawl and remove content you don't want search engine users to discover.
3. It helps you deliver and evaluate content that offers users a more visual experience.
4. You can maintain your website without disrupting its presence in search results.
5. It allows you to discover and eliminate malware or spam problems that may not be easily found through other means.

### P4.3.2 IMPLEMENTATION OF ROBOTS.TXT

Robots.txt is a text (not html) file you put on your site to tell search robots which pages you would like them not to visit. Robots.txt is by no means mandatory for search engines but generally search engines obey what they are asked not to do. It is important to clarify that robots.txt is not a way from preventing search engines from crawling your site (i.e. it is not a

firewall, or a kind of password protection) and the fact that you put a robots.txt file is something like putting a note “Please, do not enter” on an unlocked door – e.g. you cannot prevent thieves from coming in but the good guys will not open the door and enter. That is why we say that if you have really sensitive data, it is too naïve to rely on robots.txt to protect it from being indexed and displayed in search results.

The location of robots.txt is very important. It must be in the main directory because otherwise user agents (search engines) will not be able to find it – they do not search the whole site for a file named robots.txt. Instead, they look first in the main directory (i.e. <http://mydomain.com/robots.txt>) and if they don't find it there, they simply assume that this site does not have a robots.txt file and therefore they index everything they find along the way.

### **Structure of a Robots.txt File**

The structure of a robots.txt is pretty simple (and barely flexible) – it is an endless list of user agents and disallowed files and directories. Basically, the syntax is as follows:

User-agent:

Disallow:

“*User-agent*” are search engines' crawlers and *disallow*: lists the files and directories to be excluded from indexing. In addition to “user-agent:” and “disallow:” entries, you can include comment lines – just put the # sign at the beginning of the line:

```
# All user agents are disallowed to see the /temp directory.
```

User-agent: \*

Disallow: /temp/

---

## **PART 5**

### **SERVER SECURITY AND PENETRATION TESTING**

## P5.1 DATA SECURITY

Data security refers to protective digital privacy measures that are applied to prevent unauthorized access to computers, databases, and websites. Data security also protects data from corruption. Data security is an essential aspect of IT for organizations of every size and type. Examples of data security technologies include backups, data masking, and data erasure. The core of the data security technology is encryption, where digital data, software/hardware, and hard drives are encrypted and therefore rendered unreadable to unauthorized users and hackers.

### Different Ways to Enhance Data Security

1. Limit Data Access
2. Identify Sensitive Data
3. Pre-planned Data Security Policy

## P5.2 SERVER HARDENING

Server Hardening is the process of enhancing server security through a variety of means which results in a much more secure server operating environment. This is due to the advanced security measures that are put in place during the server hardening process.

The term "hardening," in the general sense, implies taking a soft surface or material and making changes to it which result in that surface becoming stronger and more resistant to damage. That is exactly how server hardening impacts server security. Hardened servers are more resistant to security issues than non-hardened servers.

- In a time when nearly every computing resource is online and susceptible to attack, server hardening is a near absolute must to perform on your servers.
  - . The Internet has vastly altered the complexion of the server hardening industry over the last decade. Much of the applications and system software that is now developed is intended for use on the Internet, and for connections to the Internet.
-

- Many servers online today are attacked thousands of times per hour, tens and sometimes hundreds of thousands of times each and every day. The best defence against such attacks is to ensure that server hardening is a well-established practice within your organization or to outsource this task to an experienced & established server hardening agency.

Server Hardening, probably one of the most important tasks to be handled on your servers, becomes more understandable when you realize all the risks involved. The default config of most operating systems is not designed with security as the primary focus. Instead, default setups focus more on usability, communications and functionality. To protect your servers, you must establish solid and sophisticated server hardening policies for all servers

in your organization. Developing a server hardening checklist would likely be a great first step in increasing your server and network security. Make sure that your checklist includes minimum security practices that you expect of your staff. If you go with a consultant you can provide them with your server hardening checklist to use as a baseline.

**Server Hardening Tips & Tricks:** Every server security conscious organization will have their own methods for maintaining adequate system and network security. Often you will find that server hardening consultants can bring your security efforts up a notch with their specialized expertise. Some common server hardening tips & tricks include:

- Use Data Encryption for your Communications
- Avoid using insecure protocols that send your information or passwords in plain text.
- Minimize unnecessary software on your servers.
- Disable Unwanted SUID and SGID Binaries
- Keep your operating system up to date, especially security patches.
- Using security extensions is a plus.
- When using Linux, SELinux should be considered. Linux server hardening is a primary focus for the web hosting industry, however in web hosting SELinux is probably not a good option as it often causes issues when the server is used for web hosting purposes.
- User Accounts should have very strong passwords
- Change passwords on a regular basis and do not reuse them
- Lock accounts after too many login failures. Often these login failures are illegitimate attempts to gain access to your system.
- Do not permit empty passwords.
- **SSH Hardening** --- Change the port from default to a non-standard one --- Disable direct root logins. Switch to root from a lower level account only when necessary.
- Unnecessary service

---

should be disabled. Disable all instances of IRC - BitchX, bnc, eggdrop, generic-sniffers, guardservices, ircd, psyBNC, ptlink. - Securing /tmp /var/tmp /dev/shm

## P5.3 KALI LINUX TOOLS

### P5.3.1 INTRODUCTION TO KALI LINUX TOOLS

Kali Linux is the world's most powerful and popular penetration testing platform, used by security professionals in a wide range of specializations, including penetration testing, forensics, reverse engineering, and vulnerability assessment. It is the culmination of years of refinement and the result of a continuous evolution of the platform, from WHoppiX to WHAX, to BackTrack, and now to a complete penetration testing framework leveraging many features of Debian GNU/Linux and the vibrant open source community worldwide. Kali contains several hundred tools which are geared towards various information security tasks, such as Penetration Testing, Security research, Computer Forensics and Reverse Engineering. Kali Linux was released on the 13th March 2013 as a complete, top-to-bottom rebuild of Backtrack Linux, adhering completely to Debian development standards.

#### Major Kali Linux Penetration Testing tools

- **Sqlmap**

Sqlmap is an open source penetration testing tool that automates the process of detecting and exploiting SQL injection flaws and taking over of database servers. It comes with a powerful detection engine, many niche features for the ultimate penetration tester and a broad range of switches lasting from database fingerprinting, over data fetching from the database.

- **Metasploit Framework**

Metasploit is a penetration testing platform that enables you to find, exploit, and validate vulnerabilities. It provides the infrastructure, content, and tools to perform penetration tests and extensive security auditing and thanks to the open source community and Rapid7's own hard-working content team, new modules are added on a regular basis.

---

- **Hashcat**

Hashcat is the world's fastest and most advanced password recovery utility, supporting five unique modes of attack for over 200 highly-optimized hashing algorithms. hashcat currently supports CPUs, GPUs, and other hardware accelerators on Linux, Windows, and OSX, and has facilities to help enable distributed password cracking.

### **P5.3.2 IMPLEMENTATIONTION OF KALI LINUX TOOLS**

#### **Testing with The Mole**

Mole is a programmed automatic SQL Injection exploitation tool. Just by giving a vulnerable URL and a substantial string on the site it can recognize the injection and exploit it, either by utilizing the union method or a Boolean question-based system. The Mole utilizes a command-based interface, permitting the client to show the activity he needs to perform effectively. The CLI likewise gives auto-completion on both commands and command arguments, making the user sort as less as could be expected under the possibilities.

- Download and open themole.exe file
- Once a command-line interface is opened, use the following commands
- url [http://www.yourwebsite.com/page.php?id=numeric\\_value](http://www.yourwebsite.com/page.php?id=numeric_value)

```
File Edit View Search Terminal Help  
blake@blake:~$ themole  
  
Developed by Nasel(http://www.nasel.com.ar).  
Published under GPLv3.  
Be efficient and have fun!  
#> url
```

- Now find out any keywords available on the website, it may anything means any word find you on this site, I'm using classmates.
- needle classmates

```
File Edit View Search Terminal Help  
blake@blake:~$ themole  
  
Developed by Nasel(http://www.nasel.com.ar).  
Published under GPLv3.  
Be efficient and have fun!  
#> url http://papayabeautyandspa.tk./userprofile?id=12  
#> needle packages  
#> 
```

- finally, use command schemas to fetch tables

```
File Edit View Search Terminal Help
blake@blake:~$ themole
THEMOLE
Developed by Nasel(http://www.nasel.com.ar).
Published under GPLv3.
Be efficient and have fun!
#> url http://papayabeautyandspa.tk./userprofile?id=12
#> needle packages
#> schemas
[-] Could not detect SQL Injection: Needle not found (Needle not in page)
#>
```

Output:

Could not Exploit SQL Injection

## **PART 6**

### **TECHNOLOGY FRAMEWORKS**

## P6.1 ASP.NET MVC

### P6.1.1 Introduction

ASP.NET MVC is an open-source software from Microsoft. Its web development framework combines the features of MVC (Model-View-Controller) architecture, the most up-to-date ideas and techniques from Agile development and the best parts of the existing ASP.NET platform. ASP.NET MVC is basically a web development framework from Microsoft, which combines the features of MVC (Model-View-Controller) architecture, the most up-to-date ideas and techniques from Agile development, and the best parts of the existing ASP.NET platform.

ASP.NET MVC is not something, which is built from ground zero. It is a complete alternative to traditional ASP.NET Web Forms. It is built on the top of ASP.NET, so developers enjoy almost all the ASP.NET features while building the MVC application.

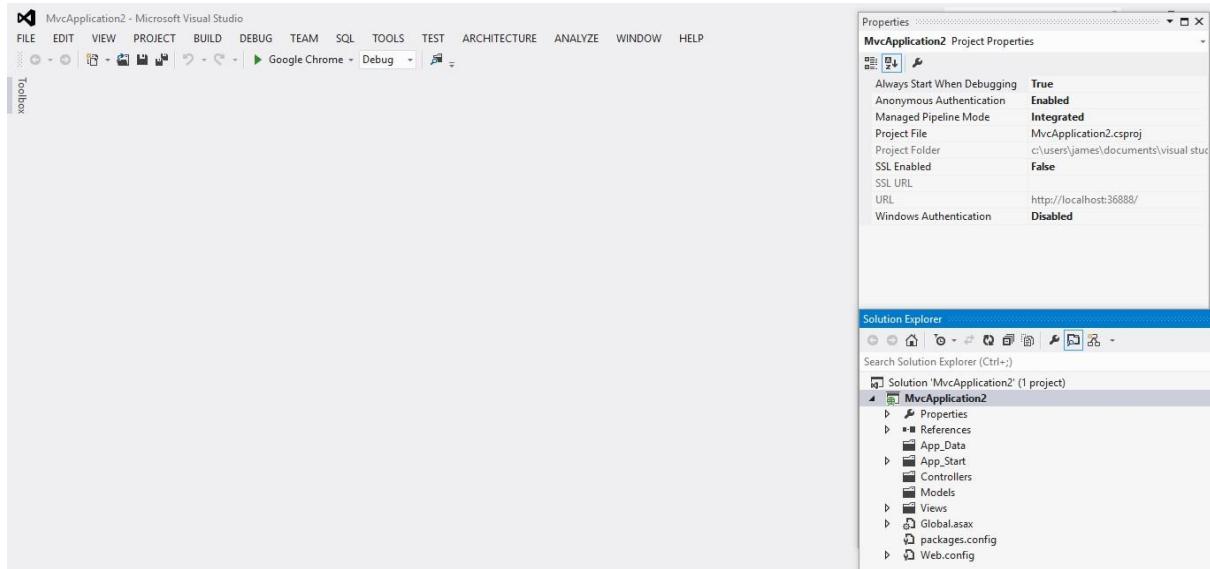
The MVC architectural pattern separates the user interface (UI) of an application into three main parts.

- **The Model** – A set of classes that describes the data you are working with as well as the business logic.
- **The View** – Defines how the application's UI will be displayed. It is a pure HTML, which decides how the UI is going to look like.
- **The Controller** – A set of classes that handles communication from the user, overall application flow, and application-specific logic.

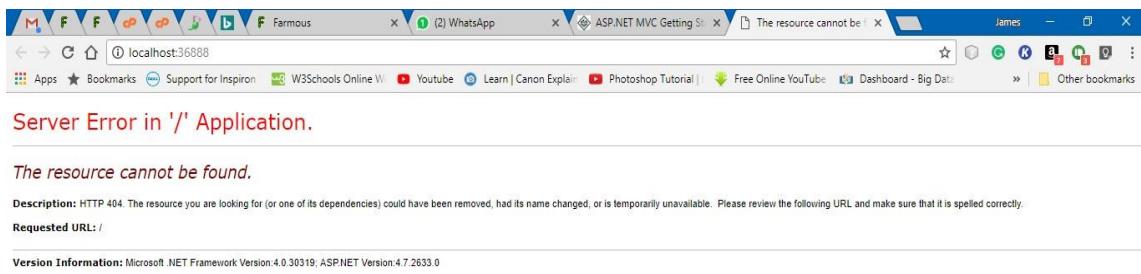
### Implementation of ASP.Net MVC

- Download and install Microsoft Visual Studio 2012 and onwards
  - Create an ASP.Net MVC Application. Open the Visual Studio. Click File>New > Project menu option. A new Project dialog opens.
  - From the left pane, select Templates → Visual C# → Web.
  - In the middle pane, select ASP.NET Web Application.
-

- Enter the project name, MVCApplication2, in the Name field and click ok to continue. You will see the following dialog which asks you to set the initial content for the ASP.NET project.



- Run this application from Debug > Start Debugging menu option and you will see a **404 Not Found** Error.



### Add Controller

- To remove the 404 Not Found error, we need to add a controller, which handles all the incoming requests.
- To add a controller, right-click on the controller folder in the solution explorer and select Add > Controller.
- Select the MVC 5 Controller – Empty option and click ‘Add’ button. The Add Controller dialog

will appear.

- Set a name to Controller and click the Add button.
- To make this a working example, let's modify the controller class by changing the action method called **Index** using the following code.

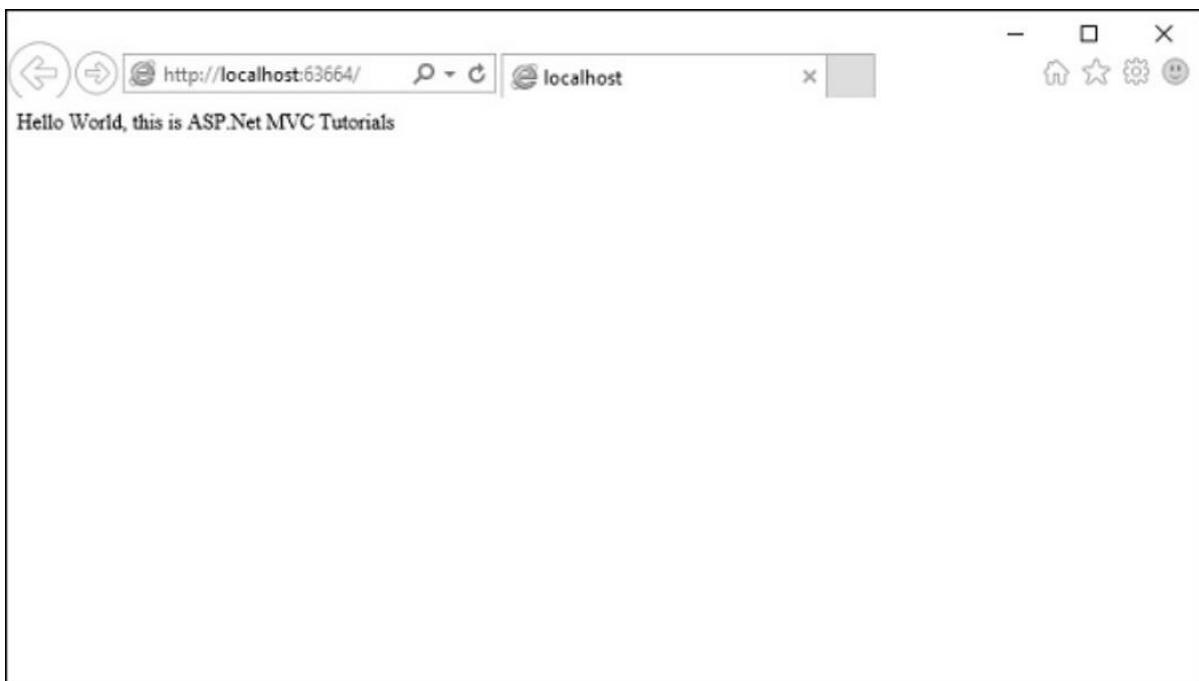
The screenshot shows the Microsoft Visual Studio interface with the following components:

- Code Editor:** Displays the file `Default1Controller.cs` containing the following C# code:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.Mvc;

namespace MvcApplication2.Controllers
{
    public class Default1Controller : Controller
    {
        // GET: Home
        public string Index()
        {
            return "Hello World, this is ASP.Net MVC Tutorials";
        }
    }
}
```
- Solution Explorer:** Shows the project structure for "MvcApplication2" with files like `Default1Controller.cs`, `Global.asax`, `packages.config`, and `Web.config`.
- Properties Window:** Shows project properties for "MvcApplication2" with settings like "Always Start When Debugging" set to True, "Anonymous Authentication" set to Enabled, and "Managed Pipeline Mode" set to Integrated.

- Run this application from Debug



## P6.2 LARAVEL

**Laravel** is a free, open-source PHP web framework, created by Taylor Otwell and intended for the development of web applications following the model–view–controller (MVC) architectural pattern. It has a very rich set of functionalities, which will increase the speed of website development work.

If you know PHP well, then Laravel will make your task easier. It has a very rich set of libraries and helpers. By using Laravel, you will save a lot of time, if you are developing a website from scratch. Not only that, a website built in Laravel is secure too, as it has the ability to prevent various attacks that take place through websites.

It is very easy to install Laravel. Just follow the steps given below –

- First, download the Laravel installer using Composer:  
Composer global require laravel/installer
- Once installed, the laravel new command will create a fresh Laravel installation in the directory you specify

Laravel new helloworld

- Via Composer Create-Project

composer create-project laravel/laravel hello-world

- Local Development Server

If you have PHP installed locally and you would like to use PHP's built-in development server to serve your application, you may use the serve Artisan command. This command will start a development server at <http://localhost:8000>.

php artisan serve

---

Laravel is based on the Model-View-Controller (MVC) development pattern. MVC is a software

approach that separates application logic from presentation. In practice, it permits your web pages to contain minimal scripting since the presentation is separate from the PHP scripting.

- The Model represents your data structures. Typically, your model classes will contain functions that help you retrieve, insert and update information in your database.
- The View is information that is being presented to a user. A View will normally be a web page, but in Laravel, a view can also be a page fragment like a header or footer. It can also be an RSS page or any other type of “page”.
- The Controller serves as an intermediary between the Model, the View, and any other resources needed to process the HTTP request and generate a web page.

#### Example

1. Create a Laravel application:

```
Composer create-project laravel/laravel hello-world
```

2. Navigate to the project folder, e.g.

```
D:\laravel\hello-world
```

3. Create a controller:

```
php artisan make:controller HelloController
```

4. Register a route to HelloController's index method. Add this line or routes/web.php

```
Route::get('hello',HelloController@index');
```

5. Create a Blade template in the views directory:

```
resources/views/hello.blade.php:
```

```
<html>
<body>
<h1>HelloWorld</h1>
</body>
```

---

```
</html>
```

6. Now we tell index method to display the hello.blade.php template:

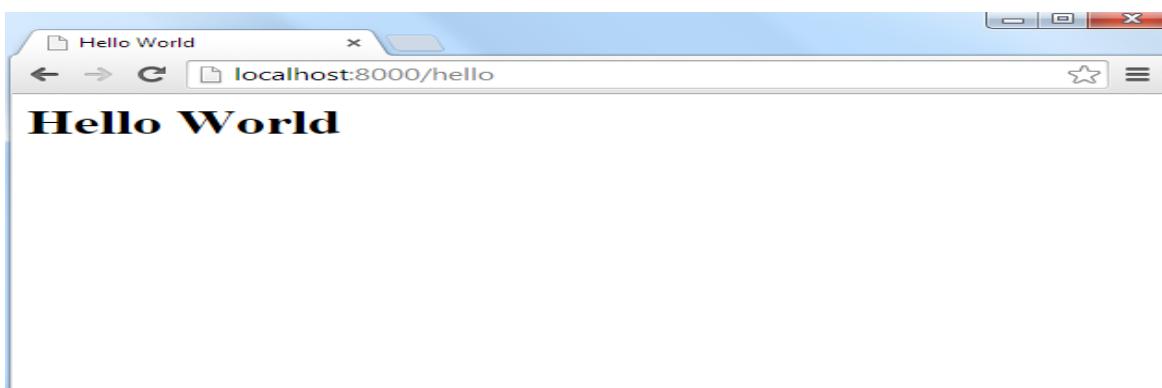
```
app/Http/Controllers/HelloController.php
```

```
<?php  
namespace App\Http\Controllers;  
use Illuminate\Http\Request;  
use App\Http\Requests;  
class HelloController extends Controller  
{  
    public function index ()  
    {  
        return view('hello');  
    }  
}
```

```
// ... other resources are listed below the index one above
```

7. You can serve your app using the following PHP Artisan Command:

```
php artisan serve;
```



## P6.3 ANGULAR

Angular 6 is a JavaScript framework for building web applications and apps in JavaScript, html, and TypeScript, which is a superset of JavaScript. Angular provides built-in features for animation, http service, and materials which in turn has features such as auto-complete, navigation, toolbar, menus, etc. The code is written in TypeScript, which compiles to JavaScript and displays the same in the browser.

### Step 1: Install the Angular CLI

Install the Angular CLI globally.

To install the CLI using npm, open a terminal/console window and enter the following command:

```
npm install -g @angular/cli
```

### Step 2: Create a workspace and initial application

You develop apps in the context of an Angular workspace. A workspace contains the files for one or more projects. A project is the set of files that comprise an app, a library, or end-to-end (e2e) tests.

To create a new workspace and initial app project:

1. Run the CLI command `ng new` and provide the name `my-app`, as shown here:

```
ng new my-app
```

The `ng new` command prompts you for information about features to include in the initial app project. Accept the defaults by pressing the Enter or Return key.

The Angular CLI installs the necessary Angular npm packages and other dependencies. This can take a few minutes.

It also creates the following workspace and starter project files:

- A new workspace, with a root folder named `my-app`
- An initial skeleton app project, also called `my-app` (in the `src` subfolder)
- An end-to-end test project (in the `e2e` subfolder)

- 
- Related configuration files
  - The initial app project contains a simple Welcome app, ready to run.

### Step3: Serve the Application

Angular includes a server, so that you can easily build and serve your app locally.

Go to the workspace folder (my-app).

Launch the server by using the CLI command `ng serve`, with the `--open` option.

```
cd my-app  
ng serve --open
```



The `ng serve` command launches the server, watches your files, and rebuilds the app as you make changes

to those files.

The `--open` (or just `-o`) option automatically opens your browser to `http://localhost:4200/`.

Your app greets you with a message:

**Welcome to my-app!**



#### Step 4: Edit your first Angular component

Components are the fundamental building blocks of Angular applications. They display data on the screen, listen for user input, and take action based on that input.

As part of the initial app, the CLI created the first Angular component for you. It is the root component, and it is named app-root.

Open ./src/app/app.component.ts.

Change the title property from 'my-app' to 'My First Angular App'.

src/app/app.component.ts

```
@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
```

```
export class AppComponent {
  title = 'My First Angular App!';
}
```

The browser reloads automatically with the revised title. That's nice, but it could look better.

Open ./src/app/app.component.css and give the component some style.

src/app/app.component.css

```
h1 {
  color: #369;
  font-family: Arial, Helvetica, sans-serif;
  font-size: 250%;
}
```

# Welcome to My First Angular App!



## P6.4 ANDROID

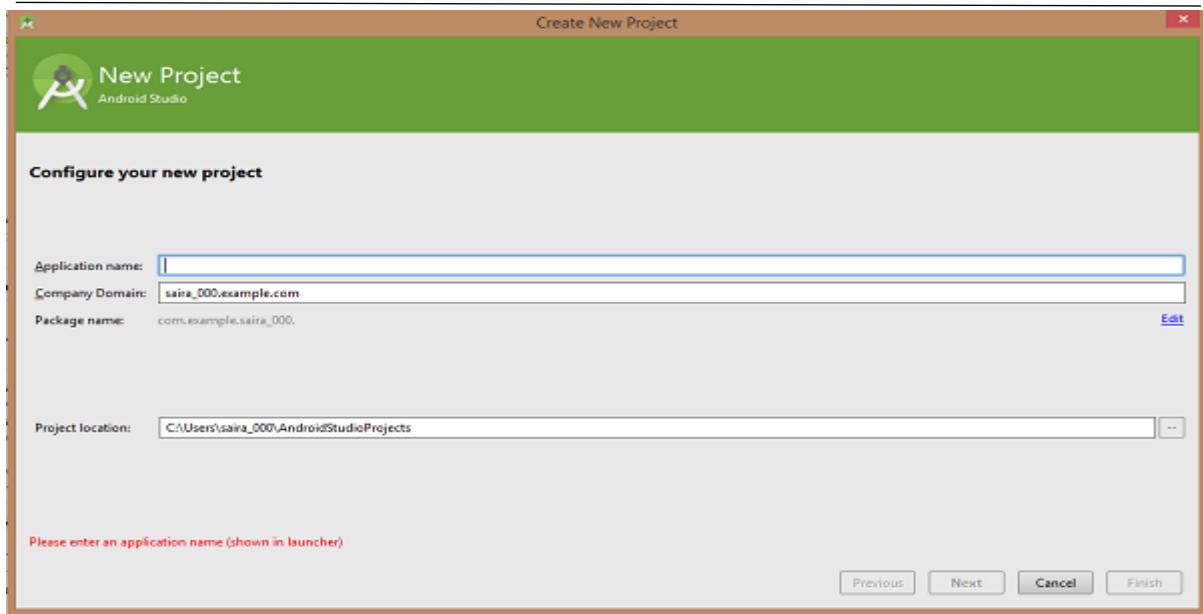
Android is a software package and linux based operating system for mobile devices such as tablet computers and smart phones. It is developed by Google and later the OHA (Open Handset Alliance). Java language is mainly used to write the android code even though other languages can be used. The goal of android project is to create a successful real-world product that improves the mobile experience for end users. There are many code names of android such as Lollipop, Kitkat, Jelly Bean, Ice cream Sandwich, Froyo, Eclair, Donut etc .

### **Creating Android Application**

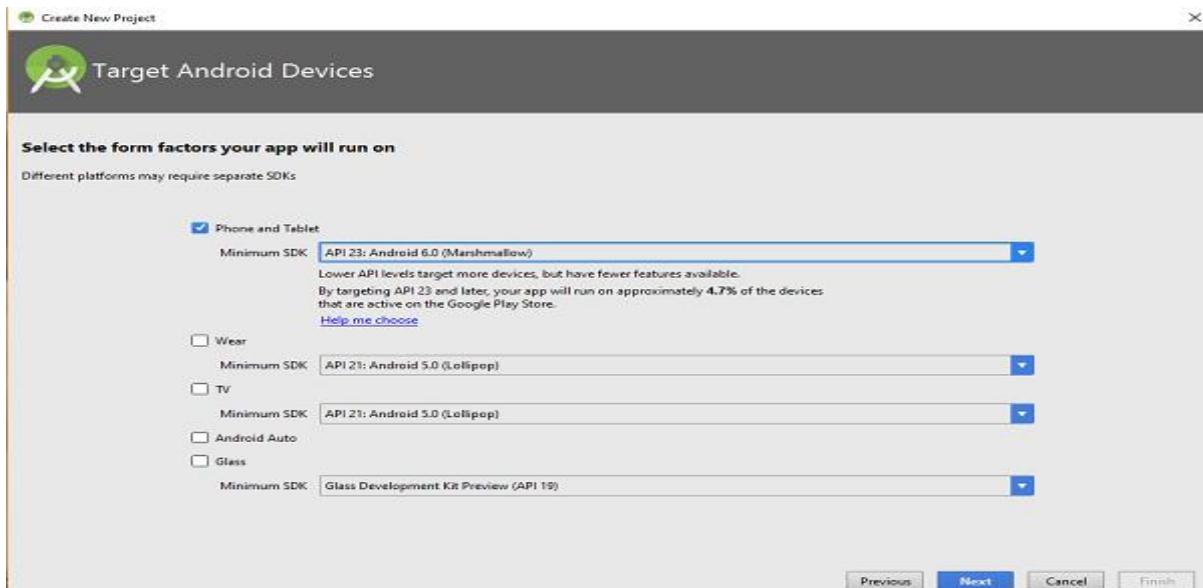
The first step is to create a simple Android Application using Android studio. When you click on Android studio icon, it will show screen as shown below



You can start your application development by calling start a new android studio project. in a new installation frame should ask Application name, package information and location of the project.—



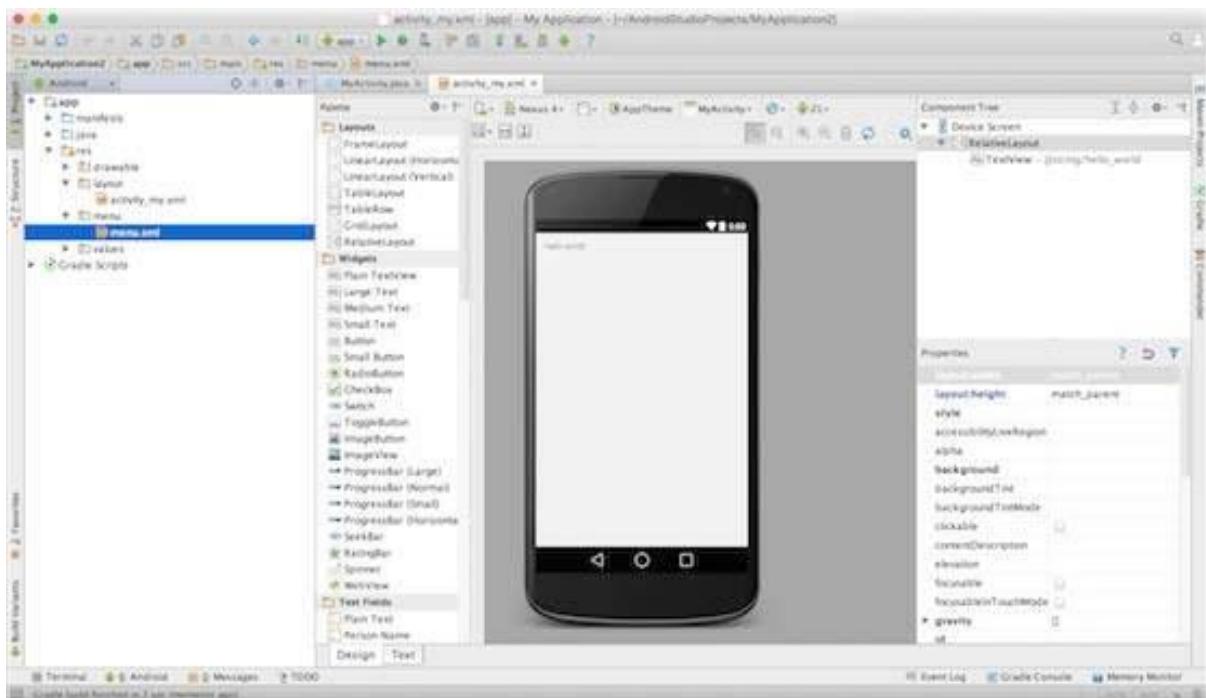
After entered application name, it going to be called select the form factors your application runs on, here need to specify Minimum SDK, in this example, I have declared as API23: Android 6.0(Marshmallow) –



The next level of installation should contain selecting the activity to mobile, it specifies the default layout for Applications

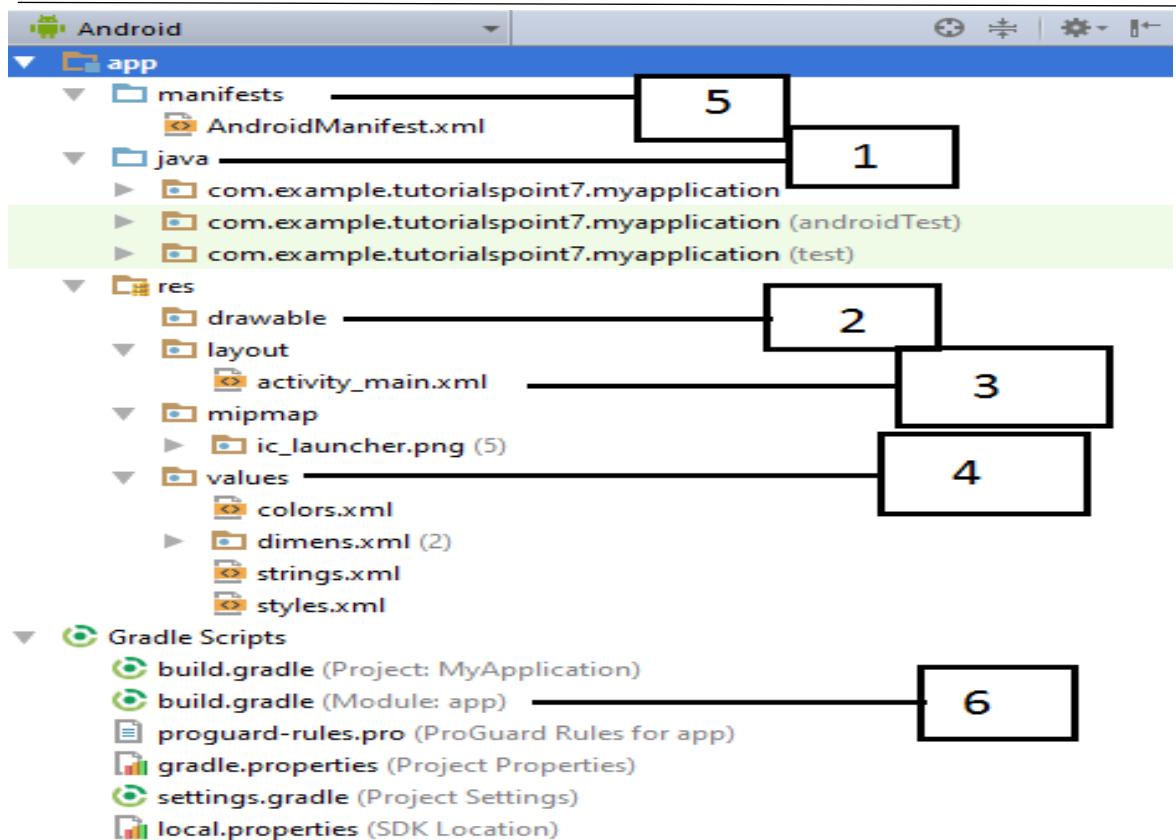


At the final stage it going to be open development tool to write the application code.



## Anatomy of Android Application

Before you run your app, you should be aware of a few directories and files in the Android



Following section will give a brief overview of the important application files.

### The Main Activity File

The main activity code is a Java file **MainActivity.java**. This is the actual application file which ultimately gets converted to a Dalvik executable and runs your application. Following is the default code generated by the application wizard for *Hello World!* application –

```
package com.example.helloworld;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;

public class MainActivity extends AppCompatActivity {
```

```
@Override  
  
protected void onCreate(Bundle savedInstanceState) {  
  
    super.onCreate(savedInstanceState);  
  
    setContentView(R.layout.activity_main);  
  
}  
  
}
```

Here, *R.layout.activity\_main* refers to the *activity\_main.xml* file located in the *res/layout* folder. The *onCreate()* method is one of many methods that are figured when an activity is loaded.

### The Manifest File

Whatever component you develop as a part of your application, you must declare all its components in a *manifest.xml* which resides at the root of the application project directory. This file works as an interface between Android OS and your application, so if you do not declare your component in this file, then it will not be considered by the OS. For example, a default manifest file will look like as following file –

```
<?xml version="1.0" encoding="utf-8"?>  
  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
  
    package="com.example.albin7.myapplication">  
  
    <application  
  
        android:allowBackup="true"  
  
        android:icon="@mipmap/ic_launcher"  
  
        android:label="@string/app_name"  
  
        android:supportsRtl="true"  
  
        android:theme="@style/AppTheme">  
  
        <activity android:name=".MainActivity">
```

---

```
<intent-filter>

    <action android:name="android.intent.action.MAIN" />

    <category android:name="android.intent.category.LAUNCHER" />

</intent-filter>

</activity>

</application>

</manifest>
```

Here `<application>...</application>` tags enclosed the components related to the application. Attribute `android:icon` will point to the application icon available under `res/drawable-hdpi`. The application uses the image named `ic_launcher.png` located in the drawable folders

The `<activity>` tag is used to specify an activity and `android:name` attribute specifies the fully qualified class name of the `Activity` subclass and the `android:label` attribute specifies a string to use as the label for the activity. You can specify multiple activities using `<activity>` tags.

The **action** for the intent filter is named `android.intent.action.MAIN` to indicate that this activity serves as the entry point for the application. The **category** for the intent-filter is named `android.intent.category.LAUNCHER` to indicate that the application can be launched from the device's launcher icon.

The `@string` refers to the `strings.xml` file explained below. Hence, `@string/app_name` refers to the `app_name` string defined in the `strings.xml` file, which is "HelloWorld". Similar way, other strings get populated in the application.

Following is the list of tags which you will use in your manifest file to specify different Android application components –

- `<activity>` elements for activities
  - `<service>` elements for services
  - `<receiver>` elements for broadcast receivers
  - `<provider>` elements for content providers
-

## The Strings File

The **strings.xml** file is located in the *res/values* folder and it contains all the text that your application uses. For example, the names of buttons, labels, default text, and similar types of strings go into this file. This file is responsible for their textual content. For example, a default strings file will look like as following file –

```
<resources>

    <string name="app_name">HelloWorld</string>

    <string name="hello_world">Hello world!</string>

    <string name="title_activity_main">MainActivity</string>

</resources>
```

## The Layout File

The **activity\_main.xml** is a layout file available in *res/layout* directory, that is referenced by your application when building its interface. You will modify this file very frequently to change the layout of your application. For your "Hello World!" application, this file will have following content related to default layout –

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"
    android:layout_height="match_parent" >

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true" />

```

---

```
        android:padding="@dimen/padding_medium"  
        android:text="@string/hello_world"  
        tools:context=".MainActivity" />  
  
</RelativeLayout>
```

This is an example of simple RelativeLayout which we will study in a separate chapter. The TextView is an Android control used to build the GUI and it have various attributes like android:layout\_width, android:layout\_height etc which are being used to set its width and height etc.. The @string refers to the strings.xml file located in the res/values folder. Hence, @string/hello\_world refers to the hello string defined in the strings.xml file, which is "Hello World!".

### **Running the Application**

Let's try to run our **Hello World!** application we just created. I assume you had created your **AVD** while doing environment set-up. To run the app from Android studio, open one of your project's activity files and click Run  icon from the tool bar. Android studio installs the app on your AVD and starts it and if everything is fine with your set-up and application, it will display following Emulator window –



## P7.4 Server Hardening

**Server Hardening** is the process of enhancing server security through a variety of means which results in a much more secure server operating environment. This is due to the advanced security measures that are put in place during the server hardening process.

The term "hardening," in the general sense, implies taking a soft surface or material and making changes to it which result in that surface becoming stronger and more resistant to damage. That is exactly how **server hardening** impacts server security. Hardened servers are more resistant to security issues than non-hardened servers. \* In a time when nearly every computing resource is online and susceptible to attack, server hardening is a near absolute must to perform on your servers. \* The Internet has vastly altered the complexion of the server hardening industry over the last decade. Much of the applications and system software that is now developed is intended for use on the Internet, and for connections to the Internet. \* Many servers online today are attacked thousands of times per hour, tens and sometimes hundreds of thousands of times each and every day. The best defence against such attacks is to ensure that server hardening is a well-established practice within your organization or to outsource this task to an experienced & established server hardening agency.

---

**Server Hardening**, probably one of the most important tasks to be handled on your servers, becomes more understandable when you realize all the risks involved. The default config of most operating systems is not designed with security as the primary focus. Instead, default setups focus more on usability, communications and functionality. To protect your servers, you must establish solid and sophisticated server hardening policies for all servers

in your organization. Developing a server hardening checklist would likely be a great first step in increasing your server and network security. Make sure that your checklist includes minimum security practices that you expect of your staff. If you go with a consultant you can provide them with your server hardening checklist to use as a baseline.

**Server Hardening Tips & Tricks:** Every server security conscious organization will have their own methods for maintaining adequate system and network security. Often you will find that server hardening consultants can bring your security efforts up a notch with their specialized expertise. Some common server hardening tips & tricks include:

- Use Data Encryption for your Communications
- Avoid using insecure protocols that send your

information or passwords in plain text.

- Minimize unnecessary software on your servers.
- Disable Unwanted SUID and SGID Binaries
- Keep your operating system up to date, especially security patches.
- Using security extensions is a plus.
- When using Linux, SELinux should be considered. Linux server hardening is a primary focus for the web hosting industry, however in web hosting SELinux is probably not a good option as it often causes issues when the server is used for web hosting purposes.
- User Accounts should have very strong passwords
- Change passwords on a regular basis and do not reuse them
- Lock accounts after too many login failures. Often these login failures are illegitimate attempts to gain access to your system.
- Do not permit empty passwords.
- SSH Hardening --- Change the port from default to a non-standard one ---
- Disable direct root logins. Switch to root from a lower level account only when necessary.
- Unnecessary services should be disabled. Disable all instances of IRC - BitchX, bnc, eggdrop, generic-sniffers, guard services, ircd, psyBNC, ptlink.
- Securing /tmp /var/tmp /dev/shm

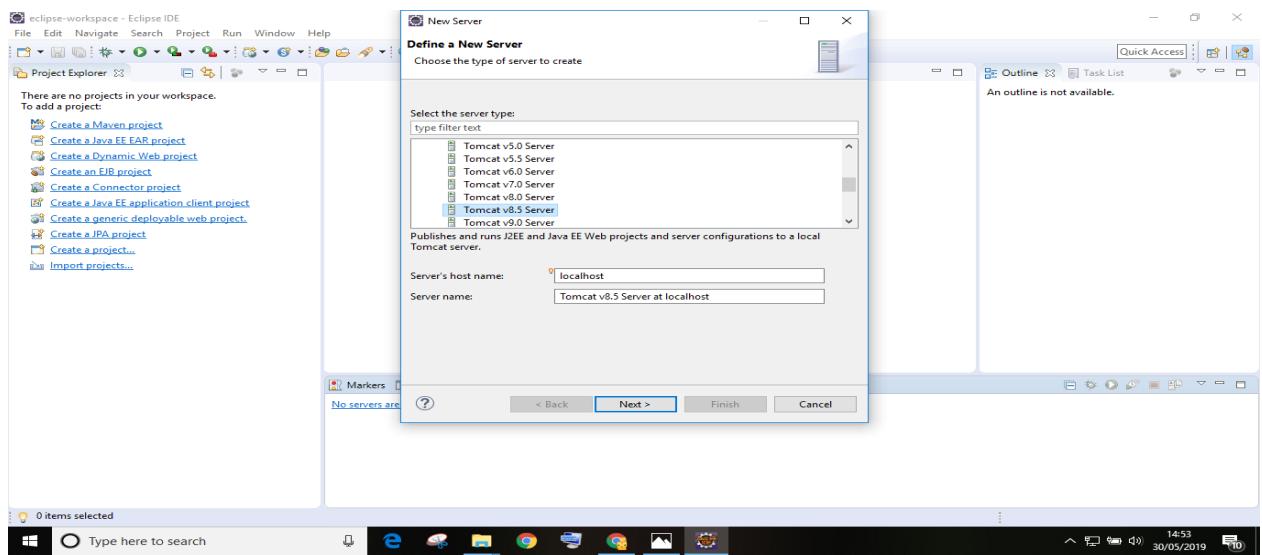
## P6.8 Java Spring

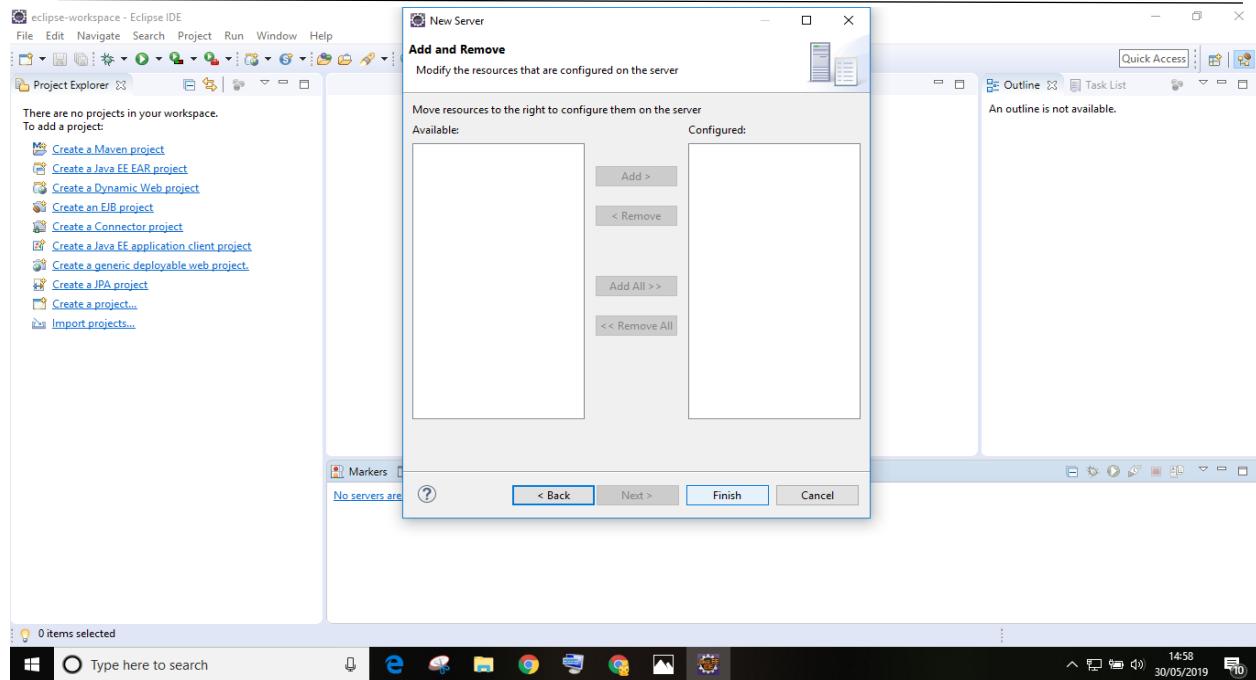
### P2.6.1 Introduction to Java Spring

The **Spring Framework** is an application framework and inversion of control container for the Java platform. The framework's core features can be used by any Java application, but there are extensions for building web applications on top of the Java EE (Enterprise Edition) platform. Although the framework does not impose any specific programming model, it has become popular in the Java community as an addition to, or even replacement for the Enterprise JavaBeans (EJB) model. The Spring Framework is open source

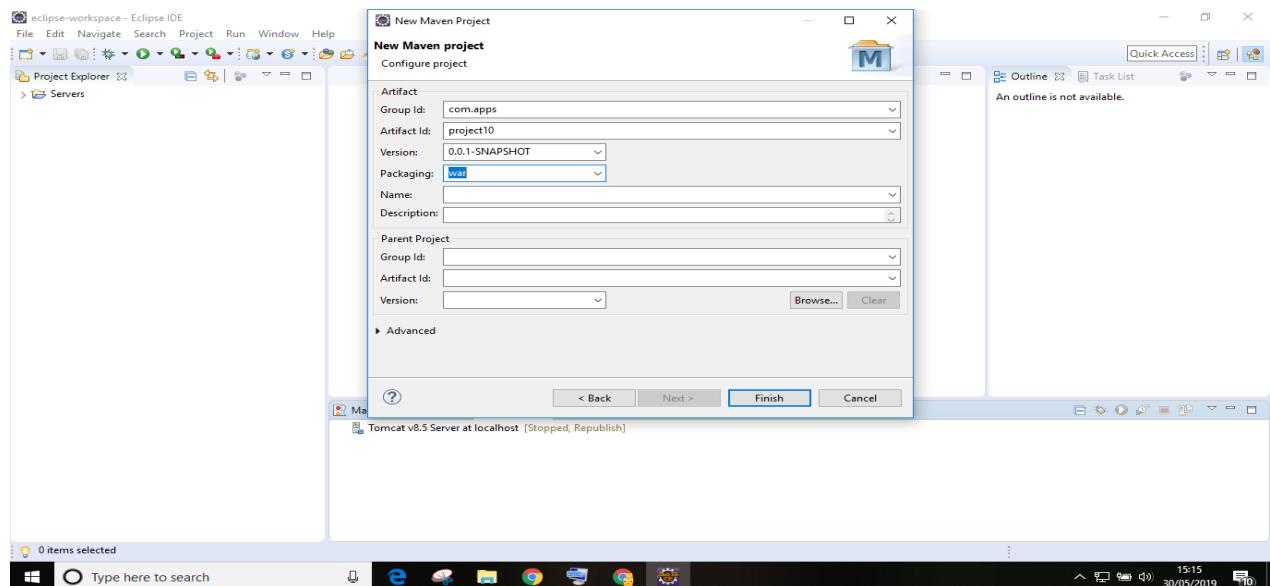
### P2.6.2 Sample Program Implementation

**Step1:** Install JDK 1.8 and set Tomcat server

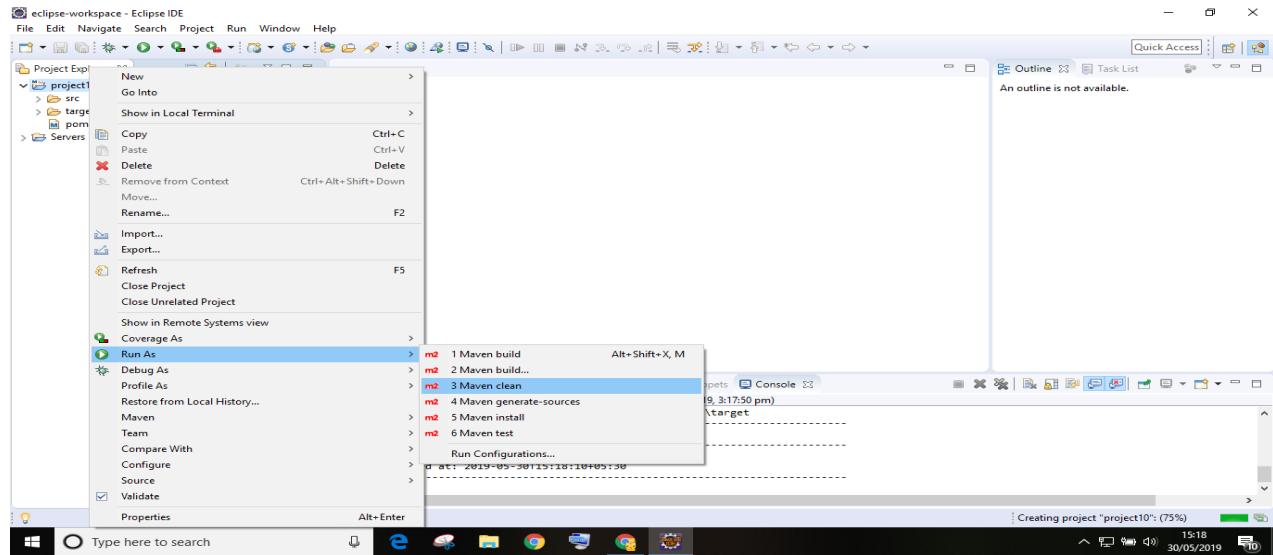




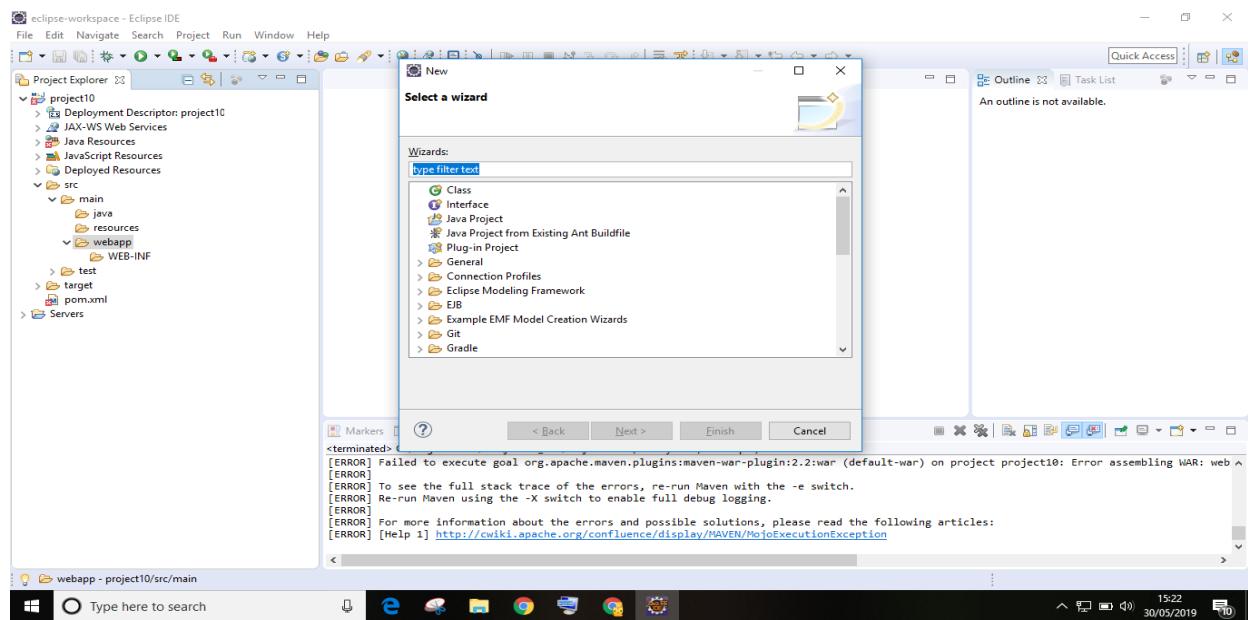
## Step2: Start Maven project – file-> new -> maven



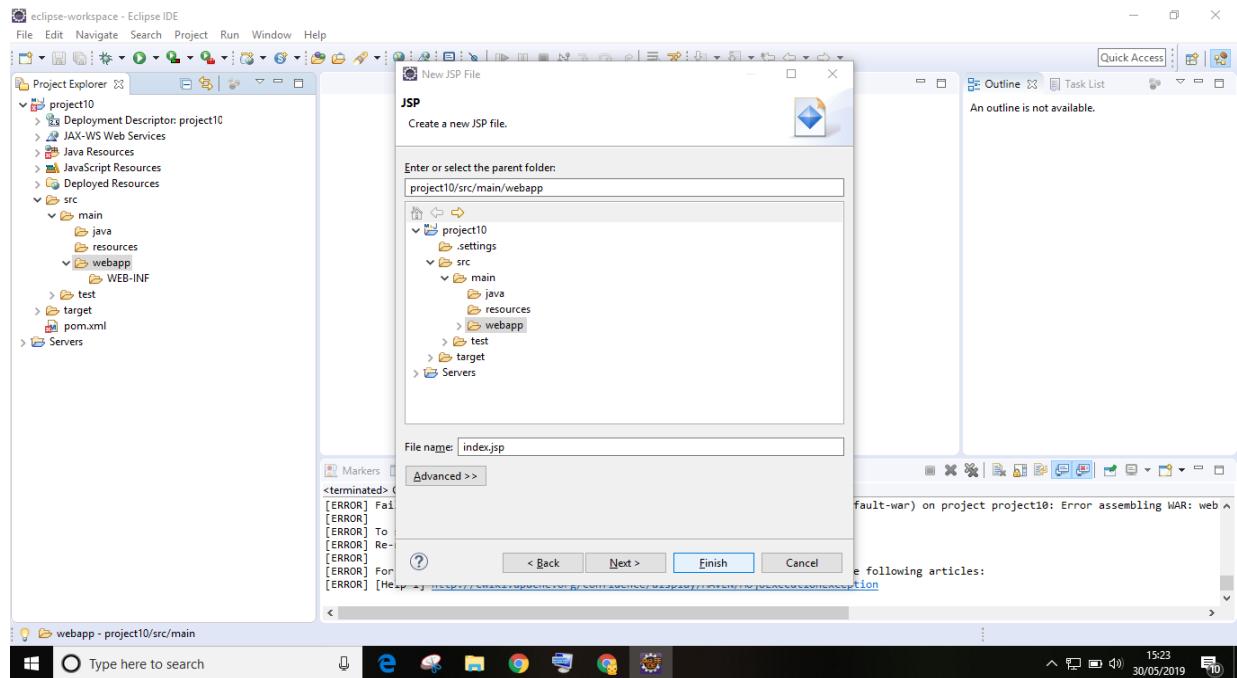
### Step3: Build your maven project



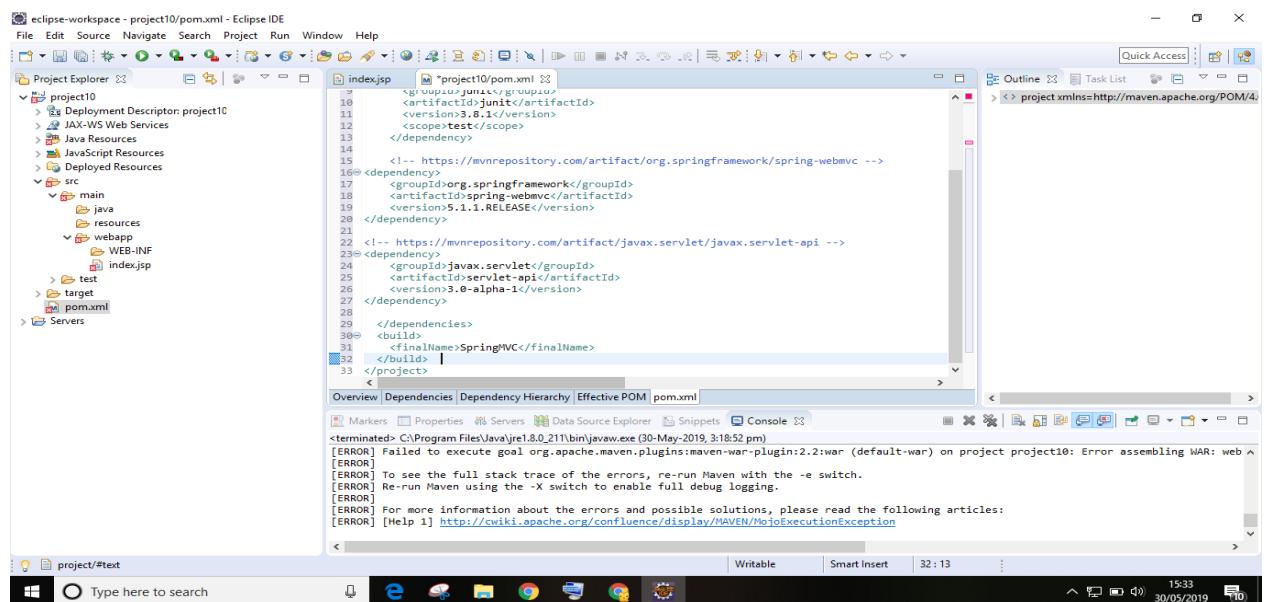
### Step4: Add a folder in webapp and the folder name is WEB-INF



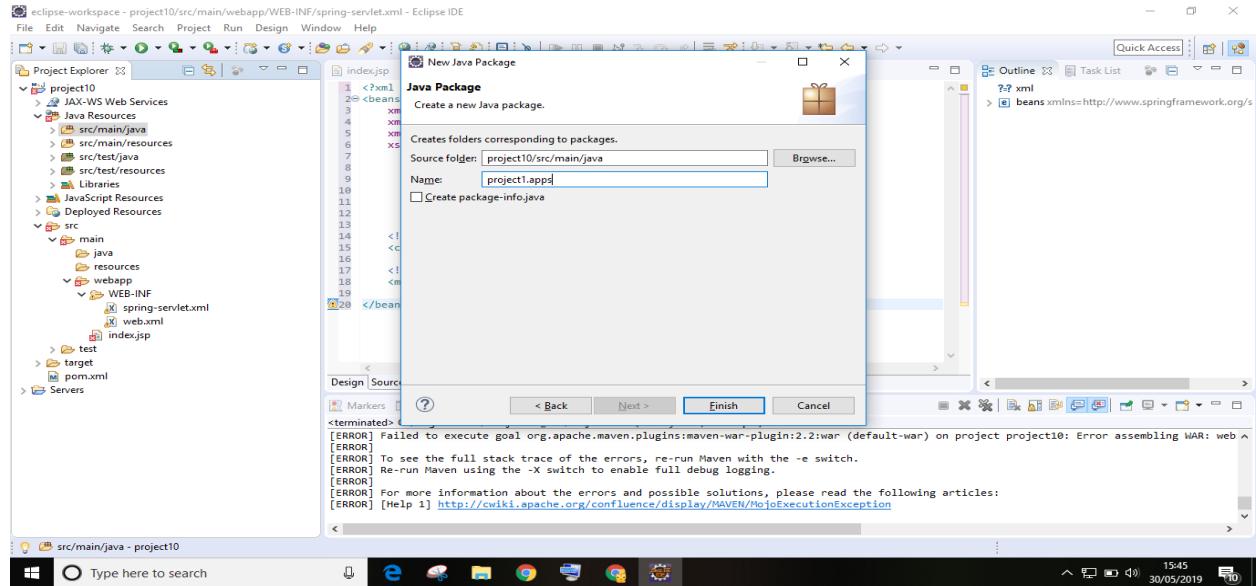
**Step5:** Click WEB-INF -> Ctrl+N -> select jsp file -> name the file with index.jsp1



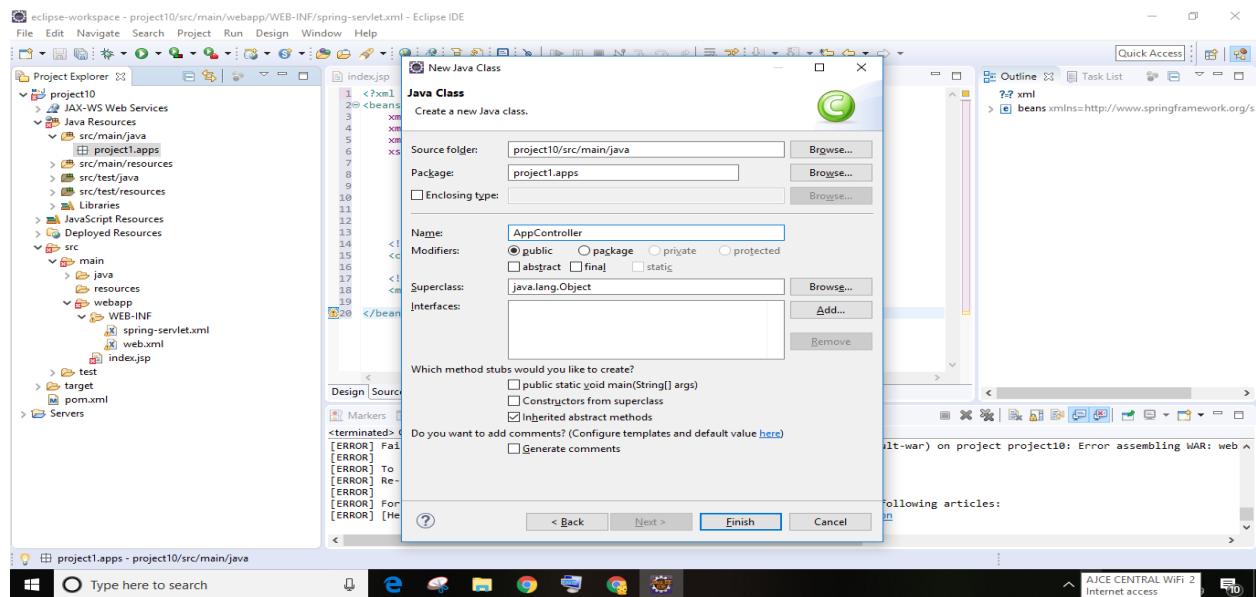
**Step6:** Set Pom file



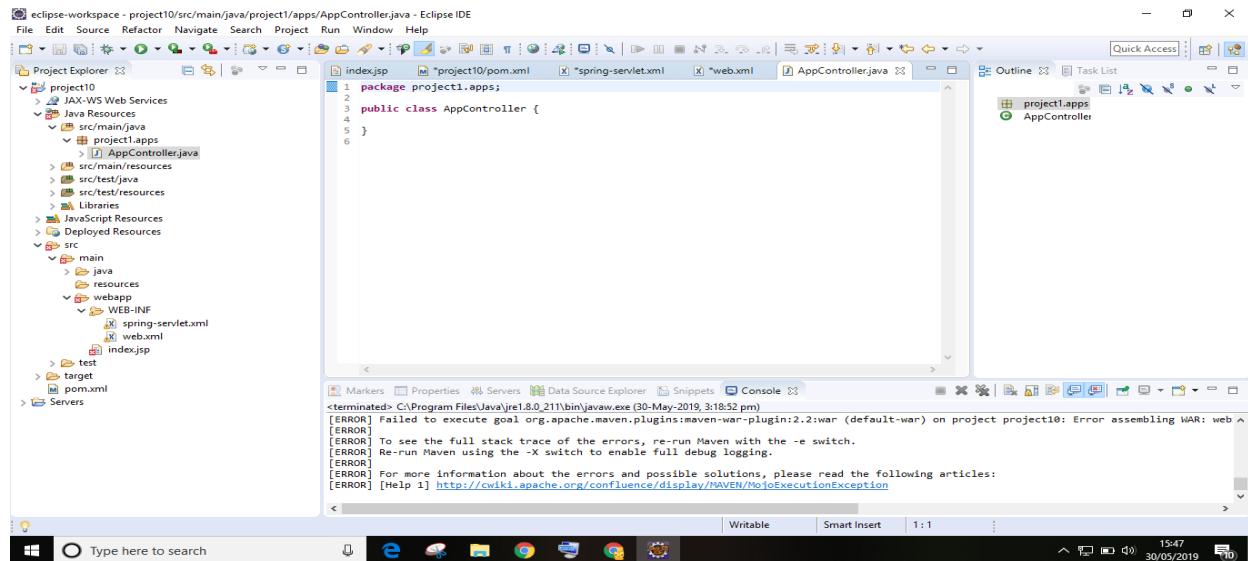
## Step7: Create java packages



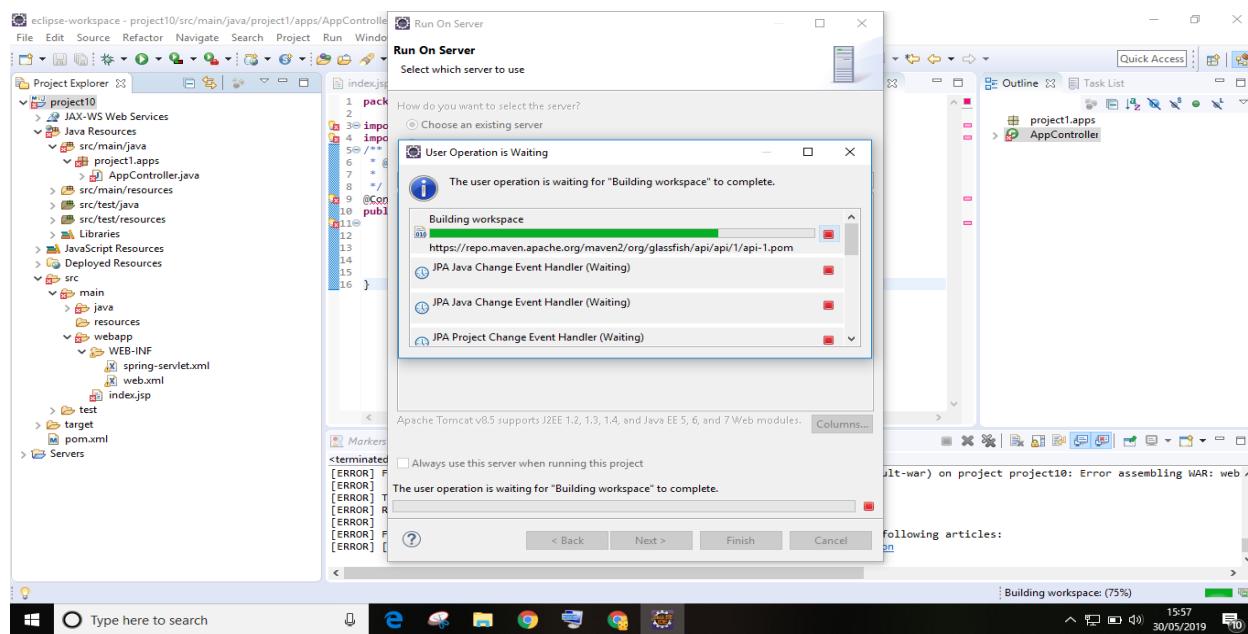
## Step8 Create java class

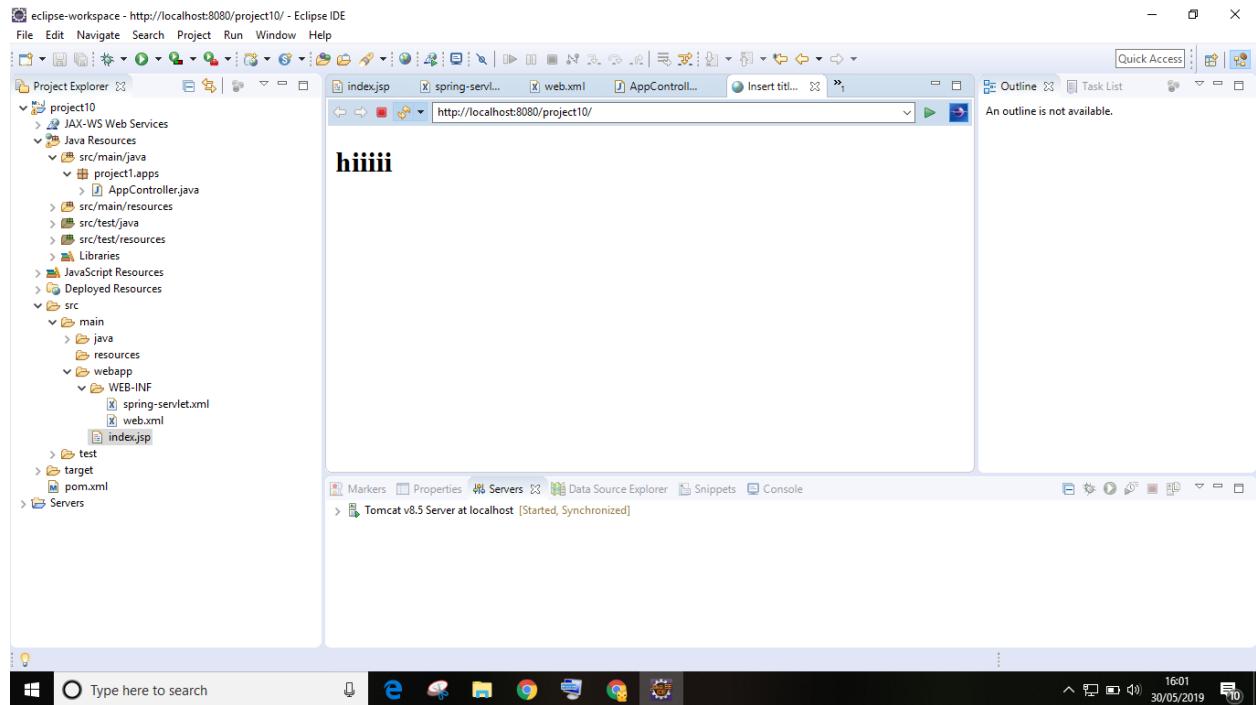


## Step:9 Set AppController



## Step:10 Run your project





## **PART 7**

### **PROJECT DOCUMENTATION**

## P7.1 INTRODUCTION

### P7.1.1 Project Overview

The project entitled ‘Autoshop’ is an online Automobile shopping system that allows web users to purchase used vehicles in online.. ‘Autoshop’ allows the user to purchase Automobile online and Bid vehicles in Auction. The Site Administrator updates the information about new Automobiles concurrently. Only registered customers can purchase Automobiles bid from Autoshop. The user must register in the site to access their accounts, after login they can buy used vehicles by bidding Automobiles which are available for auction. The user can bid a car with a high rate than the latest Bid Rate, before the date expires. After date expires, the site sends the Confirmation letter to the user who bid the vehicle with highest rate through email-id which they specified.

This system allows the users to search items category wise, then Brand wise and Model wise. Thus this system provides all the basic functionalities to a user who would like to purchase used vehicles in online.

1. To what extend the system is proposed for?

The Autoshop system was developed by easy to sale by vehicles in online format.

2. Specify the Viewers/Public which is to be involved in the System?

The system is developed by public use. It is easy to sale vehicles in online format.

3. List the Modules included in your System?

#### 1. User Module

The main processes in this module are given below:

- Edit Details
- Purchase
- Bidding
- Product Review

- View Updations about new product

## 2. Auction

- Select Vehicles
- Add to Auction
- Updating Details
- Setting Initial Rate
- Sending Confirmations

## 3. Admin Module

- Edit Profile
- Confirm Employee account
- Manage Customers
- Checking Products
- Add Vehicle to Auction
- Add delivery details

Identify the users in your project?

- User Module
- Auction
- Administrator Module
- Workshop

Who owns the system?

System Admin

System is related to which firm/industry/organization?

---

Public use

Details of person that you have contacted for data collection?

- a) Search for OLX site.
- b) Communication with an automobile workshop.

Questionnaire to collect details about the project? (min 10 questions, include descriptive answers, attach additional docs (e.g. Bill receipts, certificate models), if any?)

1.What are the different types of users in your system?

**Ans:-** Admin Module, User Module , Auction , Purchasing , Workshop

2.What are the different types of vehicles in your system?

Ans :-Any types of vehicles are sale with auction.

3.How the availability of vehicles in the showroom are informed to the customers?

Ans:-Admin can be updated new used vehicles in Atoshop site. The user can search and buy the vehicles.

4.How to add advertisement in your system?

Ans:-Either by advertising or by direct contacting the pre-registered Customers.

5.How to provide warranty in your system?

Ans :-The warranty is important factor. The warranty is provided by 6 months from any complaint .

6.what are the different service providers in your system?

Ans:-My system can provide any types of vehicle company are provided the services.

7.Which types of payment systems are allocated form your system?

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Ans:-My system can provide online payment is used(debit card, phonePe, google pay etc.

8.How to manage extra fitting add different vehicles in your system?

Ans :-The adding extra fitting facility are provided my system. The system workshop module can manage extra fittings from the system.

9.Spot assistant providence is possible for your system?

Ans :-yes. Spot assistant providence is provided from the system.

10.How to communicate with user and site?

Ans :-The user and site can be communicate with online communication (fb, whatsapp) and mobile contact, e-mail etc.

#### P7.1.2 Project Specification

This is a website in which we will get the services of several service providers. It will be a simple platform for users to access services for their huge needs. It provides the services are the vehicle service appointment, buy spare, buy used vehicle....etc

The system includes 2 modules. They are:

- **Administrator:** The administrator of the company is allowed to access all the services in the system. And approve vehicle services appointment, add all products
- **Registered User Module :**customers can book bid for vehicles online and also customer can Buy second hand vehicles . And chat to the admin

The main features of the project

- Booking auction vehicle Facility
- Booking approval via message notification
- Searching and buy vehicles
- Online demo payment facility
- Buy Used Vehicle Facility
- Compare Vehicles
- Chatting to the admin

## P7.2 SYSTEM STUDY

### P7.2.1 Introduction

System analysis is a process of gathering and interpreting facts, diagnosing problems and the information to recommend improvements on the system. It is a problem solving activity that requires intensive communication between the system users and system developers. System analysis or study is an important phase of any system development process. The system is studied to the minute's detail and analysed. The system analyst plays the role of the interrogator and dwells deep into the working of the present system. The system is viewed as a whole and the input to the system are identified. The outputs from the organizations are traced to the various processes. System analysis is concerned with becoming aware of the problem, identifying the relevant and decisional variables, analysing and synthesizing the various factors and determining an optimal or at least a satisfactory solution or program of action.

A detailed study of the process must be made by various techniques like interviews, questionnaires etc. The data collected by these sources must be scrutinized to arrive to a conclusion. The conclusion is an understanding of how the system functions. This system is called the existing system. Now the existing system is subjected to close study and problem areas are identified. The designer now functions as a problem solver and tries to sort out the difficulties that the enterprise faces. The solutions are given as proposals. The proposal is then weighed with the existing system analytically and the best one is selected. The proposal is presented to the user for an endorsement by the user. The proposal is reviewed on user request and suitable changes are made. This is loop that ends as soon as the user is satisfied with proposal.

Preliminary study is the process of gathering and interpreting facts, using the information for further studies on the system. Preliminary study is problem solving activity that requires intensive communication between the system users and system developers. It does various feasibility studies. In these studies, a rough figure of the system activities can be obtained, from which the decision about the strategies to be followed for effective system study and analysis can be taken

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### P7.2.2 PROPOSED SYSTEM

To overcome limitations of existing system, we can introduce a site for Autoshop. In the proposed system. It provides the services to the users who are searching for service like auction for vehicle service, buy used vehicles and also provided vehicles compare facility and chatting facility . This is a website in which we will get the several services.

The existing system has several limitations and more difficulties to work well. The proposed system provide proper security and reduces the manual work, and it helps the user to work user friendly and he can easily do this job without time delay.

The main features include:

- Registered users can book the service of system
- Provide facility of giving feedback admin
- Easy access information

### ADVANTAGES OF PROPOSED SYSTEM

The system is very simple in design and to implement. The system requires very low system resources and the system will work in almost all configurations. It has got following features:

➤ *Better security:* -

For data to remain secure measures must be taken to prevent unauthorized access. Security means that data are protected from various forms of destruction. The system security problem can be divided into four related issues: security, integrity, privacy and confidentiality. Username and password requirement to sign in ensures security. It will also provide data security as we are using the secured databases for maintaining the documents.

➤ *Ensure data accuracy:* -

The proposed system eliminates the manual errors while entering the details of the users during the registration.

---

➤ *Better service: -*

The product will avoid the burden of hard copy storage. We can also conserve the time and human resources for doing the same task. The data can be maintained for longer period with no loss of data.

➤ *User friendliness and interactive: -*

The proposed system will help the user to reduce the workload and provides user friendly environment so that they can easily do their jobs. The system alerts the users for each activity to be carried out, through notification.

➤ *Minimum time required: -*

The data management is in such a way that a particular registered user can search service provider very easily.

## P7.3 REQUIREMENT ANALYSIS

### P7.3.1 Feasibility Study

Feasibility study is made to see if the project on completion will serve the purpose of the organization for the amount of work, effort and the time that spend on it. Feasibility study lets the developer foresee the future of the project and the usefulness. A feasibility study of a system proposal is according to its workability, which is the impact on the organization, ability to meet their user needs and effective use of resources. Thus, when a new application is proposed it normally goes through a feasibility study before it is approved for development.

The document provides the feasibility of the project that is being designed and lists various areas that were considered very carefully during the feasibility study of this project such as Technical, Economic and Operational feasibilities. The following are its features:

---

### P7.3.1.1 Economical Feasibility

The developing system must be justified by cost and benefit. Criteria to ensure that effort is concentrated on project, which will give best, return at the earliest. One of the factors, which affect the development of a new system, is the cost it would require.

The following are some of the important financial questions asked during preliminary investigation:

- The costs conduct a full system investigation.
- The cost of the hardware and software.
- The benefits in the form of reduced costs or fewer costly errors.

Since the system is developed as part of project , there is no manual cost to spend for the proposed system. Also all the resources are already available, it give an indication of the system is economically possible for development.

Autoshop will be a simple platform for users to access services for their huge needs. It is completely free. Using this system large number people can solve their problems with free of cost.

### P7.3.1.2 Technical Feasibility

The system must be evaluated from the technical point of view first. The assessment of this feasibility must be based on an outline design of the system requirement in the terms of input, output, programs and procedures. Having identified an outline system, the investigation must go on to suggest the type of equipment, required method developing the system, of running the system once it has been designed.

Technical issues raised during the investigation are:

- Does the existing technology sufficient for the suggested one?
- Can the system expand if developed?

The project should be developed such that the necessary functions and performance are

---

achieved within the constraints. Through the technology may become obsolete after some period of time, due to the fact that newer version of same software supports older versions, the system may still be used. So, there are minimal constraints involved with this project. The system has been developed using php in front end and MySql in server in back end, the project is technically feasible for development.

#### **P7.3.1.3 Behavioural Feasibility**

This includes the following questions:

- Is there sufficient support for the users?
- Will the proposed system cause harm?

The project would be beneficial because it satisfies the objectives when developed and installed. All behavioral aspects are considered carefully and conclude that the project is behaviorally feasible.

At your service, GUI is simple so that users can easily use it. E-workshop is simple enough so that no training is needed.

### **P7.4 Requirement Modeling**

#### **P7.4.1 UML Use Case Diagram**

A use case diagram is a graphic depiction of the interactions among the elements of a system. A use case is a methodology used in system analysis to identify, clarify, and organize system requirements. In this context, the term "system" refers to something being developed or operated, such as a mail-order product sales and service Web site. Use case diagrams are employed in UML (Unified Modeling Language), a standard notation for the modeling of real-world objects and systems.

---

System objectives can include planning overall requirements, validating a hardware design, testing and debugging a software product under development, creating an online help reference, or performing a consumer-service-oriented task. For example, use cases in a product sales environment would include item ordering, catalog updating, payment processing, and customer relations. A use case diagram contains four components.

- The boundary, which defines the system of interest in relation to the world around it.
- The actors, usually individuals involved with the system defined according to their roles.
- The use cases, which are the specific roles played by the actors within and around the system.
- The relationships between and among the actors and the use cases.

## UML Diagrams

### P7.4.2 UML Sequence Diagram

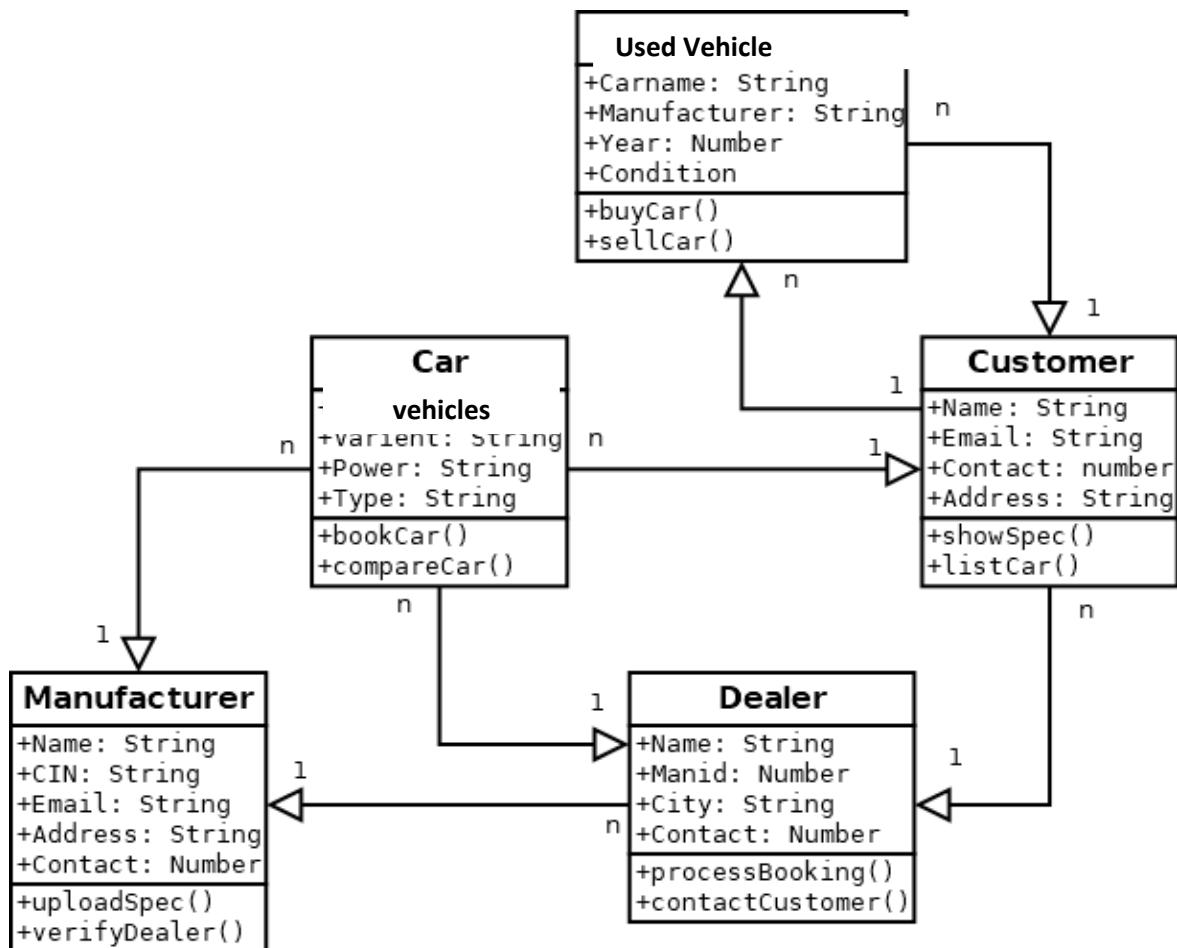
A sequence diagram is an interaction diagram that shows how objects operate with one another and in what order. It is a construct of a message sequence chart.

A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the Logical View of the system under development. Sequence diagrams are sometimes called event diagrams or event scenarios. A sequence diagram shows, as parallel vertical lines (*lifelines*), different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur. This allows the specification of simple runtime scenarios in a graphical manner

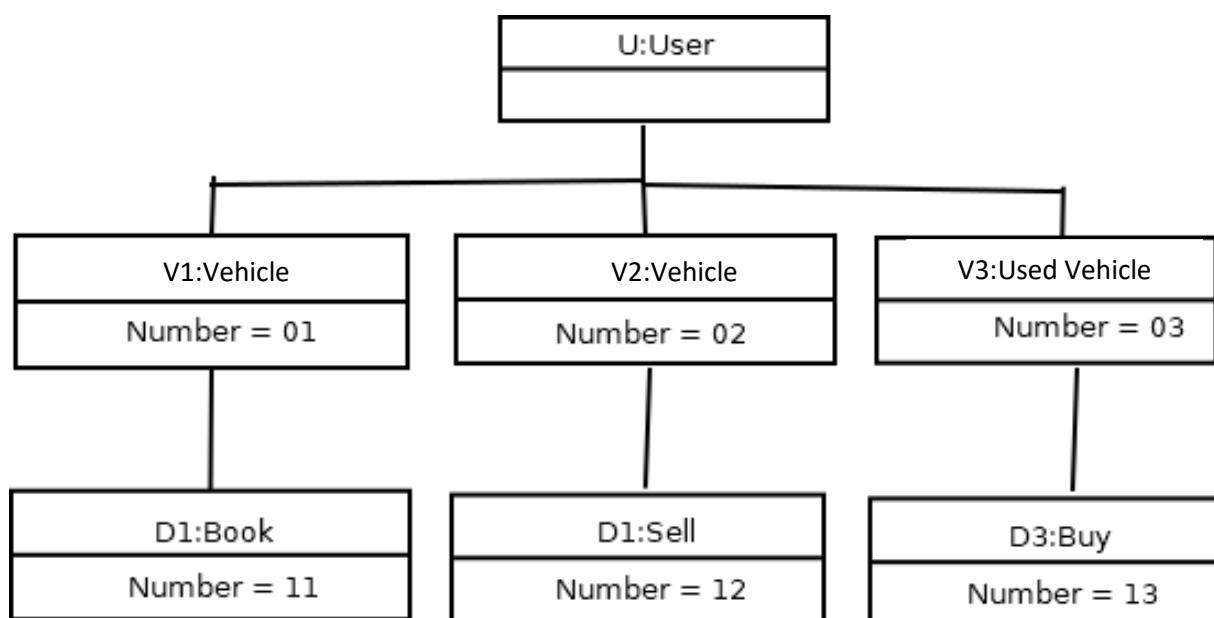
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## Structural Diagrams

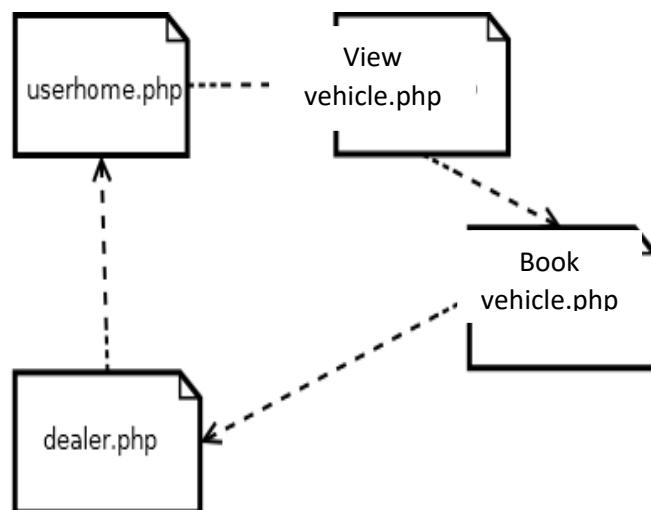
### Class Diagram



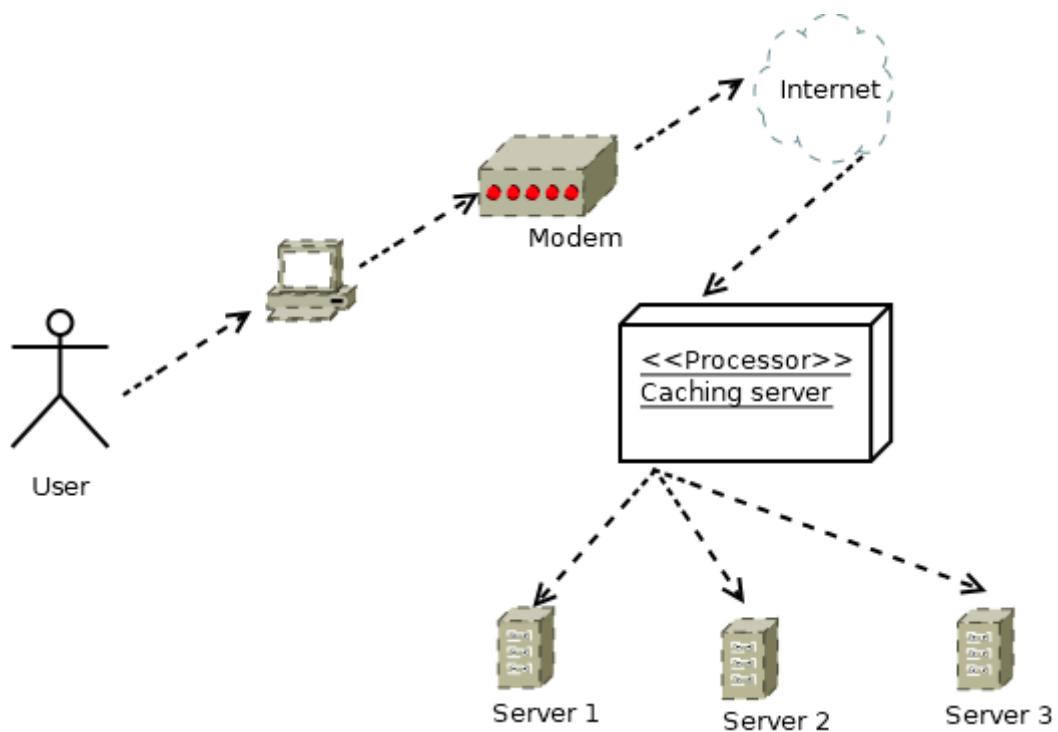
## Object Diagram



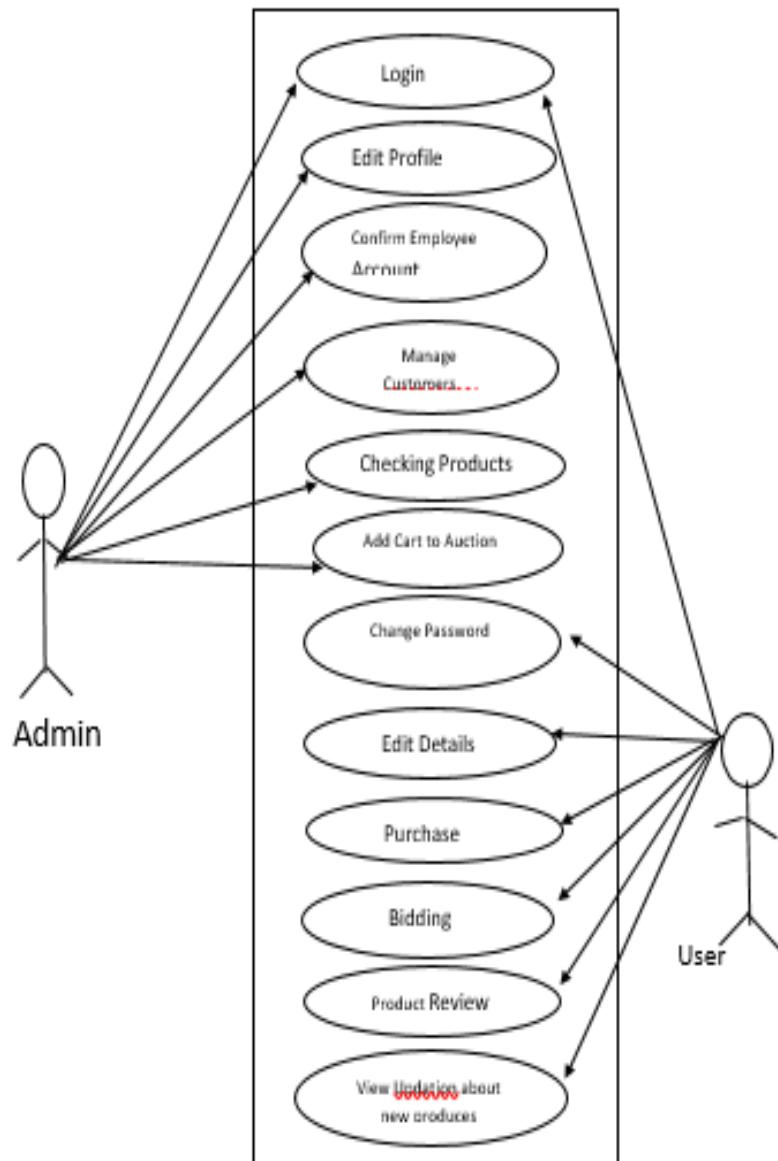
## Component Diagram

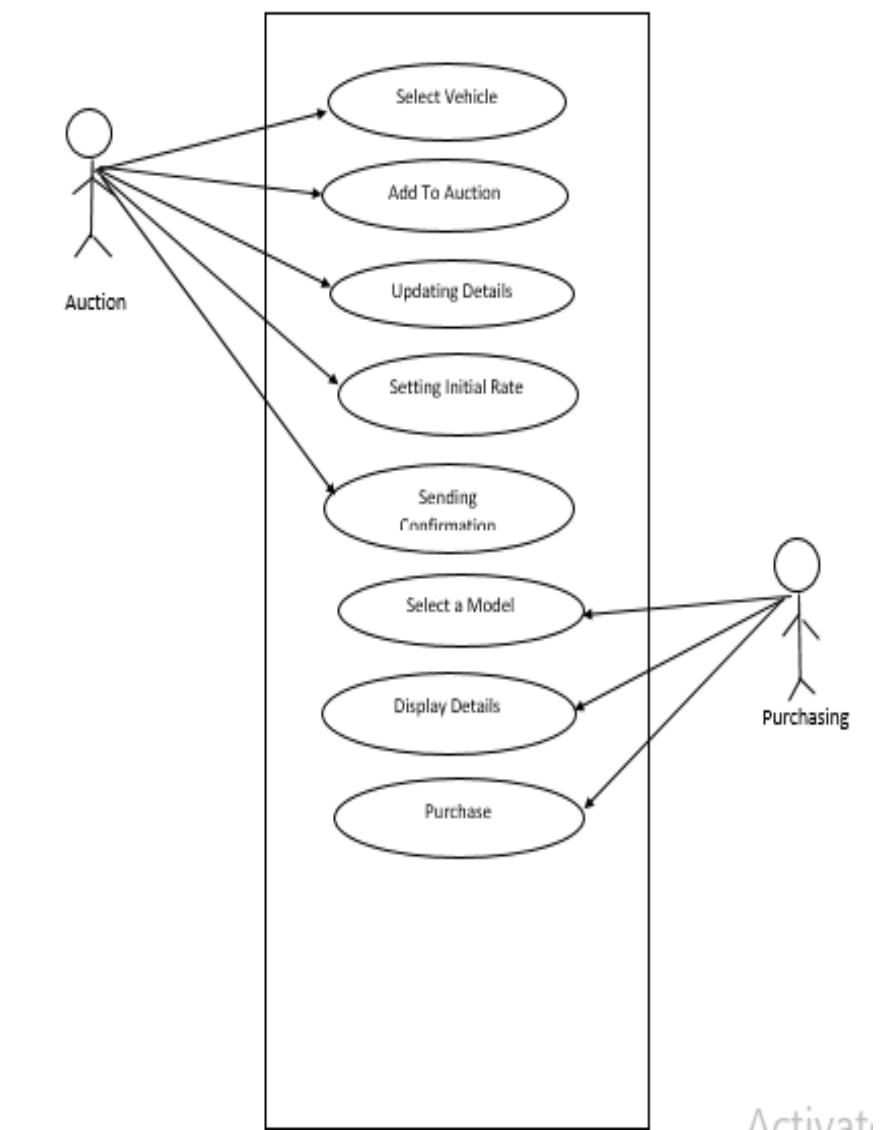


## Deployment Diagram

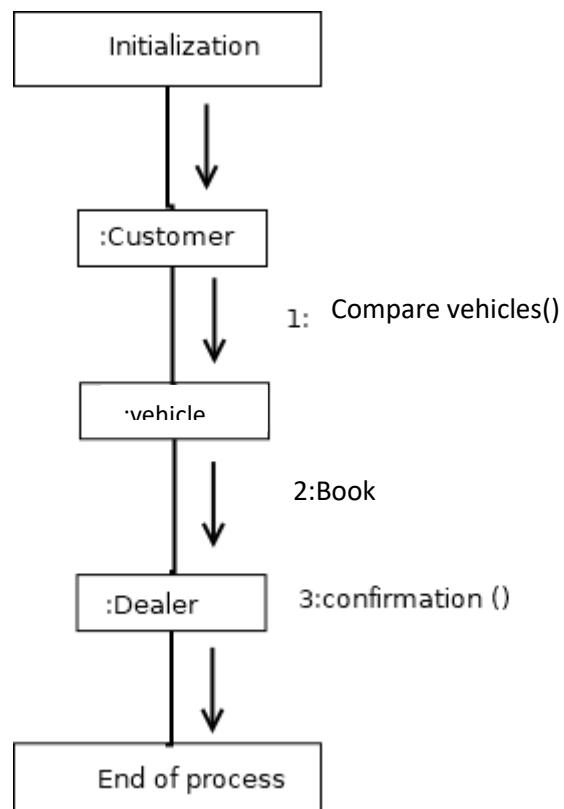


## Use case diagram

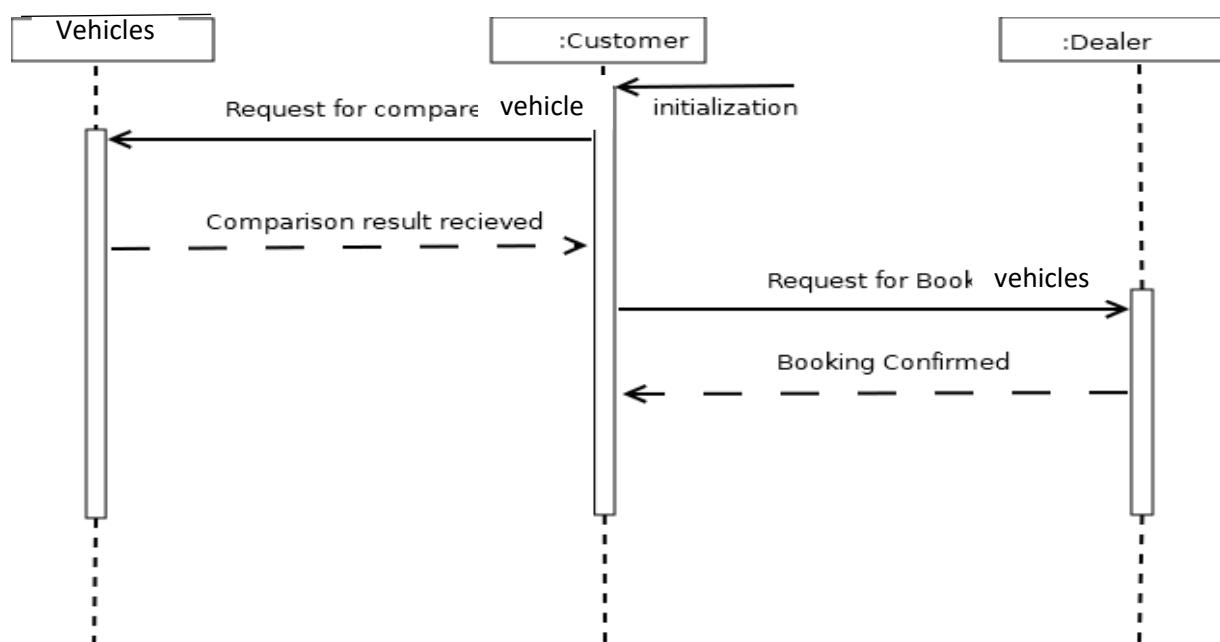




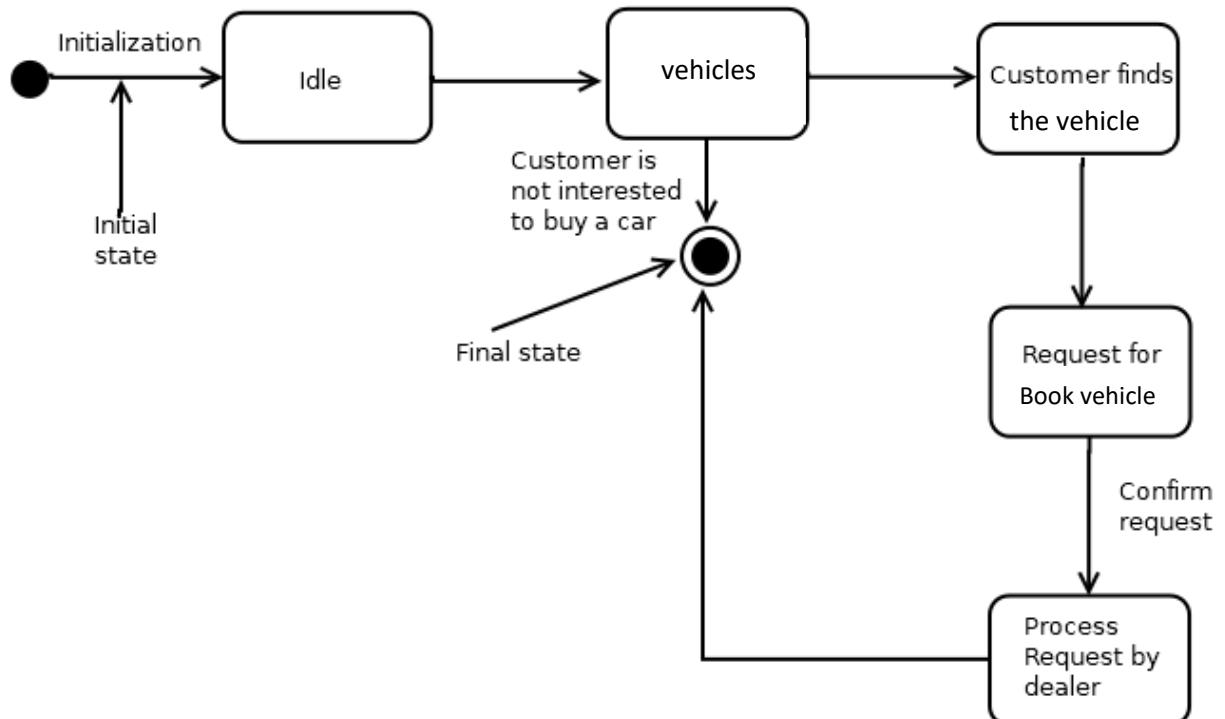
## Collaboration Diagram



## Sequence Diagram



## Statechart Diagram



## P7.5 System Specification

### P7.5.1 Hardware Specification

Processor	- Pentium IV/AMD Dual core
RAM	- 1 GB
Hard disk	- 500 GB

### P7.5.2 Software Specification

Front End	- PHP
Backend	- MYSQL
Client on PC	- Windows 10

Technologies used - JS, HTML5, AJAX, J Query, PHP, CSS

## P7.6 Software Description

### P7.6.1 PHP

PHP is a server side scripting language designed for web development but also used as a general purpose programming language. PHP is now installed on more than 244 million websites and 2.1 million web servers. Originally created by Rasmus Ledorf in 1995, the reference implementation of PHP is now produced by the PHP group. While PHP originally stood for personal Home page, it now stands for PHP: Hypertext Preprocessor, a recursive acronym. PHP code is interpreted by a web server with a PHP processor module which generates the resulting web page. PHP commands can be embedded directly into a HTML source document rather than calling an external file to process data. It has also evolved to include a command-line interface capability and can be used in standalone incompatible with the GNU General Public License (GPL) due to restrictions on the usage of the term PHP. PHP can be deployed on most web servers and also as a standalone shell on almost every operating system and platform, free of charge.

### P7.6.2 MySQL

MySQL, the most popular Open Source SQL database management system, is developed, distributed, and supported by Oracle Corporation. The MySQL Web site provides the latest information about MySQL software.

- MySQL is a database management system.

A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or the vast amounts of information in a corporate network. To add, access, and process data stored in a computer database, you need a database management system such as MySQL Server. Since computers are very good at handling large amounts of data, database management systems play a central role in computing, as standalone utilities, or as parts of other applications.

- MySQL databases are relational.
-

A relational database stores data in separate tables rather than putting all the data in one big storeroom. The database structures are organized into physical files optimized for speed. The logical model, with objects such as databases, tables, views, rows, and columns, offers a flexible programming environment. You set up rules governing the relationships between different data fields, such as one-to-one, one-to-many, unique, required or optional, and “pointers” between different tables. The database enforces these rules, so that with a well-designed database, your application never sees inconsistent, duplicate, orphan, out-of-date, or missing data.

The SQL part of “MySQL” stands for “Structured Query Language”. SQL is the most common standardized language used to access databases. Depending on your programming environment, you might enter SQL directly (for example, to generate reports), embed SQL statements into code written in another language, or use a language-specific API that hides the SQL syntax. SQL is defined by the ANSI/ISO SQL Standard. The SQL standard has been evolving since 1986 and several versions exist. In this manual, “SQL92” refers to the standard released in 1992, “SQL:1999” refers to the standard released in 1999, and “SQL:2003” refers to the current version of the standard. We use the phrase “the SQL standard” to mean the current version of the SQL Standard at any time.

- MySQL software is Open Source.

Open Source means that it is possible for anyone to use and modify the software. Anybody can download the MySQL software from the Internet and use it without paying anything. If you wish, you may study the source code and change it to suit your needs. The MySQL software uses the GPL (GNU General Public License), to define what you may and may not do with the software in different situations. If you feel uncomfortable with the GPL or need to embed MySQL code into a commercial application, you can buy a

commercially licensed version from us. See the MySQL Licensing Overview for more information.

- The MySQL Database Server is very fast, reliable, scalable, and easy to use.

If that is what you are looking for, you should give it a try. MySQL Server can run comfortably on a desktop or laptop, alongside your other applications, web servers, and so on, requiring little or no attention. If you dedicate an entire machine to MySQL, you can adjust the settings to take advantage of all the memory, CPU power, and I/O capacity available. MySQL can also scale up to clusters of machines, networked together.

MySQL Server was originally developed to handle large databases much faster than existing solutions and has been successfully used in highly demanding production environments for several years. Although under constant development, MySQL Server today offers a rich and useful set of functions. Its connectivity, speed, and security make MySQL Server highly suited for accessing databases on the Internet.

- MySQL Server works in client/server or embedded systems.

The MySQL Database Software is a client/server system that consists of a multi-threaded SQL server that supports different backends, several different client programs and libraries, administrative tools, and a wide range of application programming interfaces (APIs).

We also provide MySQL Server as an embedded multi-threaded library that you can link into your application to get a smaller, faster, easier-to-manage standalone product.

- A large amount of contributed MySQL software is available.

MySQL Server has a practical set of features developed in close cooperation with our users. It is very likely that your favorite application or language supports the MySQL Database Server.

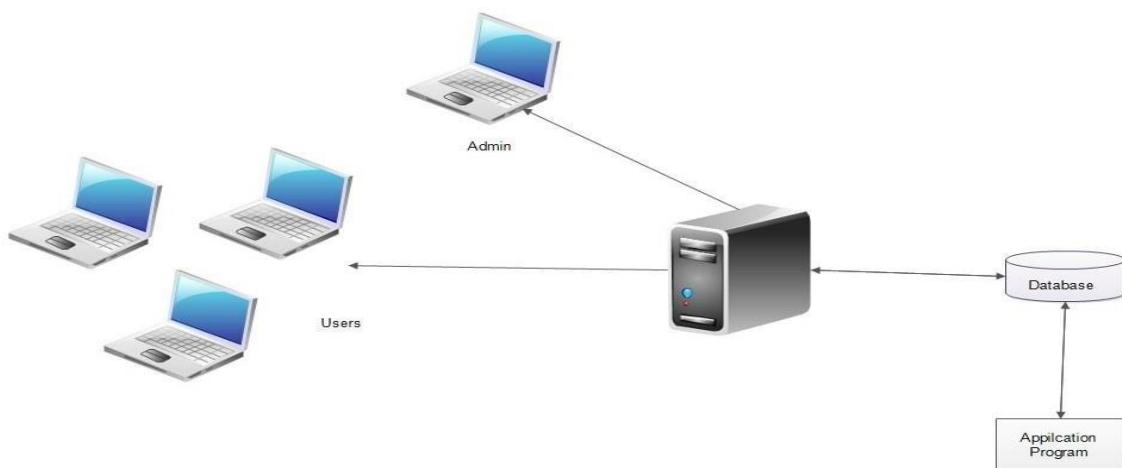
## P2.7 System Design

Design is the first step into the development phase for any engineered product or system. Design is a creative process. A good design is the key to effective system. The term “design” is defined as “the process of applying various techniques and principles for the purpose of defining a process or a system in sufficient detail to permit its physical

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realization". It may be defined as a process of applying various techniques and principles for the purpose of defining a device, a process or a system in sufficient detail to permit its physical realization. Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm that is used. The system design develops the architectural detail required to build a system or product. As in the case of any systematic approach, this software too has undergone the best possible design phase fine tuning all efficiency, performance and accuracy levels. The design phase is a transition from a user oriented document to a document to the programmers or database personnel. System design goes through two phases of development: Logical and Physical Design

#### P7.7.1 Architectural Design



The registered user, admin, service provider can access the e-workshop through internet using their Laptop, Smart Phone, Tablet or Desktop Computer. The System's application program processes the user's request and provides the required services by taking data from the system database

### P7.7.2 Module Design

#### **Admin Module**

The administrator of the company is allowed to access all the services in the system. And approve vehicle services appointment, add all products

Manage user details, Add Used Vehicles	Block/Activate the registered users.
Adding Bid Vehicles	View ending auction details

#### Registered User Module

After registration, customers can book appointments for vehicle service online and also customer can Buy second hand vehicles and spare parts. And chat to the admin

User registration, login	Search products/Add to cart
Request for bid vehicle	Manage profile
Compare Vehicles	Search Used Vehicles

### P7.7.4 Database Design

A database is an organized mechanism that has the capability of storing information through which a user can retrieve stored information in an effective and efficient manner. The data is the purpose of any database and must be protected.

The database design is a two level process. In the first step, user requirements are gathered together and a database is designed which will meet these requirements as clearly as possible. This step is called Information Level Design and it is taken independent of any individual DBMS.

In the second step, this Information level design is transferred into a design for the specific DBMS that will be used to implement the system in question. This step is called Physical Level Design, concerned with the characteristics of the specific DBMS that will be used. A database design runs parallel with the system design. The organization of the data in the database is aimed to achieve the following two major objectives.

- Data Integrity
- Data independence

#### *Relational Database Management System (RDBMS)*

A relational model represents the database as a collection of relations. Each relation resembles a table of values or file of records. In formal relational model terminology, a row is called a tuple, a column header is called an attribute and the table is called a relation. A relational database consists of a collection of tables, each of which is assigned a unique name. A row in a tale represents a set of related values.

#### *Relations, Domains & Attributes*

A table is a relation. The rows in a table are called tuples. A tuple is an ordered set of n elements. Columns are referred to as attributes. Relationships have been set between every table in the database. This ensures both Referential and Entity Relationship Integrity. A domain D is a set of atomic values. A common method of specifying a domain is to specify a data type from which the data values forming the domain are drawn. It is also useful to specify a name for the domain to help in interpreting its values. Every value in a relation is atomic, that is not decomposable.

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## Relationships

- Table relationships are established using Key. The two main keys of prime importance are Primary Key & Foreign Key. Entity Integrity and Referential Integrity Relationships can be established with these keys.
- Entity Integrity enforces that no Primary Key can have null values.
- Referential Integrity enforces that no Primary Key can have null values.
- Referential Integrity for each distinct Foreign Key value, there must exist a matching Primary Key value in the same domain. Other key are Super Key and Candidate Keys.

## *Normalization*

Data are grouped together in the simplest way so that later changes can be made with minimum impact on data structures. Normalization is formal process of data structures in manners that eliminates redundancy and promotes integrity. Normalization is a technique of separating redundant fields and breaking up a large table into a smaller one. It is also used to avoid insertion, deletion, and updating anomalies. Normal form in data modelling use two concepts, keys and relationships. A key uniquely identifies a row in a table. There are two types of keys, primary key and foreign key. A primary key is an element or a combination of elements in a table whose purpose is to identify records from the same table. A foreign key is a column in a table that uniquely identifies record from a different table. All the tables have been normalized up to the third normal form.

As the name implies, it denotes putting things in the normal form. The application developer via normalization tries to achieve a sensible organization of data into proper tables and columns and where names can be easily correlated to the data by the user. Normalization eliminates repeating groups at data and thereby avoids data redundancy which proves to be a great burden on the computer resources. These include:

- ✓ Normalize the data.
- ✓ Choose proper names for the tables and columns.
- ✓ Choose the proper name for the data.

### *First Normal Form*

The First Normal Form states that the domain of an attribute must include only atomic values and that the value of any attribute in a tuple must be a single value from the domain of that attribute. In other words 1NF disallows “relations within relations” or “relations as attribute values within tuples”. The only attribute values permitted by 1NF are single atomic or indivisible values. The first step is to put the data into First Normal Form. This can be done by moving data into separate tables where the data is of similar type in each table. Each table is given a Primary Key or Foreign Key as per requirement of the project. In this we form new relations for each non-atomic attribute or nested relation. This eliminates repeating groups of data. A relation is said to be in first normal form if only if it satisfies the constraints that contain the primary key only.

### *Second Normal Form*

According to Second Normal Form, for relations where primary key contains multiple attributes, no non-key attribute should be functionally dependent on a part of the primary key. In this we decompose and setup a new relation for each partial key with its dependent attributes. Make sure to keep a relation with the original primary key and any attributes that are fully functionally dependent on it. This step helps in taking out data that is only dependent on a part of the key. A relation is said to be in second normal form if and only if it satisfies all the first normal form conditions for the primary key and every non-primary key attributes of the relation is fully dependent on its primary key alone.

### *Third Normal Form*

According to Third Normal Form, Relation should not have a non-key attribute functionally determined by another non-key attribute or by a set of non-key attributes. That is, there should be no transitive dependency on the primary key. In this we decompose and set up relation that includes the non-key attributes that functionally determines other non-key attributes. This step is taken to get rid of anything that does not depend entirely on the Primary Key. A relation is said to be in third normal form if only if it is in second normal form and more over the non key attributes of the relation should not be depend on other non-key attribute.

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## TABLES

### 1. REGISTRATION

Table name :- tbl\_registration

Primary key :- user\_id

Table Description : To store User details

FIELDS	DATA TYPE	CONSTRAINTS	DESCRIPTION
Uid	Int(10)	Primary Key	Unique User_identification
l_id	Int(10)	Foreign Key	Login_identification
f_name	Varchar(50)	Not null	First Name of the user
m_name	Varchar(50)	Not null	Middle Name of the user
l_name	Varchar(50)	Not null	Last Name of the user
Address	Varchar(50)	Not null	Address of the user
Dob	Varchar(50)	Not null	Dob of the user
Phone	Numeric(50)	Not null	Contact_number
e-mail	Varchar(50)	Not null	Email_id of the user
Password	Varchar(50)	Not Null	Enter the valid password

## 2.LOGIN

Table Name:-tbl\_login\_autoshop1

Primary key :-l\_id

FIELDS	DATA TYPE	CONSTRAINTS	DESCRIPTION
l_id	Int(10)	Primary Key	Unique Login_id entification
Username	Varchar(50)	Not null	Username
Password	Varchar(50)	Not null	Password
Role	Varchar(20)	Not null	Role
Status	Varchar(20)	Not null	Status

**3.AUCTION**

Table Name:-tbl\_auction

Primary Key:-auction\_id

<b>FIELDS</b>	<b>DATA TYPE</b>	<b>CONSTRAINTS</b>	<b>DESCRIPTION</b>
auction_id	Int(10)	Primary Key	Unique Auction_identification
u_id	Int(10)	Foreign_Key	User_identification
Amount	Numeric (50)	Not null	Auction Bid_amount
Time	Timestamp	Not Null	Auction Bid_Time
v_id	Int(10)	Foreign_Key	Car identification

**4.ADD VEHICLE****Table Name:-tbl\_addvehicle****Primary Key:-vehicleid**

<b>FIELDS</b>	<b>DATA TYPE</b>	<b>CONSTRAINTS</b>	<b>DESCRIPTION</b>
v_id	Int(10)	Primary Key	Unique Vehicle identification
Vehicle	Varchar(50)	Not null	Name of the Vehicles
basic_price	Numeric(50)	Not null	Basic price of the vehicles
Image	Varchar(50)	Not Null	Adding Vehicle images
description	Varchar(20)	Not null	Description of the vehicles
Model	Varchar(50)	Not null	Model
Color	Varchar(50)	Not null	Different Colors of vehicles
Fuel	Varchar(50)	Not null	Fueltype
Year	Numeric(50)	Not null	Year
Mileage	Numeric(50)	Not null	Mileage of the vehicles
transmission	Varchar(50)	Not null	Transmission of the vehicles
Registered	Varchar(50)	Not null	Check for Registered vehicles
add_date	Date	Not Null	Adding The Auction starting Date
l_date	Date	Not Null	Adding The Auction Ending Date
Brate	Numeric(10)	Not Null	Adding Starting Bid amount
Status	Varchar(50)	Not null	Status

## 5.NOTIFICATION MESSAGE

**Table Name:-tbl\_send\_sms**

**Primary Key:-msg\_id**

FIELDS	DATA TYPE	CONSTRAINTS	DESCRIPTION
msg_id	Int(20)	Primary Key	Message_identification
Uid	Int(20)	Foreign Key	Unique user_iden_tification
Message	Varchar(100)	Not null	Admin send the message
con_message	Varchar(100)	Not Null	User send the Confirmation Message
Status	Varchar(20)	Not Null	Status of the message

**6.PAYMENT****Table Name:-tbl\_bank\_details****Primary Key:-bank\_id**

<b>FIELD</b>	<b>DATA TYPE</b>	<b>CONSTRAINTS</b>	<b>DESCRIPTION</b>
bank_id	Int(10)	Primary Key	Bank_identification
Bank name	Varchar(50)	Not Null	Current Bank Details
Cardtype	Varchar(50)	Not null	ATM Card Type
Accountno	Numeric(16)	Not null	Enter The ATM Card Number
Month	Varchar(20)	Not null	Adding the Month of the Card
Year	Varchar(20)	Not null	Adding the year Expiry Date of the ATM Card
Cvv	Numeric(10)	Not null	Adding The cvv Number of the card
Amount	Numeric(20)	Not null	Adding the balance amount of the card
Status	Varchar(20)	Not null	Adding bank details status

## P7.8 System Testing

### P7.8.1 Introduction

Software Testing is the process of executing software in a controlled manner, in order to answer the question - Does the software behave as specified? Software testing is often used in association with the terms verification and validation. Validation is the checking or testing of items, includes software, for conformance and consistency with an associated specification. Software testing is just one kind of verification, which also uses techniques such as reviews, analysis, inspections, and walkthroughs. Validation is the process of checking that what has been specified is what the user actually wanted.

Validation : Are we doing the right job? Verification : Are we doing the job right?

Software testing should not be confused with debugging. Debugging is the process of analyzing and localizing bugs when software does not behave as expected. Although the identification of some bugs will be obvious from playing with the software, a methodical approach to software testing is a much more thorough means for identifying bugs. Debugging is therefore an activity which supports testing, but cannot replace testing.

Other activities which are often associated with software testing are static analysis and dynamic analysis. Static analysis investigates the source code of software, looking for problems and gathering metrics without actually executing the code. Dynamic analysis looks at the behavior of software while it is executing, to provide information such as execution traces, timing profiles, and test coverage information.

Testing is a set of activity that can be planned in advanced and conducted systematically. Testing begins at the module level and work towards the integration of entire computers based system. Nothing is complete without testing, as it vital success of the system testing objectives, there are several rules that can serve as testing objectives. They are:

Testing is a process of executing a program with the intent of finding an error.

- A good test case is one that has high possibility of finding an undiscovered error.
- A successful test is one that uncovers an undiscovered error.

If a testing is conducted successfully according to the objectives as stated above, it would uncover

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errors in the software. Also testing demonstrate that the software function appear to be working

according to the specification, that performance requirement appear to have been met.

There are three ways to test program.

- For correctness
- For implementation efficiency
- For computational complexity

Test for correctness are supposed to verify that a program does exactly what it was designed to do. This is much more difficult than it may at first appear, especially for large programs.

#### P2.8.2 Test Plan

A test plan implies a series of desired course of action to be followed in accomplishing various testing methods. The Test Plan acts as a blue print for the action that is to be followed. The software engineers create a computer program, its documentation and related data structures. The software developers is always responsible for testing the individual units of the programs, ensuring that each performs the function for which it was designed. There is an independent test group (ITG) which is to remove the inherent problems associated with letting the builder to test the thing that has been built. The specific objectives of testing should be stated in measurable terms. So that the mean time to failure, the cost to find and fix the defects, remaining defect density or frequency of occurrence and test work-hours per regression test all should be stated within the test plan.

The levels of testing include:

- ❖ Unit testing
- ❖ Integration Testing
- ❖ Data validation Testing
- ❖ Output Testing

### P7.8.2.1 Unit Testing

Unit testing focuses verification effort on the smallest unit of software design – the software component or module. Using the component level design description as a guide, important control paths are tested to uncover errors within the boundary of the module.

The relative complexity of tests and uncovered scope established for unit testing. The unit testing is white-box oriented, and step can be conducted in parallel for multiple components. The modular interface is tested to ensure that information properly flows into and out of the program unit under test. The local data structure is examined to ensure that data stored temporarily maintains its integrity during all steps in an algorithm's execution. Boundary conditions are tested to ensure that all statements in a module have been executed at least once. Finally, all error handling paths are tested.

Tests of data flow across a module interface are required before any other test is initiated. If data do not enter and exit properly, all other tests are moot. Selective testing of execution paths is an essential task during the unit test. Good design dictates that error conditions be anticipated and error handling paths set up to reroute or cleanly terminate processing when an error does occur. Boundary testing is the last task of unit testing step. Software often fails at its boundaries.

Unit testing was done by treating each module as separate entity and testing each one of them with a wide spectrum of test inputs. Some flaws in the internal logic of the modules were found and were rectified. After coding each module is tested and run individually. All unnecessary code were removed and ensured that all modules are working, and gives the expected result.

### P7.8.2.2 Integration Testing

Integration testing is systematic technique for constructing the program structure while at the same time conducting tests to uncover errors associated with interfacing. The objective is to take unit tested components and build a program structure that has been dictated by design. The entire program is tested as whole. Correction is difficult because isolation of causes is complicated by vast expanse of entire program. Once these errors are corrected, new ones appear and the process continues in a seemingly endless loop.

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After performing unit testing in the System all the modules were integrated to test for any inconsistencies in the interfaces. Moreover differences in program structures were removed and a unique program structure was evolved.

#### P7.8.2.3 Validation Testing

This is the final step in testing. In this the entire system was tested as a whole with all forms, code, modules and class modules. This form of testing is popularly known as Black Box testing or System tests.

Black Box testing method focuses on the functional requirements of the software. That is, Black Box testing enables the software engineer to derive sets of input conditions that will fully exercise all functional requirements for a program.

Black Box testing attempts to find errors in the following categories; incorrect or missing functions, interface errors, errors in data structures or external data access, performance errors and initialization errors and termination errors.

#### P7.8.2.4 User Acceptance Testing

The system considered is tested for user acceptance; here it should satisfy the firm's need. The software should keep in touch with perspective system; user at the time of developing and making changes whenever required. This done with respect to the following points:

- Input Screen Designs,
- Output Screen Designs,

The above testing is done taking various kinds of test data. Preparation of test data plays a vital role in the system testing. After preparing the test data, the system under study is tested using that test data. While testing the system by which test data errors are again uncovered and corrected by using above testing steps and corrections are also noted for future use.

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## P8.8.3 Test Case

**Test Case 1**

<b>Project Name:</b> AUTOSHO					
<b>Login Test Case</b>					
<b>Test Case ID:</b> Fun_1		<b>Test Designed by:</b> JISHNUMON PB			
<b>Test Priority(Low/Medium/High):</b> High		<b>Test Designed date:</b> 02-05-2019			
<b>Module Name:</b> Login screen		<b>Test Executed by:</b> MR.JINSON DEVIS			
<b>Test Title:</b> Verify login with valid username and Password		<b>Test Execution date:</b> 13-05-2019			
<b>Description:</b> Test the Login Page					
<b>Pre-conditions:</b> User has Valid username and Password					
Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass /Fail)
1	Navigation to login page		Login Page for users	Login page of Users	Pass
2	Provide Valid username	Username admin	User should be able to login	Logged in and the User is navigated to Dashboard with Records.	Pass
3	Provide valid password	Password: Admin			
4	Click on login Button		User should not be able to login	Message for enter valid user name and valid Password	Pass
5	Provide invalid username or password	Username ad@gmail Password: ad11			
6	Provide null username or password	Username : null Password: null			
<b>Post conditions:</b> User is validated with database and successfully login to account. The account session details are logged in database					

**Test Case 2**

<b>Project Name :</b>							
<b>User Registration Test Case</b>							
<b>Test Case ID :</b> Fun_2				<b>Test Designed By :</b> JISHNUMON PB			
<b>Test Priority(Low/Medium/High) :</b> Medium				<b>Test Designed date :</b> 02-05-2019			
<b>Module Name :</b> User Registration				<b>Test Executed by :</b> Mr. JINSON DEVIS			
<b>Test Title :</b> To register new user				<b>Test Execution date :</b> 12-05-2019			
<b>Description :</b> Test the user registration							
Pre-conditions : User should not be already registered							
Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass /Fail)		
1	Navigation to User registration		User registration form	User registration form	Pass		
2	Provide null information	User name:null	Message for enter user name	Message for enter user name	Pass		
3	Provide Valid details of user	Registration details of user	user registration	User registered and user can login	Pass		
4	Click on Register Button						
<b>Post conditions:</b>							
User is validated with database and then user can successfully login to account. The account session details are logged in database							

## P8.9 Implementation

Implementation is the stage of the project where the theoretical design is turned into a working system. It can be considered to be the most crucial stage in achieving a successful new system gaining the users confidence that the new system will work and will be effective and accurate. It is primarily concerned with user training and documentation. Conversion usually takes place about the same time the user is being trained or later. Implementation simply means convening a new system design into operation, which is the process of converting a new revised system design into an operational one.

At this stage the main work load, the greatest upheaval and the major impact on the existing system shifts to the user department. If the implementation is not carefully planned or controlled, it can create chaos and confusion.

Implementation includes all those activities that take place to convert from the existing system to the new system. The new system may be a totally new, replacing an existing manual or automated system or it may be a modification to an existing system. Proper implementation is essential to provide a reliable system to meet organization requirements. The process of putting the developed system in actual use is called system implementation. This includes all those activities that take place to convert from the old system to the new system. The system can be implemented only after through testing is done and if it is found to be working according to the specifications. The system personnel check the feasibility of the system. The more complex the system being implemented, the more involved will be the system analysis and design effort required to implement the three main aspects: education and training, system testing and changeover.

The implementation state involves the following tasks:

- Careful planning.
  - Investigation of system and constraints.
  - Design of methods to achieve the changeover. Training of the staff in the changeover phase.
-

### P8.9.1 Implementation Procedure

Implementation of software refers to the final installation of the package in its real environment, to the satisfaction of the intended uses and the operation of the system. In many organizations someone who will not be operating it, will commission the software development project. In the initial stage people doubt about the software but we have to ensure that the resistance does not build up, as one has to make sure that:

- The active user must be aware of the benefits of using the new system. □ Their confidence in the software is built up.
- Proper guidance is imparted to the user so that he is comfortable in using the application.

Before going ahead and viewing the system, the user must know that for viewing the result, the server program should be running in the server. If the server object is not up running on the server, the actual process won't take place

### 8.9.2 User Training

User training is designed to prepare the user for testing and converting the system. To achieve the objective and benefits expected from computer based system, it is essential for the people who will be involved to be confident of their role in the new system. As system becomes more complex, the need for training is more important. By user training the user comes to know how to enter data, respond to error messages, interrogate the database and call up routine that will produce reports and perform other necessary functions.

#### Training on the Application Software

After providing the necessary basic training on computer awareness the user will have to be trained on the new application software. This will give the underlying philosophy of the use of the new system such as the screen flow, screen design type of help on the screen, type of errors while entering the data, the corresponding validation check at each entry and the ways to correct the date entered. It should then cover information needed by the specific user/ group to use the system or part of the system while imparting the training of the program on the

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application. This training may be different across different user groups and across different levels of hierarchy.

### **8.9.3 Operational Document**

After providing the necessary basic training on computer awareness the user will have to be trained on the new application software. This will give the underlying philosophy of the use of the new system such as the screen flow, screen design type of help on the screen, type of errors while entering the data, the corresponding validation check at each entry and the ways to correct the date entered. It should then cover information needed by the specific user/ group to use the system or part of the system while imparting the training of the program on the application. This training may be different across different user groups and across different levels of hierarchy.

### **P7.9.4 System Maintenance**

Maintenance is the enigma of system development. The maintenance phase of the software cycle is the time in which a software product performs useful work. After a system is successfully implemented, it should be maintained in a proper manner. System maintenance is an important aspect in the software development life cycle. The need for system maintenance is for it to make adaptable to the changes in the system environment. Software maintenance is of course, far more than "Finding Mistakes".

## **P8.10 Conclusion &Future Enhancements**

### **P8.10.1 Future Enhancement**

- The system is designed in such a way that the payment of service provider should be done in completely online mode.
  - Provide more security
-

## P8.10.2 CONCLUSION

The software reduces the time consumption and the manual efforts of searching a products. It will be a simple platform for users to access services for their huge needs.

The benefits, we can obtain from the new system are:

- Timely and accurate information will be available
- Reduced data loss
- The access time and process time is highly reduced
- Quick data view
- Error free output

The proposed system is expected to replace manual system and provide more efficient performance and services.

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  - [www.jquery.com](http://www.jquery.com)
  - <http://homepages.dcc.ufmg.br/~rodolfo/es-1-03/IEEE-Std-830-1998.pdf>
  - [www.agilemodeling.com/artifacts/useCaseDiagram.html](http://www.agilemodeling.com/artifacts/useCaseDiagram.html)
-

## P8.12 APPENDIX

### P8.12.1 SAMPLE CODE

#### Connection code

```
<?php
$conn = mysqli_connect("localhost","root","","","autoshop");

// Check connection
if (mysqli_connect_errno())
{
    echo "Failed to connect to MySQL: " . mysqli_connect_error();
}
?>
```

#### Admin Add Vehicles

```
<?php
require "connect.php";
if(isset($_POST["submit"]))
{
    $vehicle=$_POST["vehicle"];
    // $basic_price=$_POST["basic_price"];

    $description=$_POST["description"];
    $model=$_POST["model"];
    $color=$_POST["color"];
    $fuel=$_POST["fuel"];
    $registered=$_POST["registered"];
    $year=$_POST["year"];
    $milage=$_POST["milage"];
    $transmission=$_POST["transmission"];
    $target_dir = "uploads/";
```

```
$target_file = $target_dir . basename($_FILES["image"]["name"]);
move_uploaded_file($_FILES["image"]["tmp_name"], $target_file);

$image=$target_file;

echo $suc =mysql_query($conn, "insert into
    addvehicle(vehicle,image,description,model,color,fuel,registered,year,milage,transmission)
    values('$vehicle','$target_file','$description','$model','$color','$fuel','$registered','$year','$milage',
    '$transmission')") or die (mysql_error());

}

?>

<html>
<head>
<link href="css\style1.css" rel="stylesheet">
</head>

<body background="images/123.PNG">
<div id="main">
<center>
<div id="top"><b>ADD VEHICLES</b></div>
<div id="menu"><center><a href="adminhome1.php">HOME &nbspp&nbspp </a>
<!-- </a><a href="addvehicles.php" >ADD CARS &nbspp&nbspp</a>
</a><a href="confirmation_mail.php">CONFIRM &nbspp&nbspp</a>
</a><a href="login_autosh.php">CUSTOMERS &nbspp&nbspp</a>
</a><a href="login_autosh.php">SALES &nbspp&nbspp</a>
</a><a href="login_autosh.php">PROFILE &nbspp&nbspp</a>
</a><a href="logout.php">LOGOUT &nbspp&nbspp</a> -->
<br>
<br>
<br>
```

```
<form action="#" method="post" onsubmit="Alert()" enctype="multipart/form-data">
<div id="signup">
<h2 class="smp">UPLOAD DETAILS</h2>
<center>
<font size="4px">
<label>Vehicle Name:</label>
<input id="vehicle" name="vehicle" placeholder="Please Enter the Vehicle Name" type="text" required pattern="^a-zA-Z0-9+$"><br>
<!--<label>Basic Price:</label>
<input id="basic_price" name="basic_price" placeholder="Basic Price" type="number" pattern="\d+(\.\d{2})?" required><br>
!--><br>
<label>Upload Image:<br></label>
<input type="file" id="image" name="image" accept=".png,.jpg,.jpeg,.JPG" placeholder="Upload Vehicles Image"><br><bR>
<label>Description:</label><br>
<textarea placeholder="description" name="description" required></textarea><br>
<h2 class="smp">FEATURES</h2>
<label>Models:</label>
<input id="model" name="model" placeholder="Model Name" type="text" required><br>
<label>Color:</label>
<input id="color" name="color" pattern="^a-zA-Z0-9+$" placeholder="Color" type="text" required><br>
<label>Fuel Type:</label>
<select id="fuel" name="fuel" pattern="^a-zA-Z0-9+$" placeholder="Fuel" type="text" required>
<option value="">Select</option>
<option value="Petrol">Petrol</option>
<option value="Diesel">Diesel</option>
<option value="Gas">Gas</option>
```

```
</select><br>
<label>Registerd:</label><br>

Yes<input id="registered" name="registered" placeholder="Registered" type="radio" value="yes" required><br>

No<input id="" name="registered" placeholder="Registered" type="radio" value="no" required><br>

<label>Year:</label>
<input id="year" name="year" pattern="[0-9]{4}" placeholder="Year" type="date" required><br>
<label>Milage:</label>
<input id="milage" name="milage" placeholder="Milage" type="text" required><br>

<label>Transmission:</label>
<select id="transmission" name="transmission" placeholder="transmission" type="text" required>
    <option value="">Select</option>
    <option value="Automated">Automated</option>
    <option value="Manuel">Manuel</option>
    <option value="Manuel">Automated & Manuel</option>
</select><br>

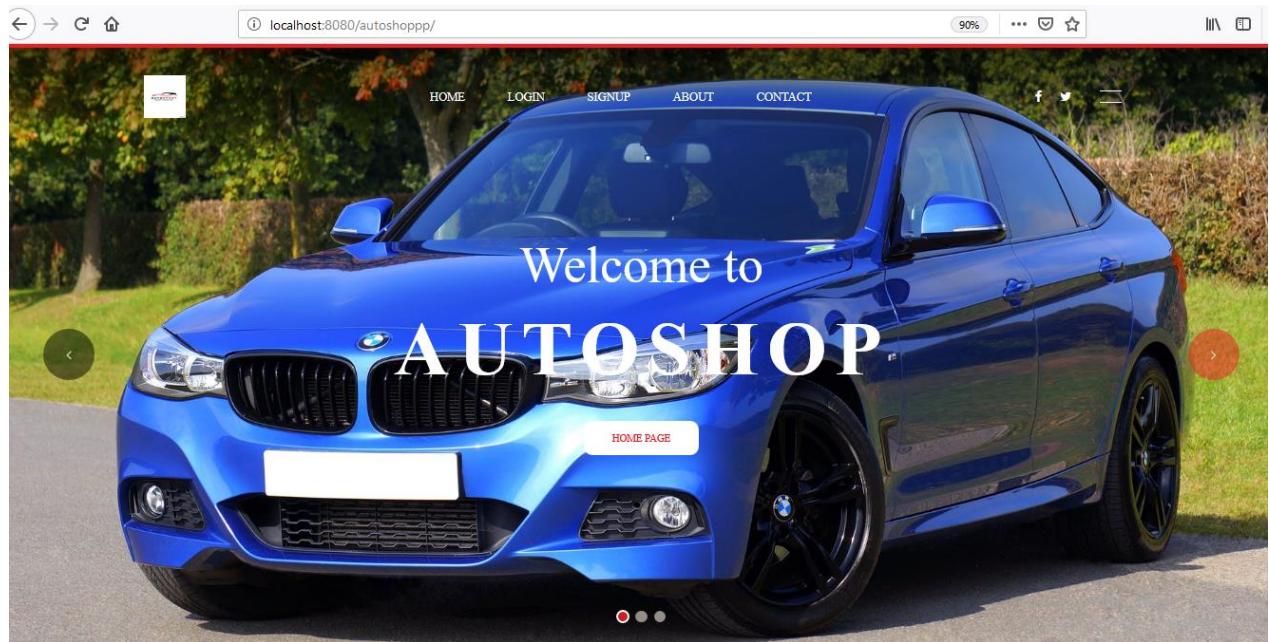
<!--<label>Transmission:</label>
<input id="transmission" name="transmission" placeholder="Transmission" type="text" required><br>
<br>!--><br>
<input name="submit" type="submit" value=" SUBMIT ">
<br>
<script>
```

```
function Alert()
{
    alert("Successfully Updated!!!!!");
}

</script>
</font>
</center>
</div>
</form>
<body>
</html>
```

## P8.12.2 SCREENSHOTS

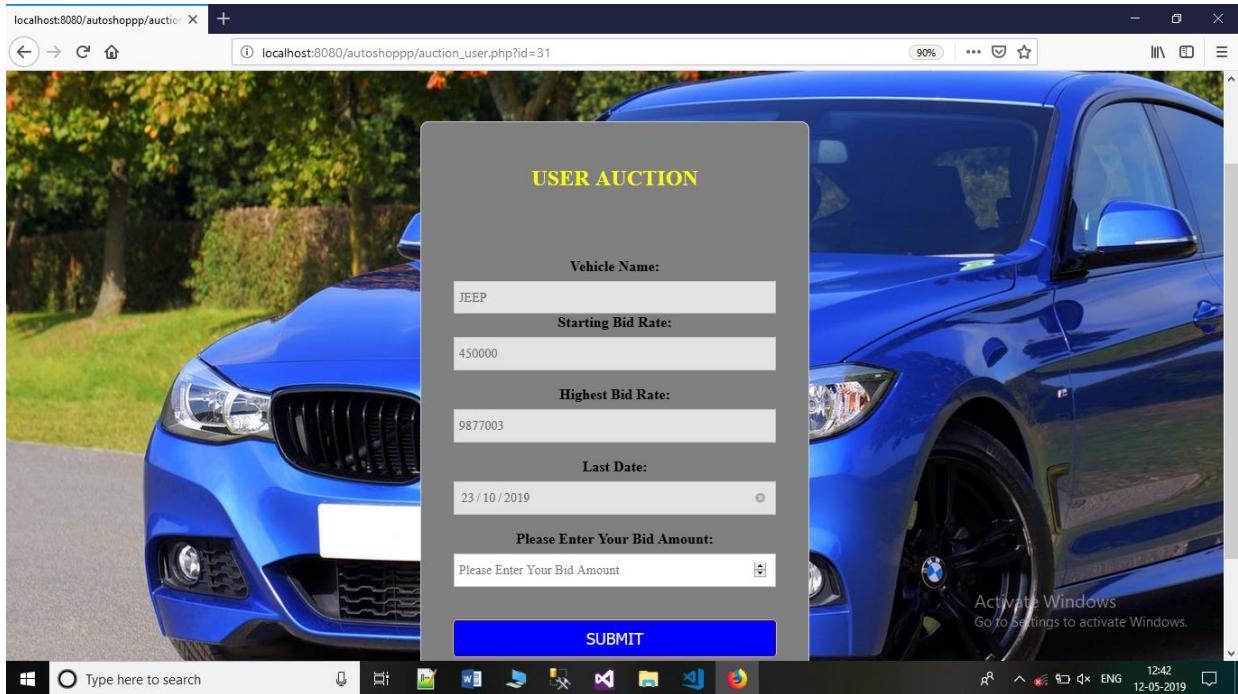
Main Home (Index) page



User home

A screenshot of a web browser showing the user home page of the AUTOSHOP website. The URL in the address bar is "localhost:8080/autoshoppp/userhome1.php". The page has a header with the "AUTOSHOP" logo and a "LOGOUT" link. On the left, there is a sidebar with links for "HOME", "VIEW VEHICLES", "NOTIFICATIONS", "VIEW REPORT", "EDIT PROFILE", and "OWNER DETAILS". The main content area is titled "WELCOME" and features four colored buttons: pink for "Notifications", green for "View vehicles", orange for "View Report", and yellow-green for "Edit Profile". Below these are two cards: "Recent Reports" showing growth in products (25%) and services (10%), and another card with a car image and a message about activating Windows. The bottom of the screen shows a Windows taskbar with various icons and a search bar.

## Bidding



## Search vehicles page

The screenshot shows a web browser window with the URL [localhost:8080/autoshoppp/table2.php](http://localhost:8080/autoshoppp/table2.php). The page title is "CURRENT BIDDING VEHICLES". On the left, there is a logo for "MODERN CORP AUTO SALES" and a "LOGOUT" link. The main content is a table with the following data:

Vehicle	BPrice	Image	Description	Model	Color	Fuel	Registered	Year	Milage	Transmission
BULLET	150000		dsgvhbjn	2019	Blabk	Petrol	yes	2021	35	Manuel
JEEP	450000		jhogfvhbv	2016	Red	Diesel	yes	2021	21	Automated

At the bottom of the page, it says "Copyright © 2019 AUTOSHOP. All rights reserved." and "Activate Windows Go to Settings to activate Windows." The browser interface includes a search bar, taskbar icons, and system status indicators.

### Admin view appointments

**Booking Details**

SL NO.	VEHICLE NAME	CUSTOMER NAME	VEHICLE IMAGE	CHECK OUT	AMOUNT	CANCEL
1	Bullet	Jishnu		2019-04-12	61500	<a href="#">Cancel</a>
2	Bullet	Jishnu		2019-04-12	61500	<a href="#">Cancel</a>
3	BMW	Jishnu		2019-04-16	60000	<a href="#">Cancel</a>

### Admin Add vehicle detail

**UPLOAD DETAILS**

**Vehicle Name:**  
Please Enter the Vehicle Name

**Upload Image:**  
 No file selected.

**Description:**  
description

**FEATURES**

**Models:**  
Model Name

**Color:**  
Color

**Fuel Type:**  
Select

**Registered:**

