

Assignment 5

Problem Statement:

Find a procedure to launch virtual machine.

Theory:

Virtual Machine:

- Virtual machines allow you to run an operating system in an app window on your desktop that behaves like a full, separate computer. You can use them play around with different operating systems, run software your main operating system can't, and try out apps in a safe, sandboxed environment.
- A virtual machine app creates a virtualized environment—called, simply enough, a virtual machine—that behaves like a separate computer system, complete with virtual hardware devices. The VM runs as a process in a window on your current operating system. You can boot an operating system installer disc (or live CD) inside the virtual machine, and the operating system will be “tricked” into thinking it's running on a real computer. It will install and run just as it would on a real, physical machine. Whenever you want to use the operating system, you can open the virtual machine program and use it in a window on your current desktop.
- In the VM world, the operating system actually running on your computer is called the host and any operating systems running inside VMs are called guests.
- The main purpose of VMs is to operate multiple operating systems at the same time, from the same piece of hardware.

Advantages of VM:

- The multiplicity of Operating Systems Reduced Overhead
- Safety Net for Data – Rapid Disaster Recovery and Auto Backups Scalability
- Centralization

TryStack:

TryStack is a free and easy way for users to try out OpenStack, and set up their own cloud with networking, storage, and computer instances.

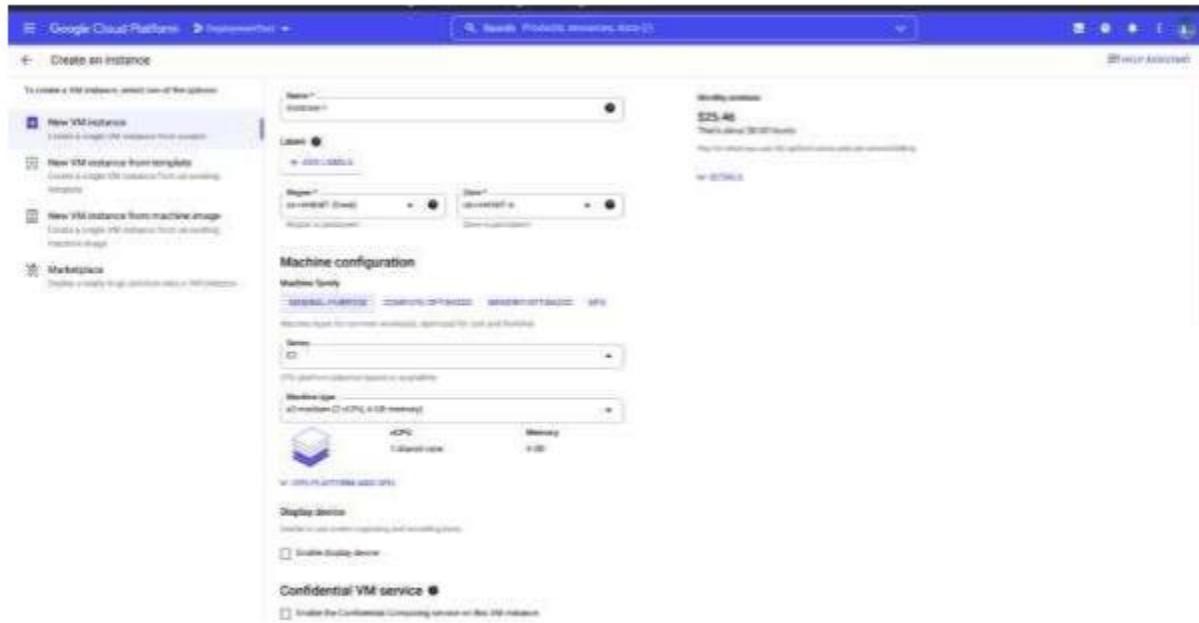
Requirement:

Account on

AWS or Azure or Google Cloud.

Steps:

- In the Google Cloud Console, go to the Create an instance page.
- Go to Create an instance
- Specify a Name for your VM. For more information, see Resource naming convention.



-Optional: Change the Zone for this VM. Compute Engine randomizes the list of zones within each region to encourage use across multiple zones.

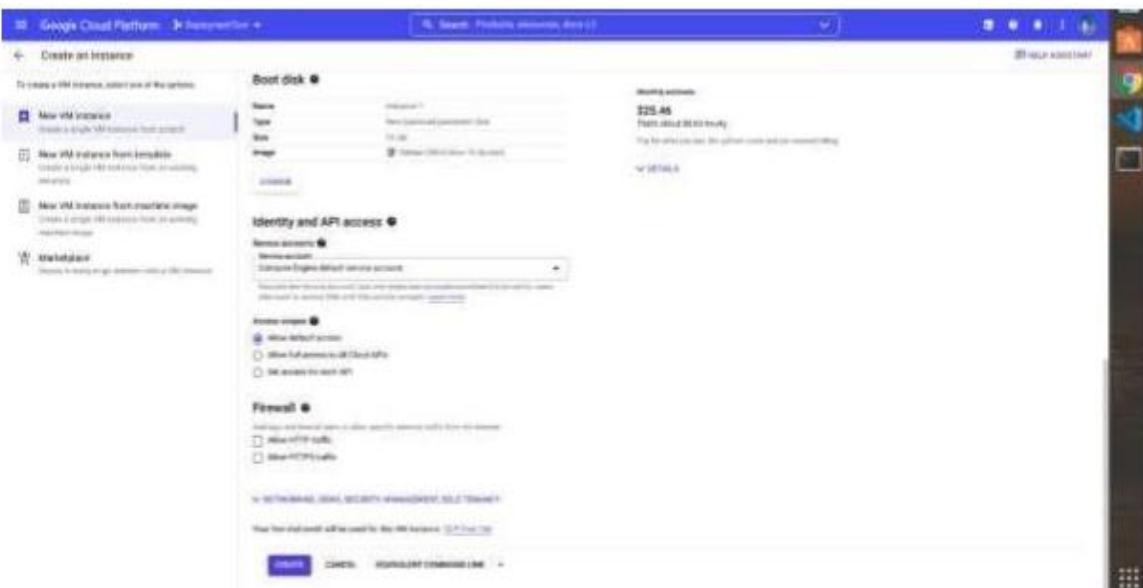
- Select a Machine configuration for your VM.
- In the Boot disk section, click Change to configure your boot disk, and then do the following:



- Select the Custom Images tab.

To select the image project, click Select a project, and then do the following:

- Select the project that contains the image. Click Open.
 - In the Image list, click the image that you want to import. Select the type and size of your boot disk. To confirm your boot disk options, click Select.
 - To permit HTTP or HTTPS traffic to the VM, in the Firewall section, select Allow HTTP traffic or Allow HTTPS traffic.



- The Cloud Console adds a network tag to your VM and creates the corresponding ingress firewall rule that allows all incoming traffic on tcp:80 (HTTP) or tcp:443 (HTTPS). The network tag associates the firewall rule with the VM. For more information, see Firewall rules overview in the Virtual Private Cloud documentation. -To start and create a VM, click Create.

The screenshot shows the Google Cloud Platform interface for managing VM instances. At the top, there's a navigation bar with 'Google Cloud Platform' and 'Compute Engine' selected. Below it is a search bar and a toolbar with various icons. The main area is titled 'VM instances' and contains a table with columns: Name, Zone, Last modified, Status, and Actions. There are two entries: 'vm-test-1' and 'vm-test-2'. Underneath the table, there's a section titled 'Related actions' with five items: 'View billing report', 'Monitor VMs', 'Explore VM logs', 'Set up firewall rules', and 'Patch management'.

Conclusion :

Thus, we have studied a procedure to launch virtual machine.

Assignment 6

Title

Design and deploy a web application in a PaaS environment.

Objectives

- Launch virtual machine EC2
- Launch a web server with termination protection enabled Running web page
- Monitor Your EC2 instance
- Modify the security group that your web server is using to allow HTTP access
- Resize your EC2 instance to scale

Theory:

Platform as a service (PaaS) It is a cloud computing model where a third-party provider delivers hardware and software tools to users over the internet. Usually, these tools are needed for application development. A PaaS provider hosts the hardware and software on its own infrastructure.

Platform as a service (PaaS) or application platform as a service (aPaaS) or platform-based service is a category of cloud computing services that allows customers to provision, instantiate, run, and manage a modular bundle comprising a computing platform and one or more applications, without the complexity of building and maintaining the infrastructure typically associated with developing and launching the application(s); and to allow developers to create, develop, and package such software bundles.

PaaS can be delivered in three ways:

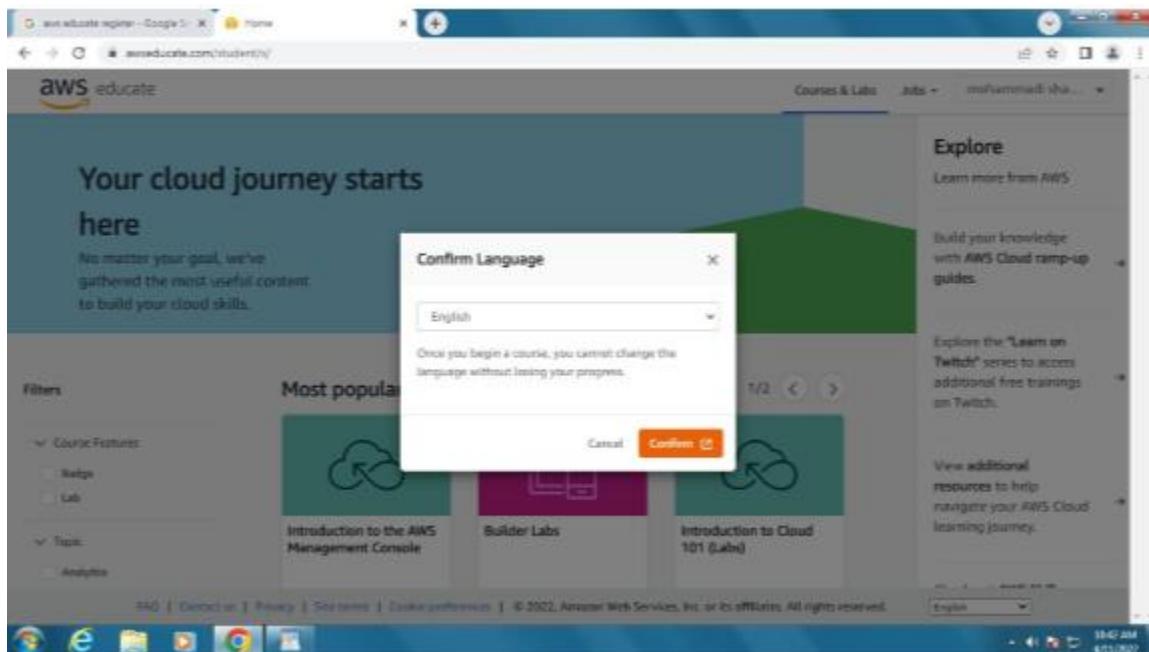
- As a public cloud service from a provider, where the consumer controls software deployment with minimal configuration options, and the provider provides the networks, servers, storage, operating system (OS), middleware (e.g. Java runtime, .NET runtime, integration, etc.), database and other services to host the consumer's application.
- As a private service (software or appliance) behind a firewall.
- As software deployed on public infrastructure as a service

Detailed Steps:-

1. <https://www.awseducate.com/registration/s/>
2. Register yourself in "Learn Cloud Skills" by entering email id



A screenshot of the AWS Educate student dashboard. The URL is https://awseducate.com/student/. The dashboard shows a grid of course cards under 'Most popular courses and labs'. One card, 'Introduction to Cloud 101 (Labs)', is circled in red. The card includes a green icon of three clouds, the title, a description ('Foundational | 8 hours'), and a category ('Cloud Computing'). Other visible cards include 'Introduction to the AWS Management Console', 'Builder Labs', and 'Machine Learning Foundation (Lab)'. Below this section is another grid titled 'Cloud skill basics'.



This screenshot shows a module page from the AWS Educate website. The left sidebar has icons for "Assess", "Dashboard", and "History". The main content area is titled "Module 4 AWS Core Services" and contains a list of items under "Complete All Items". The items are: "AWS Core Services" (View), "AWS Core Services Labs", "Lab 1 - Introduction to Amazon S3" (View details), "Lab 2 - Introduction to Amazon EC2" (View details, circled in red), "Lab 3 - Introduction to Amazon DynamoDB" (View details), and "Lab 4 - Introduction to Amazon Relational Database Service (Amazon RDS)" (View details). The "Lab 2" item is circled in red.

The screenshot shows a web browser window with the URL <https://awseducate.instructure.com/courses/746/modules>. The page displays a list of lab assignments under the 'AWS Core Services Labs' module. Each lab is worth 100 pts and requires a score of at least 70.0%.

Lab Assignment	Description	Score Required
Lab 1 - Introduction to Amazon S3	100 pts Score at least 70.0%	70.0%
Lab 2 - Introduction to Amazon EC2	100 pts Score at least 70.0%	70.0%
Lab 3 - Introduction to Amazon DynamoDB	100 pts Score at least 70.0%	70.0%
Lab 4 - Introduction to Amazon Relational Database Service (Amazon RDS)	100 pts Score at least 70.0%	70.0%
Lab 5 - Introduction to Amazon Virtual Private Cloud (Amazon VPC)	100 pts Score at least 70.0%	70.0%
Lab 6 - Introduction to AWS Identity and Access Management (IAM)	100 pts Score at least 70.0%	70.0%
Lab 7 - Hosting a Static Website Using Amazon Simple Storage Service (Amazon S3)	100 pts Score at least 70.0%	70.0%

The screenshot shows a web browser window with the URL https://awseducate.instructure.com/courses/746/assignments/3072/module_item_id=13180. The page displays the details for 'Lab 2 - Introduction to Amazon EC2'. It includes fields for Due Date (No Due Date), Points (100), and Submitting (an external tool). Below the form, there is a section titled 'maximum extent permissible and the other provisions of these Terms will remain in full force and effect.' followed by a detailed legal notice about assignment and transfer of rights.

maximum extent permissible and the other provisions of these Terms will remain in full force and effect.

You may not assign or transfer these Terms, by operation of law or otherwise, without Vocareum's prior written consent. Any attempt by you to assign or transfer these Terms, without such consent, will be null. Vocareum may freely assign or transfer these Terms without restriction. Subject to the foregoing, these Terms will bind and inure to the benefit of the parties, their successors and permitted assigns.

Any notices or other communications provided by Vocareum under these Terms, including those regarding modifications to these Terms, will be given (i) via e-mail; or (ii) by posting to the Services. For notices made by e-mail, the date of receipt will be deemed the date on which such notice is transmitted.

Vocareum's failure to enforce any right or provision of these Terms will not be considered a waiver of such right or provision. The waiver of any such right or provision will be effective only if in writing and signed by a duly authorized representative of Vocareum. Except as expressly set forth in these Terms, the exercise by either party of any of its remedies under these Terms will be without prejudice to its other remedies under these Terms or otherwise.

Contact Information
If you have any questions about these Terms or the Services, please contact Vocareum at info@vocareum.com.

I Agree

Accessing the AWS Management Console

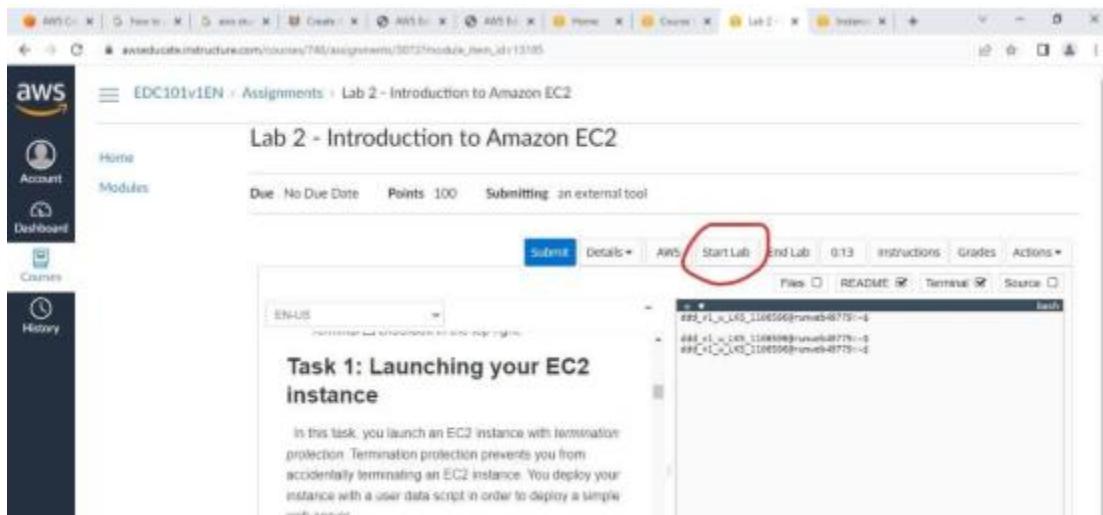
1. At the top of these instructions, choose Start Lab to launch your lab.

A Start Lab panel opens, and it displays the lab status.

2. Wait until you see the message Lab status: ready, then close the Start Lab panel by choosing the X.

3. At the top of these instructions, choose AWS .

This opens the AWS Management Console in a new browser tab. The system will automatically log you in.



The screenshot shows a browser window with multiple tabs open. The active tab is titled "Lab 2 - Introduction to Amazon EC2". The page displays assignment details: Due: No Due Date, Points: 100, and Status: Submitting an external tool. A red circle highlights the "Start Lab" button in the toolbar. The main content area contains a task titled "Task 1: Launching your EC2 instance" with a description of the goal: launching an EC2 instance with termination protection. Below the task, there is a terminal window showing command-line output related to EC2 instances.

Task 1: Launching your EC2 instance

In this task, you launch an EC2 instance with termination protection. Termination protection prevents you from accidentally terminating an EC2 instance. You deploy your instance with a user data script in order to deploy a simple web server.

1. In the AWS Management Console on the Services menu, choose EC2.

2. Choose Launch instance, and then select Launch instance.

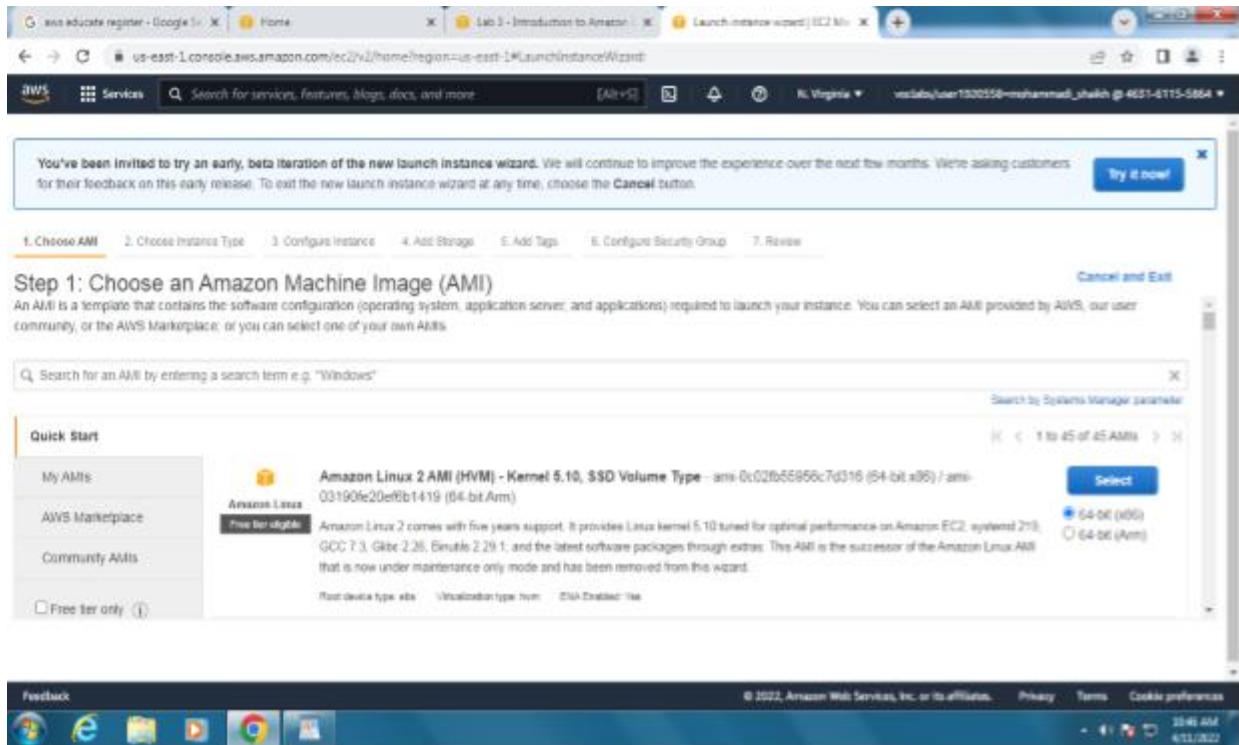
Step 1: Choose an Amazon Machine Image (AMI)

An AMI provides the information required to launch an instance, which is a virtual server in the cloud. An AMI includes the following:

A template for the root volume for the instance (for example, an operating system or an application server with applications)

- Launch permissions that control which AWS accounts can use the AMI to launch instances
- A block device mapping that specifies the volumes to attach to the instance when it is launched
- The Quick Start list contains the most commonly used AMIs. You can also create your own AMI or select an AMI from the AWS Marketplace, an online store where you can sell or buy software that runs on AWS.

1. At the top of the list, choose Select next to Amazon Linux 2 AMI.



Step 2: Choose an instance type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instance types comprise varying combinations of CPU, memory, storage, and networking capacity and give you the flexibility to choose the appropriate mix of resources for your applications. Each instance type includes one or more instance sizes so that you can scale your resources to the requirements of your target workload.

Select a t2.micro instance This instance type has 1 virtual CPU and 1 GiB of memory.

1. Choose Next: Configure Instance Details

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more about instance types and how they can meet your computing needs.](#)

Filter by:	All Instance families	Current generation	ShowHide Columns					
Currently selected: t2.micro (- ECUs, 1 vCPUs, 2.5 GHz, 1 GiB memory, EBS only)								
	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
	t2	t2.micro <small>(Free tier eligible)</small>	1	1	EBS only	-	Low to Moderate	Yes
	t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
	t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
	t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes
	t3	t3.small	8	16	EBS available	-	Medium	No

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Configure Instance Details](#)

Step 3: Configure instance details

You use this page to configure the instance to suit your requirements. This configuration includes networking and monitoring settings.

The Network indicates which virtual private cloud (VPC) you want to launch the instance into. You can have multiple networks, including different ones for development, testing, and production.

1. For Network, select Lab VPC.

The Lab VPC was created using an AWS CloudFormation template during the setup process of your lab. This VPC includes two public subnets in two different Availability Zones.

2. For Enable termination protection, select Protect against accidental termination.

When you no longer require an EC2 instance, you can terminate it, which means that the instance stops, and Amazon EC2 releases the instance's resources. You cannot restart a terminated instance. If you want to prevent your users from accidentally terminating the instance, you can enable termination protection for the instance, which prevents users from terminating instances.

3. Scroll down, and then expand Advanced Details.

A field for User data appears.

When you launch an instance in Amazon EC2, you have the option of passing user data to the instance that can be used to perform common automated configuration tasks and even run scripts after the instance starts.

4. Copy the following web application home page sample code into user data file.

5. Also code other pages for your web application.

```
#!/bin/bash
```

```
yum -y install httpd
```

```
systemctl enable httpd
```

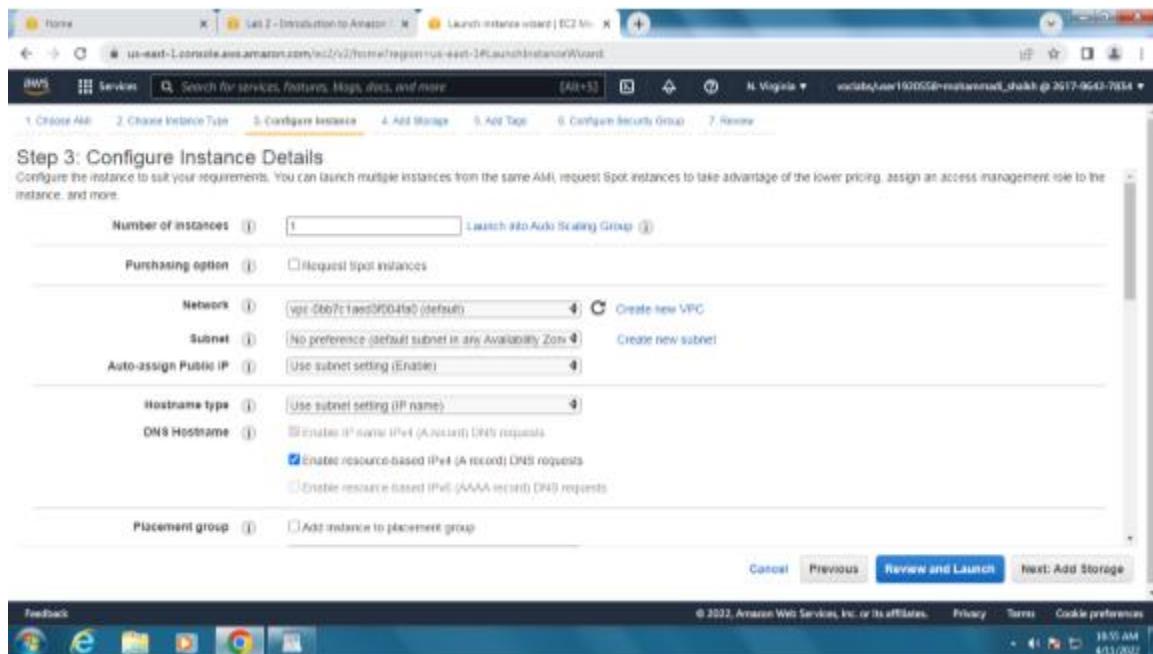
```
systemctl start httpd
```

```
echo '<html><h1>Hello From Your Web Server!</h1></html>' > /var/www/html/index.html
```

The script does the following:

- o Install an Apache web server (httpd)
- o Configure the web server to automatically start on boot
- o Activate the Web server o Create a simple web page

1. Choose Next: Add Storage



Step 4: Add storage

Amazon EC2 stores data on a network-attached virtual disk called Amazon Elastic Block Store (Amazon EBS).

You launch the EC2 instance using a default 8 GiB disk volume. This is your root volume (also known as a boot volume).

1. Choose Next: Add Tags

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/xvda	snapshot-0c1ac78aeetc4204c	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

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.

Shared file systems

Cancel Previous Review and Launch Next: Add Tags

Step 5: Add tags

Using tags, you can categorize your AWS resources in different ways (for example, by purpose, owner, or environment). This categorization is useful when you have many resources of the same type: you can quickly identify a specific resource based on the tags you have assigned to it. Each tag consists of a key and a value, both of which you define.

1. Choose Add Tag, and then configure the following:

- o Key: Name
- o Value: Web-Server

Make sure the punctuation for the tags matches exactly as above.

1. Choose Next: Configure Security Group

Note: Notice the "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." While this is true and common best practice, this has been simplified for the sake of this lab.

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 (128 characters maximum) **Value** (256 characters maximum)

This resource currently has no tags.

Choose the Add tag button or click 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

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 (128 characters maximum) **Value** (256 characters maximum)

Name Web-Server

Add another tag (Up to 50 tags maximum)

Cancel Previous Review and Launch Next: Configure Security Group

Step 6: Configure a security group

A security group acts as a virtual firewall that controls the traffic for one or more instances. When you launch an instance, you associate one or more security groups with the instance. You add rules to each security group that allow traffic to or from its associated instances. You can

modify the rules for a security group at any time; the new rules are automatically applied to all instances that are associated with the security group.

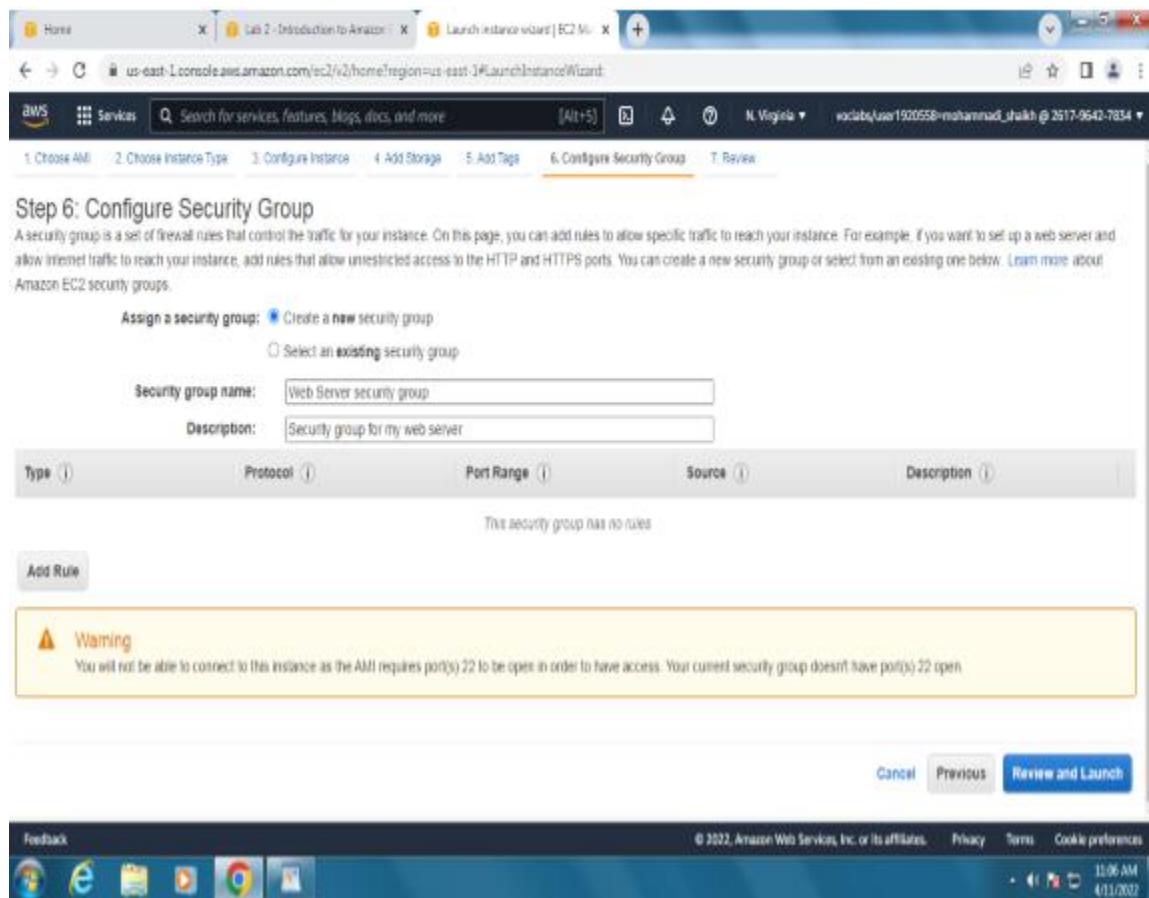
1. On Step 6: Configure Security Group, configure the following:

- o Security group name: Web Server security group

- o Description: Security group for my web server

In this lab, you do not log in to your instance using SSH. Removing SSH access improves the security of the instance.

3. Choose Review and Launch



Step 7: Review instance launch

The Review page displays the configuration for the instance that you are about to launch.

1. Choose Launch

A Select an existing key pair or create a new key pair window will appear.

Amazon EC2 uses public–key cryptography to encrypt and decrypt login information. To log in to your instance, you must create a key pair, specify the name of the key pair when you launch the instance, and provide the private key when you connect to the instance.

In this lab, you do not log in to your instance, so you do not require a key pair.

2. Choose the Choose an existing key pair dropdown list, and select Proceed without a key pair.
3. Select the next to the text I acknowledge that
4. Choose Launch Instances

Your instance will now be launched.

5. Choose View Instances

The instance appears in a Pending state, which means it is being launched. It then changes to Running, which indicates that the instance has started booting. There will be a short time before you can access the instance.

The instance receives a public DNS name that you can use to contact the instance from the Internet.

Select the box next to your Web Server. The Details tab displays detailed information about your instance.

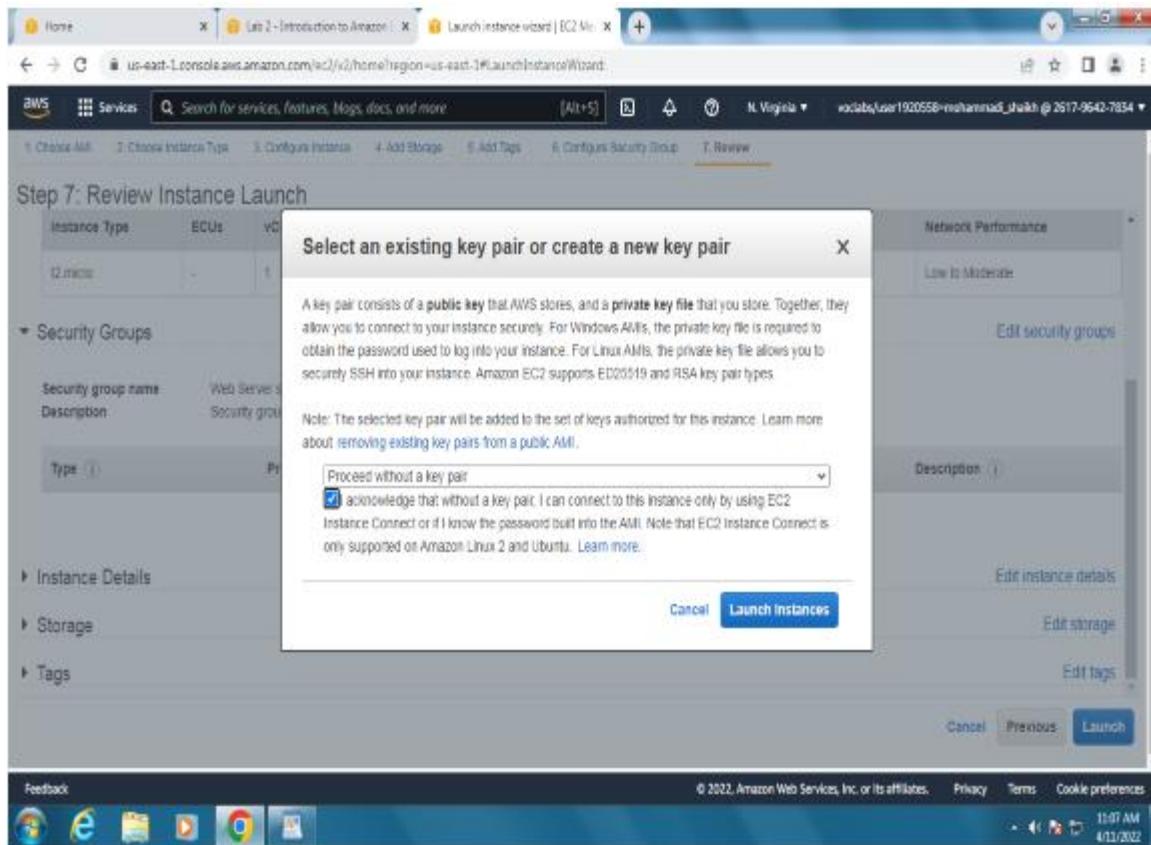
To view more information in the Details tab, drag the window divider upward.

Review the information displayed in the Details, Security and Networking tabs.

6. Wait for your instance to display the following:

Note: Refresh if needed.

- o Instance State: Running
- o Status Checks: 2/2 checks passed



Task 2: Monitoring your instance

Monitoring is an important part of maintaining the reliability, availability, and performance of your EC2 instances and your AWS solutions.

1. Choose the Status checks tab.

With instance status monitoring, you can quickly determine whether Amazon EC2 has detected any problems that might prevent your instances from running applications. Amazon EC2 performs automated checks on every running EC2 instance to identify hardware and software issues.

Notice that both the System reachability and Instance reachability checks have passed.

2. Choose the Monitoring tab.

This tab displays Amazon CloudWatch metrics for your instance. Currently, there are not many metrics to display because the instance was recently launched.

You can choose a graph to see an expanded view.

Amazon EC2 sends metrics to Amazon CloudWatch for your EC2 instances. Basic (5 minute) monitoring is enabled by default. You can enable detailed (1 minute) monitoring.

3. At the top of the page, choose the Actions dropdown menu. Select Monitor and troubleshoot Get system log.

The system log displays the console output of the instance, which is a valuable tool for problem diagnosis. It is especially useful for troubleshooting kernel problems and service configuration issues that could cause an instance to terminate or become unreachable before its SSH daemon can be started. If you do not see a system log, wait a few minutes and then try again.

1. Scroll through the output, and note that the HTTP package was installed from the user data that you added when you created the instance.

2. Choose Cancel to return to the Amazon EC2 dashboard.

3. With your web server selected, choose the Actions dropdown menu, and select Monitor and troubleshoot Get instance screenshot.

This option shows you what your EC2 instance console would look like if a screen were attached to it. Notice it is essentially a command line interface.

If you are unable to reach your instance via SSH or RDP, you can capture a screenshot of your instance and view it as an image. This option provides visibility about the status of the instance and allows for quicker troubleshooting.

4. At the bottom of the page, choose Cancel.

Task 3: Updating your security group and accessing the web server

When you launched the EC2 instance, you provided a script that installed a web server and created a simple web page. In this task, you access content from the web server.

1. Select box next to the EC2 web server you created, and then choose the Details tab.

2. Copy the Public IPv4 address of your instance to your clipboard.

3. In your web browser, open a new tab, paste the IP address you just copied, and then press Enter.

Question: Are you able to access your web server? Why not?

You are not currently able to access your web server because the security group is not permitting inbound traffic on port 80, which is used for HTTP web requests. This is a demonstration of how to use a security group as a firewall to restrict the network traffic that is allowed in and out of an instance.

To correct this issue, you now update the security group to permit web traffic on port 80.

4. Keep the browser tab open, but return to the EC2 Management Console tab.

5. In the left navigation pane, choose Security Groups.

6. Select the check box next to the Web Server security group. 7. Choose the Inbound rules tab.

The security group currently has no rules.

8. Choose Edit inbound rules and then choose Add rule and configure the following:

- o Type: Choose HTTP.

- o Source: Choose Anywhere.

9. Choose Save rules

10. Return to the web server tab that you previously opened, and choose to refresh the page.

You should see the message Hello From Your Web Server!

The screenshot shows the AWS EC2 Instances page. On the left sidebar, under the 'Instances' section, 'Launch Templates' is selected. In the main content area, the 'Instances (1)' table lists one instance:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Z.
Web-Server	i-0001bbbfbdb6e1f2b5	Pending	t2.micro	-	No alarms	us-east-1a

A modal window titled 'Select an instance' is open, listing the same instance: 'Web-Server' (i-0001bbbfbdb6e1f2b5). The URL in the browser address bar is <https://us-east-1.console.aws.amazon.com/ec2/v2/home?region=us-east-1#instances>.

The screenshot shows the AWS EC2 Instances page. The instance 'Web-Server' is now listed as 'Running'. A context menu is open over the instance row, showing options like 'Get system log', 'Get instance screenshot', 'Manage detailed monitoring', 'Manage CloudWatch alarms', 'EC2 Serial Console', and 'Replace root volume'. The URL in the browser address bar is <https://us-east-1.console.aws.amazon.com/ec2/v2/home?region=us-east-1#instances>.

Inbound rules

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
-	HTTP	TCP	80	Anywhere	0.0.0.0/0

Add rule Cancel Preview changes Save rules

Hello From Mohammadi

Assignment 7

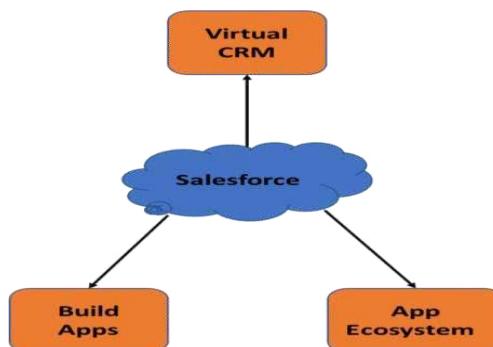
- **Problem Definition:** Design and develop custom Application (Mini Project) using Salesforce Cloud.
- **Objective:** To create an custom application on Salesforce Lightning platform.
- **Software / Hardware Requirements:** OS - Windows / Ubuntu, Google Chrome.
- **Theory:**

1. Salesforce:

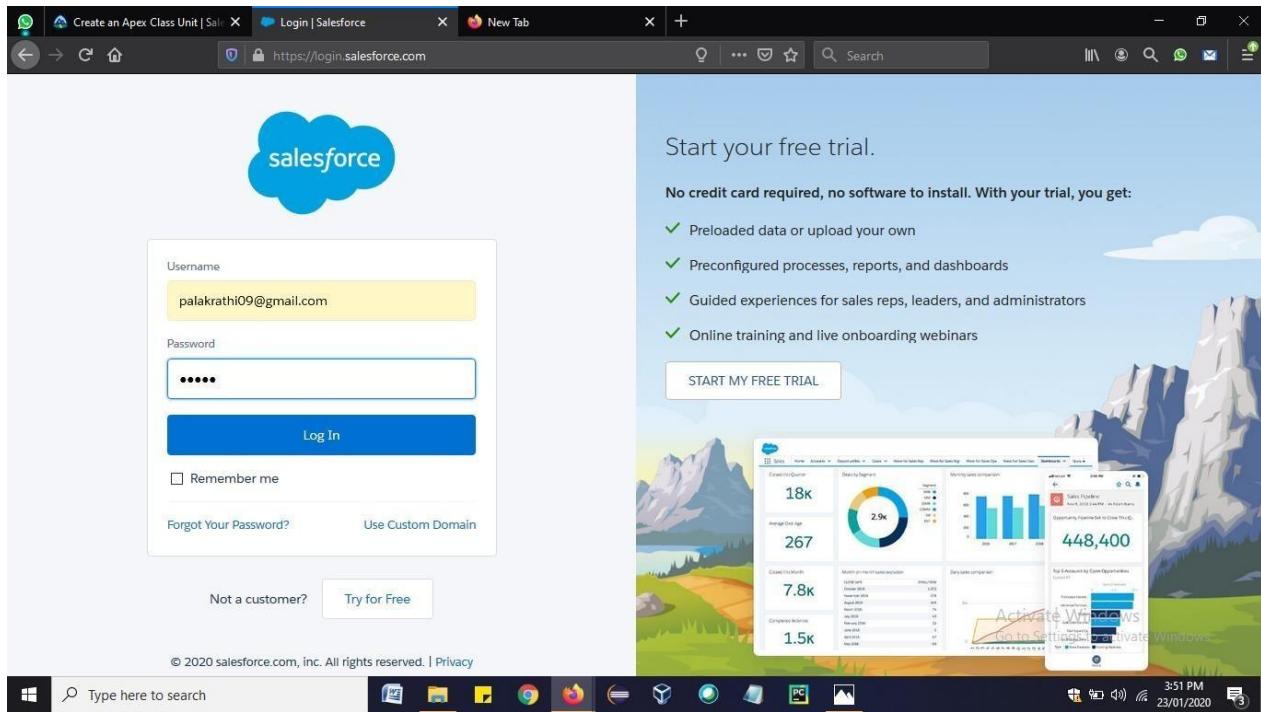
Salesforce is a cloud computing service as a software (SaaS) company that specializes in customer relationship management (CRM). Salesforce's services allow businesses to use cloud technology to better connect with customers, partners and potential customers. The software has become the number one for customer success and helps businesses track customer activity, market to customers and many more services. Salesforce is a customer relationship management solution that brings companies and customers together. It is one integrated CRM platform that gives all your departments — including marketing, sales, commerce, and service — a single, shared view of every customer.

2. Salesforce Lightning Experience:

Salesforce Lightning Experience is simply referred to as “Lightning”. When working with lightning Salesforce we will learn about different Salesforce lightning topics like Lightning Login, Lightning App Builder, Lightning for Outlook, Salesforce Lightning Components, Lightning Sync and many more. Some of them are applicable in Lightning Experience only, but some others will work in both Lightning Experience and older Classic user interfaces. Lightning Sync is used to sync your user contacts and events between your email server with Salesforce.



Step 1: Log into Salesforce Developer account.



Step 2: Open Salesforce Lightning platform and click on Object Manager => Create => Custom Object.

Step 3: Fill in the required fields and under Optional Features, select **Allow Reports** and **Allow Activities**. Click **Save**.

New Custom Object

Custom Object Definition Edit

Custom Object Information

The singular and plural labels are used in tabs, page layouts, and reports.

Label	<input type="text" value="Student_Detail"/>	Example: Account
Plural Label	<input type="text" value="Student_Details"/>	Example: Accounts
Starts with vowel sound <input type="checkbox"/>		

The Object Name is used when referencing the object via the API.

Object Name	<input type="text" value="Student_Detail"/>	Example: Account
-------------	---	------------------

Description

Type here to search

Enter Record Name Label and Format

The Record Name appears in page layouts, key lists, related lists, lookups, and search results. For example, the Record Name for Account is "Account Name" and for Case it is "Case Number". Note that the Record Name field is always called "Name" when referenced via the API.

Record Name	<input type="text" value="Student_Detail Name"/>	Example: Account Name
Data Type	<input type="text" value="Text"/>	<input type="button" value="▼"/>

Optional Features

- Allow Reports
- Allow Activities
- Track Field History
- Allow in Chatter Groups

Object Classification

When these settings are enabled, this object is classified as an Enterprise Application object. When these settings are disabled, this object is classified as a Light Application object. [Learn more](#).

- Allow Sharing
- Allow Bulk API Access
- Allow Streaming API Access

What is this?

Type here to search

Step 4: Now, Click on Fields & Relations => New.

The screenshot shows the Salesforce Object Manager interface for the 'Student_Detail' object. The left sidebar lists various setup options like Page Layouts, Lightning Record Pages, Buttons, etc. The main area is titled 'Fields & Relationships' and shows four items: 'Created By' (Field Label), 'CreatedBy' (Field Name), 'Lookup(User)' (Data Type), and '✓' (Indexed). Below it are 'Last Modified By', 'LastModifiedBy' (Field Name), 'Lookup(User)' (Data Type), and '✓' (Indexed); 'Owner', 'OwnerId' (Field Name), 'Lookup(User,Group)' (Data Type), and '✓' (Indexed); and 'Student_Detail Name', 'Name' (Field Name), 'Text(80)' (Data Type), and '✓' (Indexed).

Step 5: Then select option “Email” and click Next-> Next -> Save.

The screenshot shows the 'Fields & Relationships' section expanded, revealing a list of field types. The 'Email' type is selected, and its description is displayed: "Allows users to enter an email address, which is validated to ensure proper format. If this field is specified for a contact or lead, users can choose the address when clicking Send an Email. Note that custom email addresses cannot be used for mass emails." Other options shown include Currency, Date, Date/Time, Number, Percent, Phone, Picklist, Picklist (Multi-Select), Text, Text Area, Text Area (Long), and Text Area (Rich).

Step 6: Similarly. Repeat steps 4 and 5 to add more fields like Phone, Date of Birth. This is how the custom object will have the various fields.

The screenshot shows the Salesforce Setup interface under 'Object Manager'. A sidebar on the left lists options like Details, Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, and Related Lookup Filters. The main area is titled 'Fields & Relationships' and displays a table with the following data:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Contact	Contact__c	Phone		
Created By	CreatedById	Lookup(User)		
EmailID	EmailID__c	Email		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)	✓	
Student_Detail Name	Name	Text(80)	✓	

Step 7: Now go to Home => search for “Tabs”. Click on New.

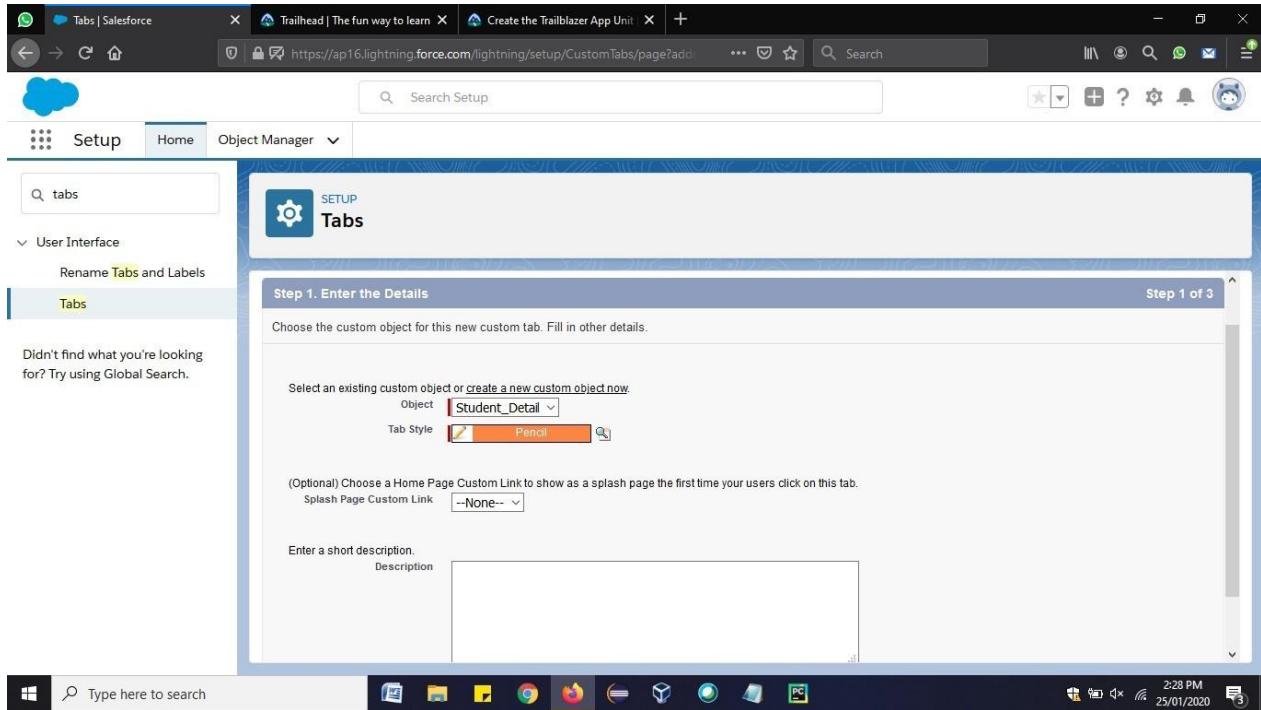
The screenshot shows the Salesforce Setup interface under 'Custom Tabs'. A sidebar on the left lists 'User Interface' and 'Rename Tabs and Labels'. The main area is titled 'Custom Tabs' and contains the following text: 'You can create new custom tabs to extend Salesforce functionality or to build new application functionality.' Below this is a table titled 'Custom Object Tabs' with the following data:

Action	Label	Tab Style	Description
Edit Del	Comments	Guitar	
Edit Del	Names	Pencil	Enter your name
Edit Del	Student_Names	Star	
Edit Del	StudentDetails	Gears	
Edit Del	xyz	Cell phone	

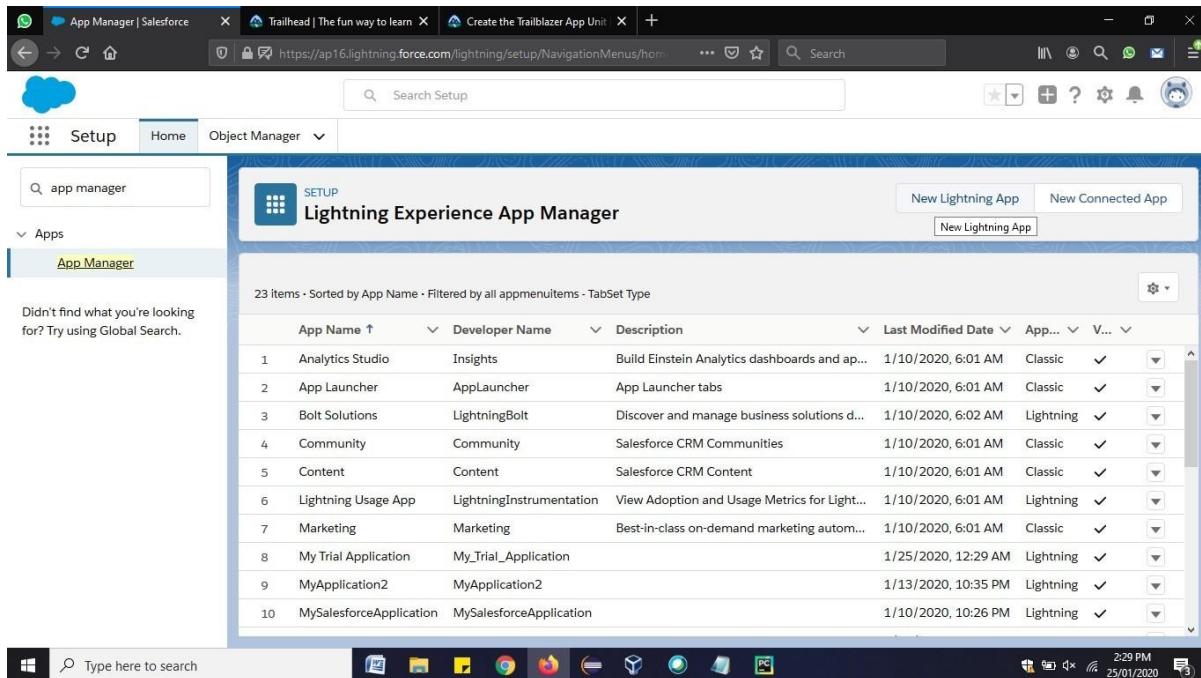
Below this is another table titled 'Web Tabs' with the following data:

Action	Label	Tab Style	Description
New	What Is This?		

Step 8: Enter the Object name and select any icon for tab style. Leave all defaults as it is. Click **Next**, **Next**, and **Save**.



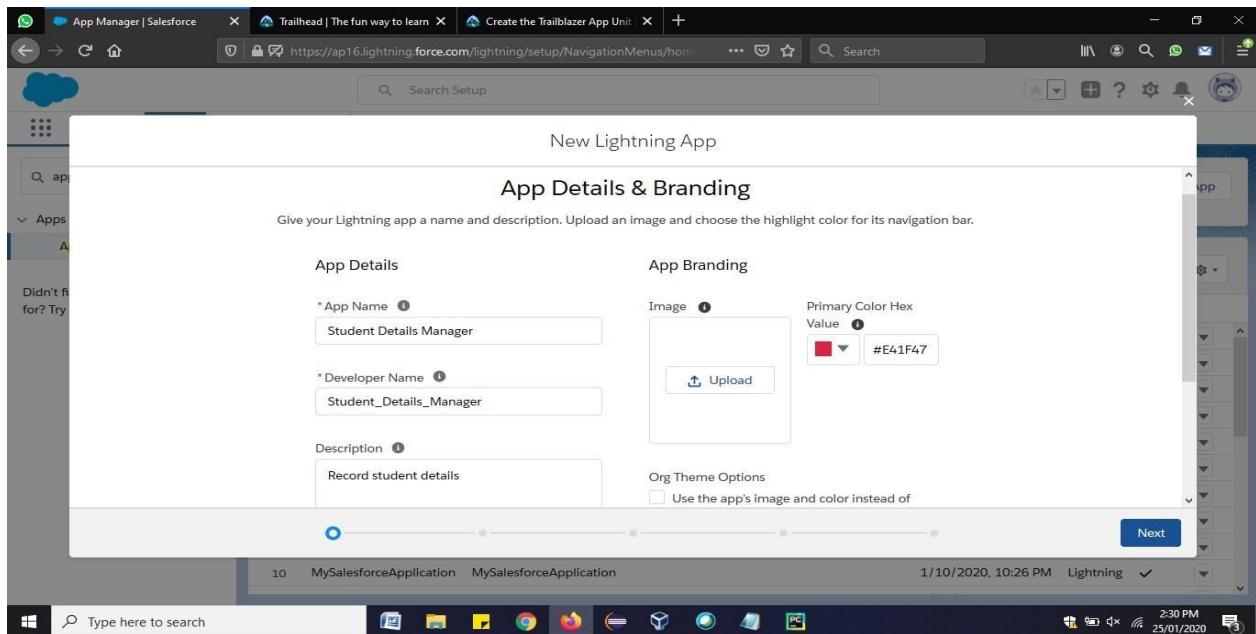
Step 9: In Setup, click **Home**. Enter “App Manager” in Quick Find and select **App Manager**. Click **New Lightning App**.



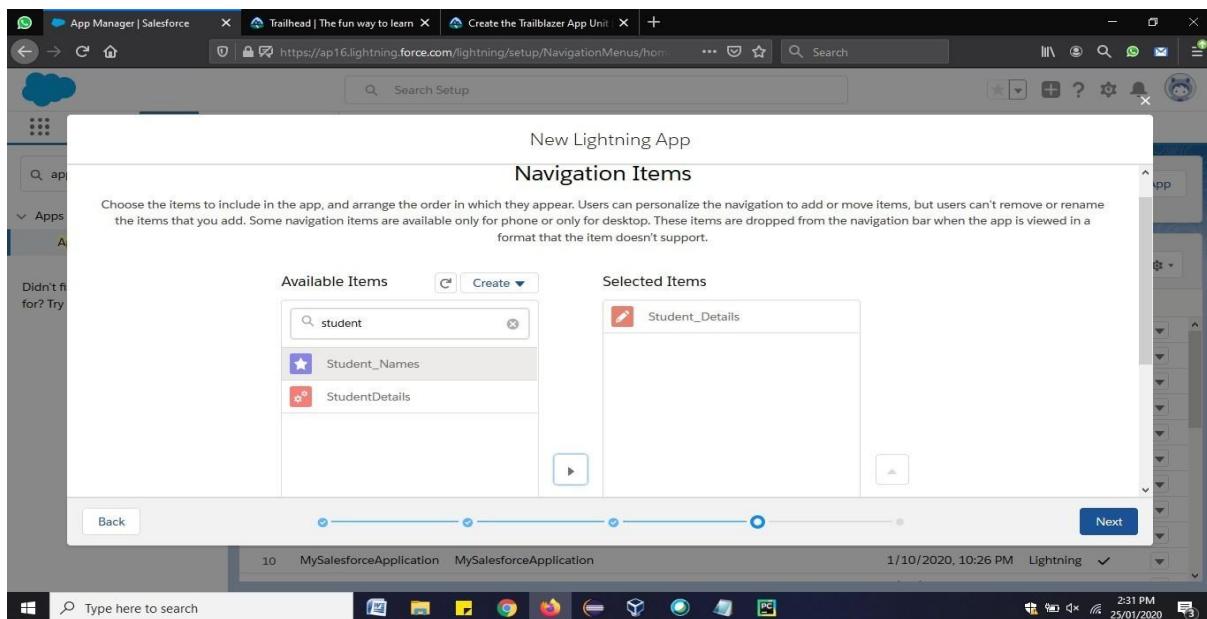
Step 10: Define the new Lightning app as follows:

App Name: Student Details Manager

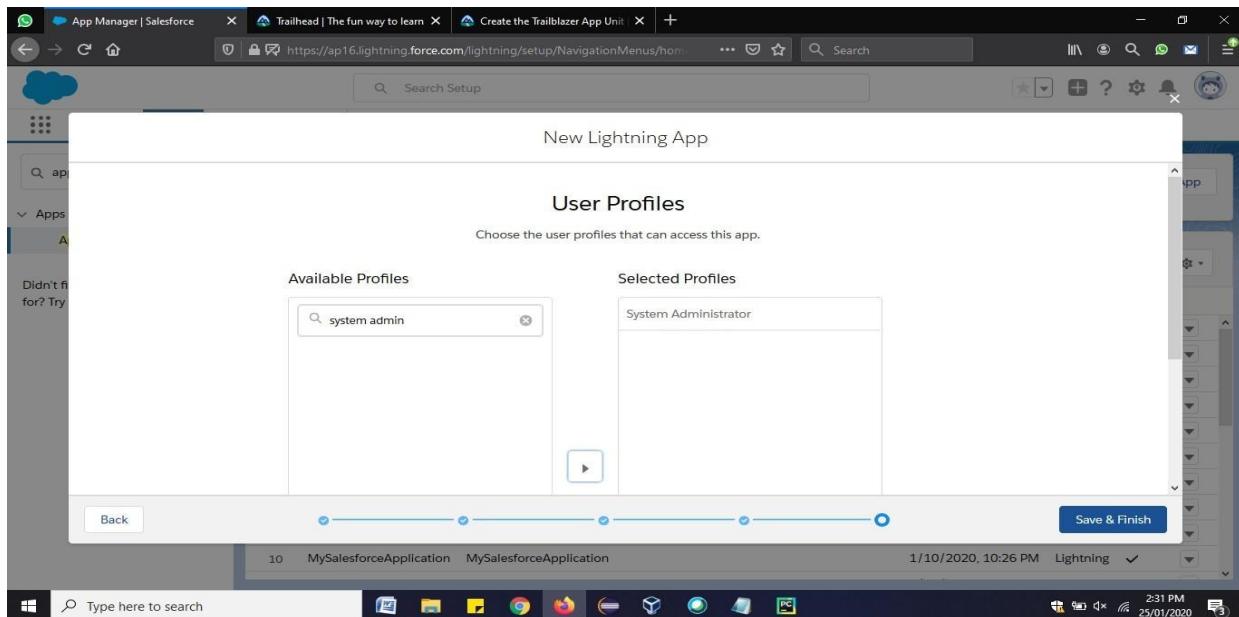
Developer Name: Student_Details_Manager. Click **Next**.



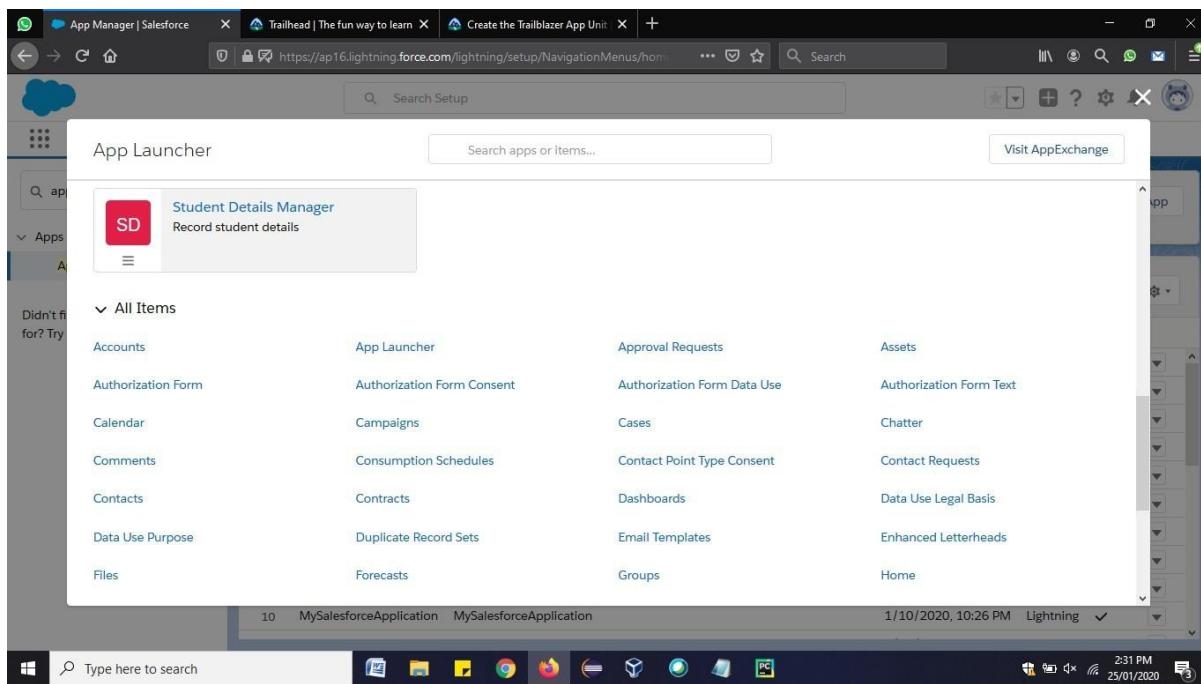
Step 11: On the App Options screen, leave the defaults as is and click **Next**. On the Utility Items screen, leave the defaults as is and click **Next**. On the Navigation Items screen, select **Student_Detail** and move them to the Selected Items box. Then click **Next**.

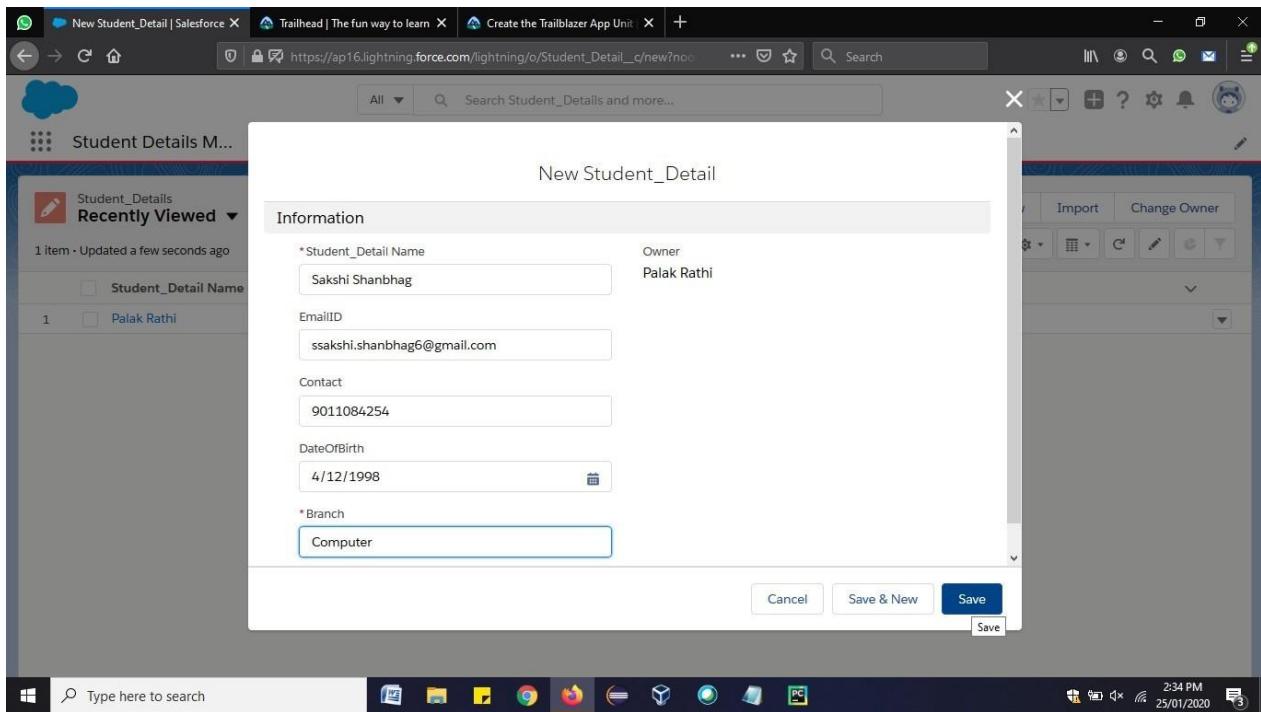


Step 12: On the Assign to User Profiles screen, select **System Administrator** and move it to Selected Profiles. Then click **Save & Finish**.

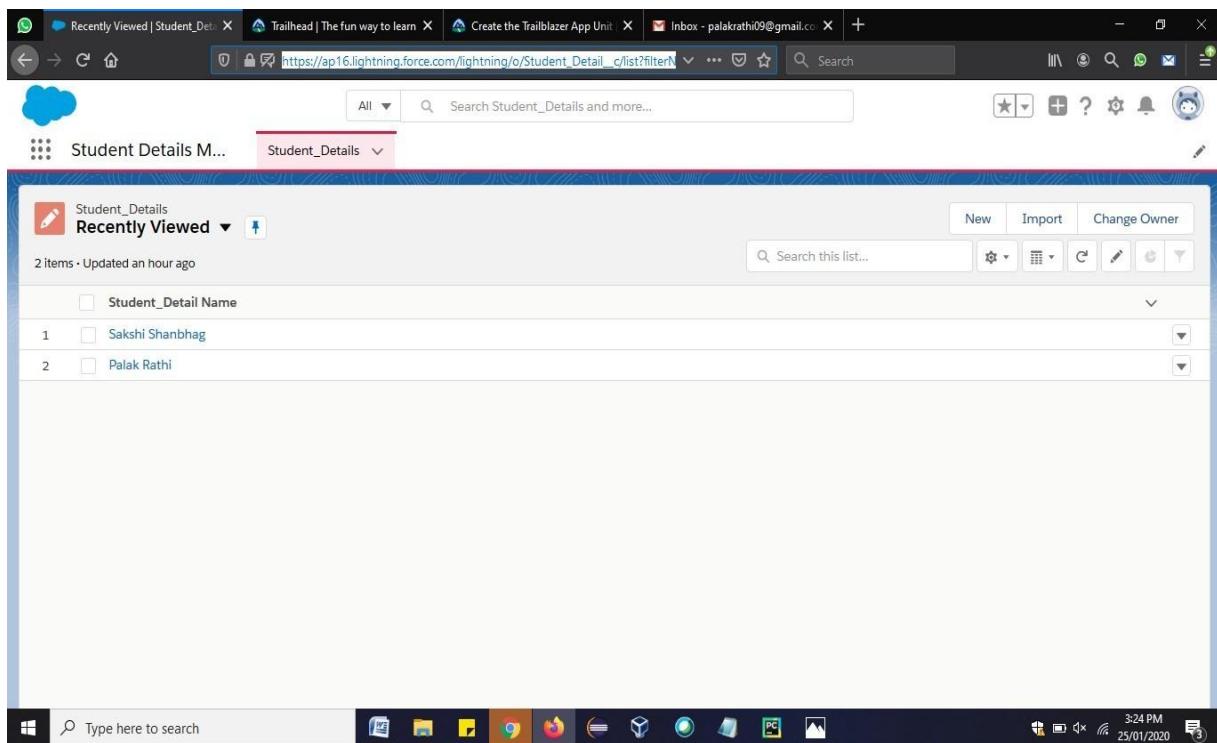


Step 13: Click on App launcher and Open the custom application created.

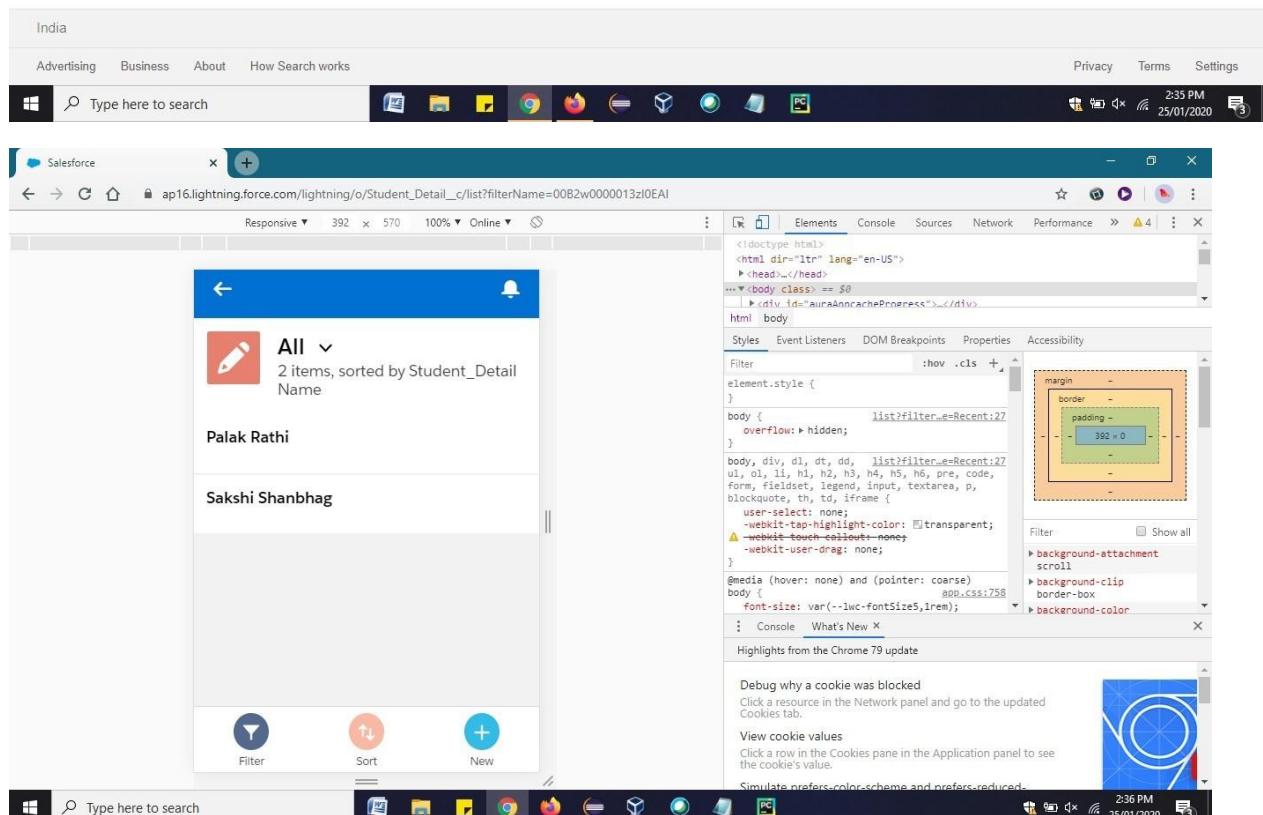
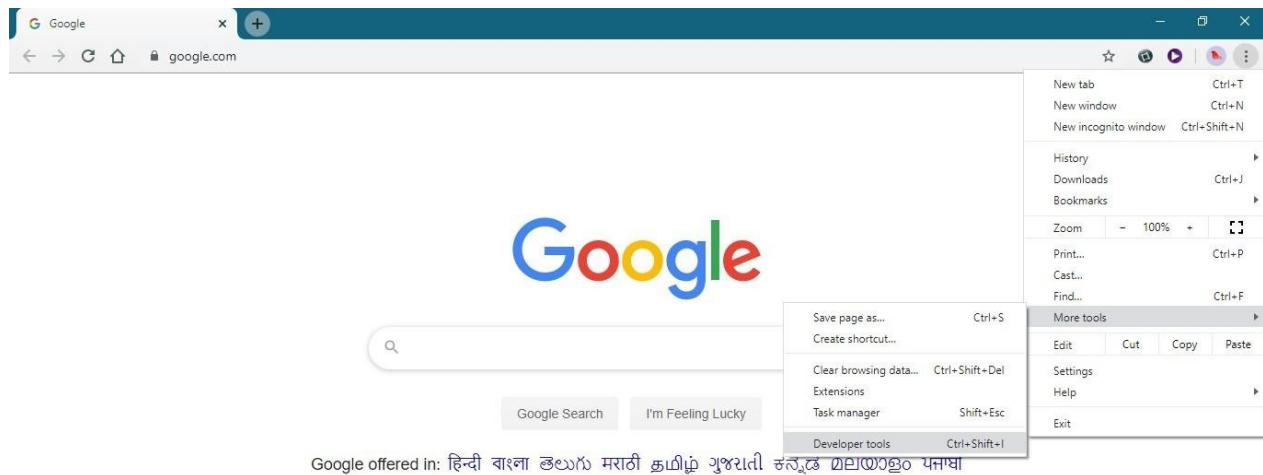




Step 14: Click on Student_Details => New => fill the specified details and copy the URL.



Step 15: Open Google Chrome new Tab => More Tools => Developer Tools and then paste the URL of the application, copied in the previous step.



Salesforce ap16.lightning.force.com

Information

* Student_Detail Name

EmailID

Contact

DateOfBirth

* Branch

Owner
Palak Rathi

Details

Student_Detail Name
Palak Rathi

EmailID
palakrathi09@gmail.com

Contact
(869) 818-4307

DateOfBirth
5/9/1998

Branch
Computer

Owner

New Event New Task New Contact Log a Call Show More

Conclusion: We have learnt to create custom application using salesforce Lightning platform.

Assignment 8

Title

Design an Assignment to retrieve, verify, and store user credentials using Firebase Authentication, the Google App Engine standard environment, and Google Cloud Data store.

Requirements

1. Google App Engine
2. Firebase
3. Google Cloud
4. Text Editor
5. Browser

Theory

A) Firebase:

1. Google Firebase is a mobile application development platform from Google with powerful features for developing, handling, and enhancing applications. Firebase is a backend platform for building web and mobile applications.
2. Firebase is fundamentally a collection of tools developers can rely on, creating applications and expanding them based on demand.
3. Firebase aims to solve three main problems for developers:
 - a. Build an app, fast
 - b. Release and monitor an app with confidence
 - c. Engage users,
4. Developers relying on this platform get access to services that they would have to develop themselves, and it enables them to lay focus on delivering robust application experiences.
5. Some of the Google Firebase platform's standout features include databases, authentication, push messages, analytics, file storage, and much more.
6. Since the services are cloud-hosted, developers can smoothly perform on-demand scaling without any hassle. Firebase is currently among the top app development platforms relied upon by developers across the globe.

B) Firebase Key Features:

1. Authentication: It supports authentication using passwords, phone numbers, Google, Facebook, Twitter, and more. The Firebase Authentication (SDK) can be used to manually integrate one or more sign-in methods into an app.
2. Realtime database: Data is synced across all clients in real-time and remains available even when an app goes offline.

3. File Storage: Firebase Storage provides a simple way to save binary files — most often images, but it could be anything — to Google Cloud Storage directly from the client. Firebase Storage has its own system of security rules to protect your GCloud bucket from the masses, while granting detailed write privileges to your authenticated clients.

4. Hosting: Firebase Hosting provides fast hosting for a web app; content is cached into content delivery networks worldwide.

5. Test lab:

The application is tested on virtual and physical devices located in

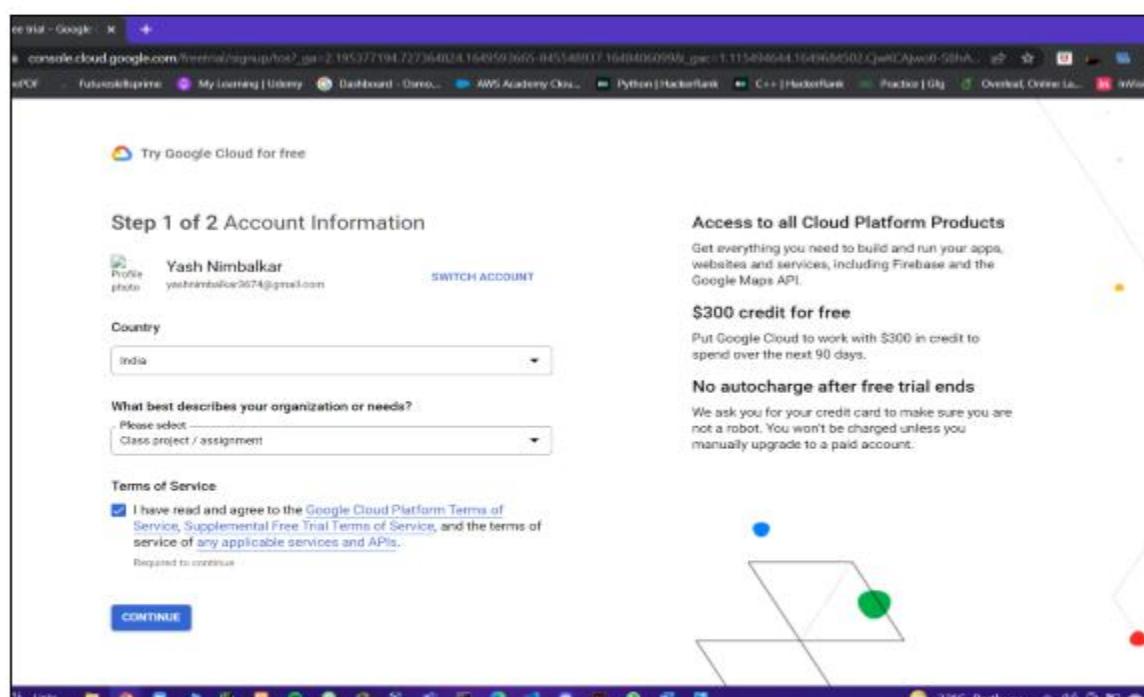
Google's data centers. 6. Notifications: Notifications can be sent with firebase with no additional coding. Users can get started with firebase for free; more details can be found on the official website.

C) Firebase Uses:

Steps

1. Initial Setup:

a. Install and configure Google App Engine:



b. Signup and Login to Google Cloud platform:



c. Login to Firebase:

You have 21 projects remaining in your quota. Request an increase or delete projects. [Learn more](#)

[MANAGE QUOTAS](#)

Project name * _____
My Project Assignment 8

Project ID: my-project-assignment-8-347418. It cannot be changed later. [EDIT](#)

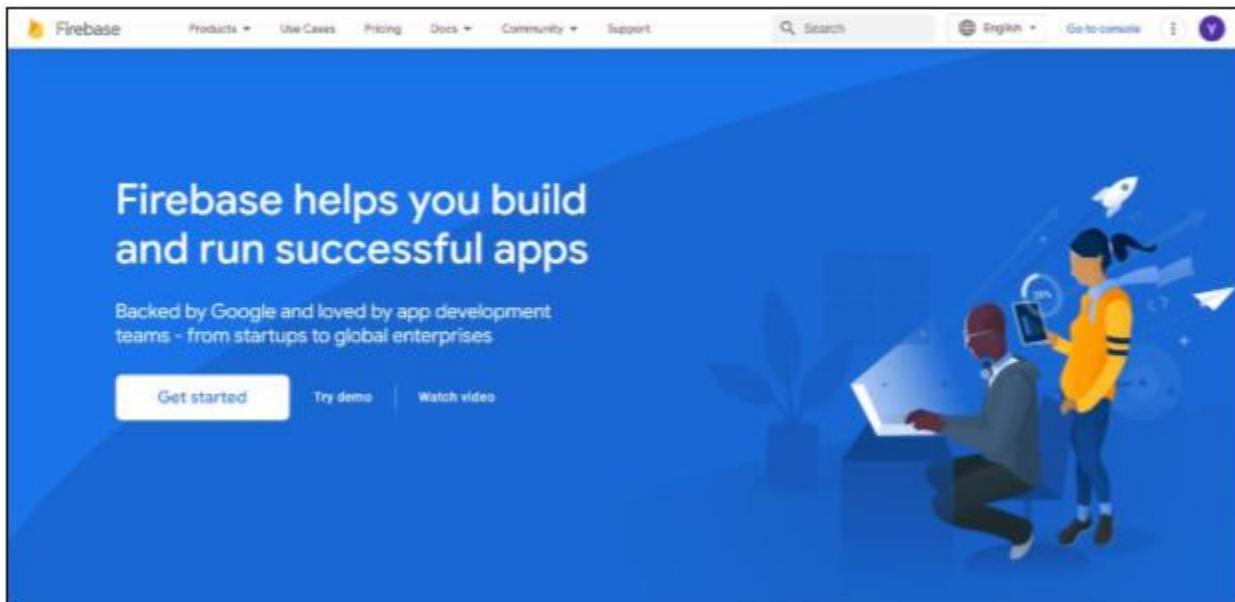
Location * _____
No organization [BROWSE](#)

Parent organization or folder

[CREATE](#) [CANCEL](#)

2. Creation of project in Google Cloud:

a. Create a new project in Google Cloud platform:



b. You can view the created project in the dashboard:

3. Setup Google App Engine:

The screenshot shows the Google Cloud Platform dashboard for a project named "My Project Assignment 8". The dashboard is divided into several sections: "Project info" (Project name: My Project Assignment 8, Project number: 125025882096, Project ID: my-project-assignment-0-347418), "ADD PEOPLE TO THIS PROJECT" (with a link to "Go to project settings"), "Resources" (listing BigQuery, SQL, Compute Engine, and Storage), "API APIs" (showing requests per second over time with a note: "No data is available for the selected time frame."), "Google Cloud Platform status" (All services normal, with a link to "Go to Cloud status dashboard"), "Billing" (Estimated charges INR 0.00 for the period Apr 1 – 16, 2022, with a link to "Take a tour of billing" and "View detailed charges"), and "Monitoring" (links to "Create my dashboard", "Set up alerting policies", and "Create uptime checks").

a. Open the GAE SDK shell and type the command 'gcloud init'. Then select appropriate configuration an account:

b. From the list that appears select the appropriate project that we created in

```

D:\TE\CC\Cloud SDK>gcloud init
Welcome! This command will take you through the configuration of gcloud.

Settings from your current configuration [default] are:
accessibility:
  screen_reader: 'False'
core:
  account: yashnimbalkar15@gmail.com
  disable_usage_reporting: 'True'

Pick configuration to use:
[1] Re-initialize this configuration [default] with new settings
[2] Create a new configuration
Please enter your numeric choice: 1

Your current configuration has been set to: [default]

You can skip diagnostics next time by using the following flag:
  gcloud init --skip-diagnostics

Network diagnostic detects and fixes local network connection issues.
Checking network connection...done.
Reachability Check passed.
Network diagnostic passed (1/1 checks passed).

Choose the account you would like to use to perform operations for this configuration:
[1] yashnimbalkar15@gmail.com
[2] Log in with a new account
Please enter your numeric choice: 1

You are logged in as: [yashnimbalkar15@gmail.com].

```

Google Cloud:

```

Google Cloud SDK Shell

You are logged in as: [yashnimbalkar15@gmail.com].

Pick cloud project to use:
[1] dancing-website
[2] eng-digit-346818
[3] lateral-isotope-328518
[4] my-project-assignment-8-347418
[5] yashnimbalkar15
[6] Create a new project
Please enter numeric choice or text value (must exactly match list item): 4

Your current project has been set to: [my-project-assignment-8-347418].

Not setting default zone/region (this feature makes it easier to use
[gcloud compute] by setting an appropriate default value for the
--zone and --region flag).
See https://cloud.google.com/compute/docs/gcloud-compute section on how to set
default compute region and zone manually. If you would like [gcloud init] to be
able to do this for you the next time you run it, make sure the
Compute Engine API is enabled for your project on the
https://console.developers.google.com/apis page.

Your Google Cloud SDK is configured and ready to use!

# Commands that require authentication will use yashnimbalkar15@gmail.com by default
# Commands will reference project 'my-project-assignment-8-347418' by default
Run 'gcloud help config' to learn how to change individual settings

This gcloud configuration is called [default]. You can create additional configurations if you work with multiple accounts and/or projects.
Run 'gcloud topic configurations' to learn more.

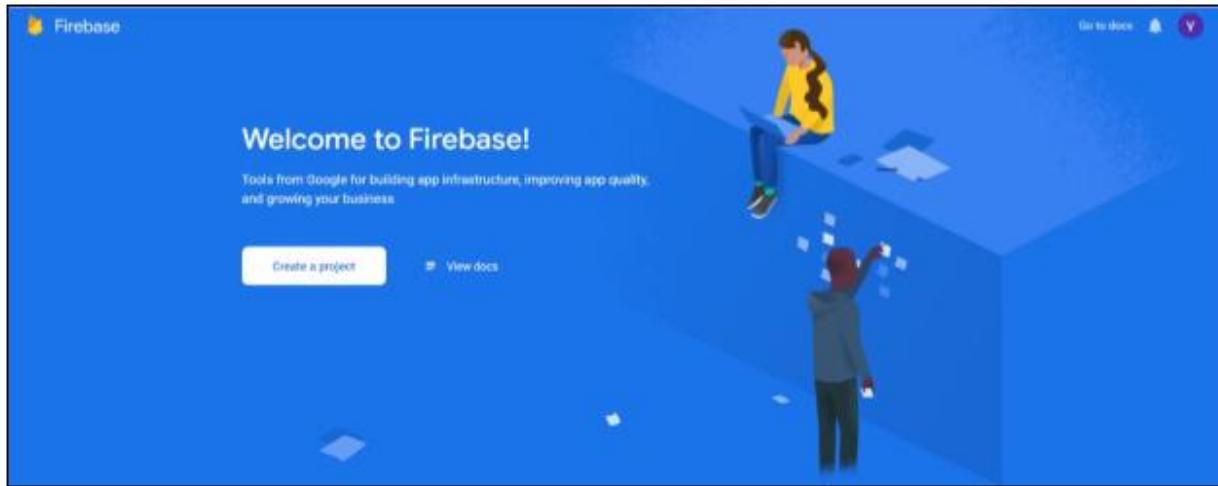
Some things to try next:

# Run 'gcloud --help' to see the Cloud Platform services you can interact with. And run 'gcloud help COMMAND' to get help on any gcloud command.
# Run 'gcloud topic --help' to learn about advanced features of the SDK like arg files and output formatting

```

4. Adding Firebase to the project:

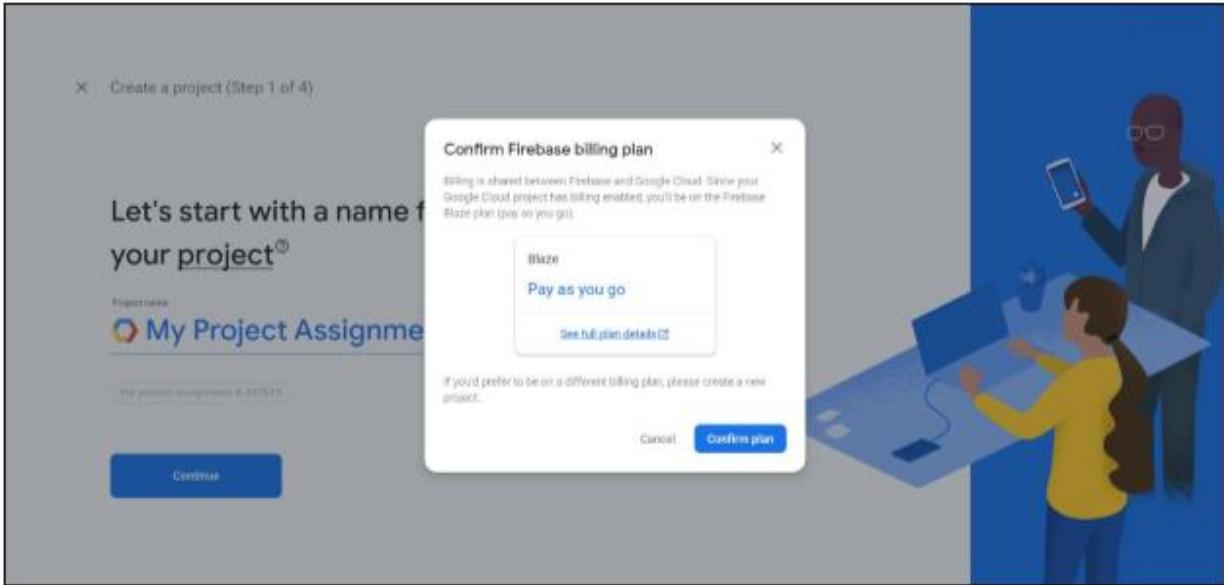
a. Go to the Firebase console and click on Create a project:



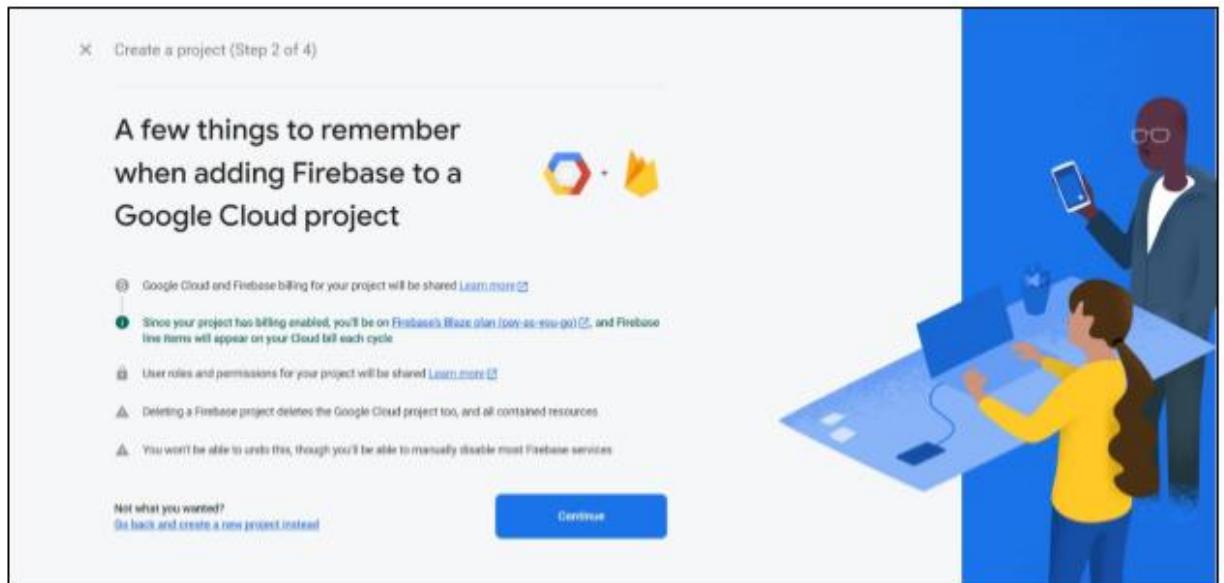
b. In the next window, add the project name that we created in Google Cloud:



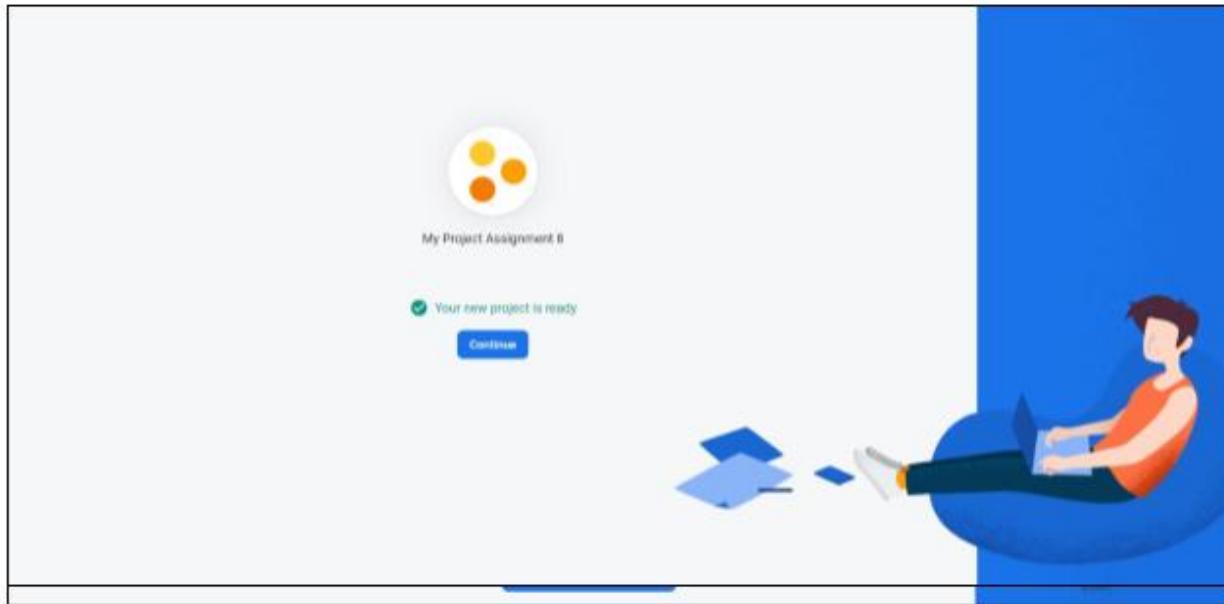
c. Confirm Firebase billing plan:



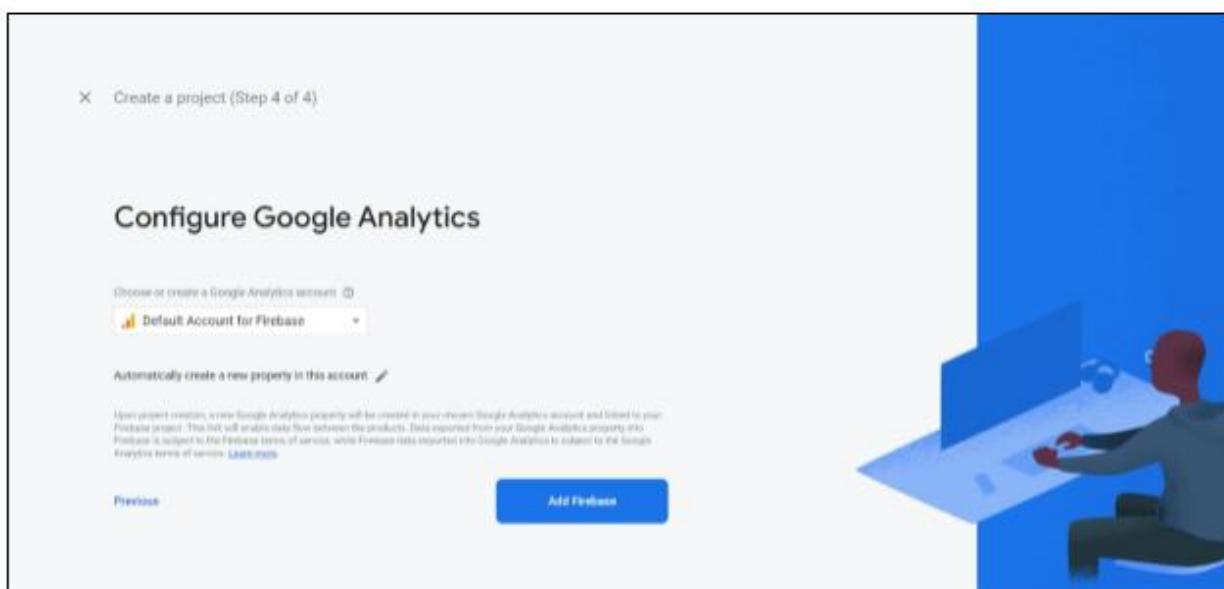
d. The next window shows some instructions. Read those and click Continue:



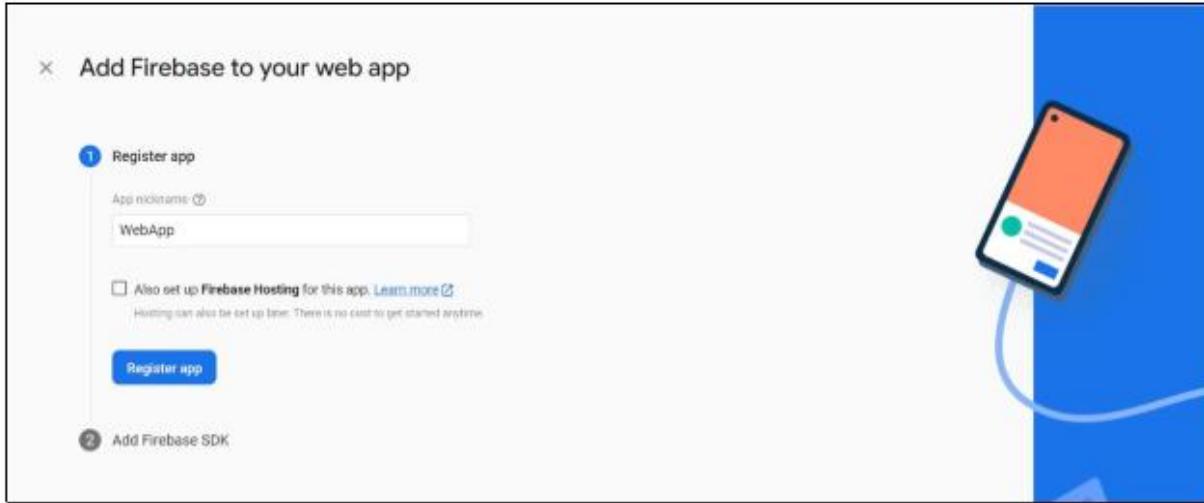
e. Enable Google Analytics for the project:



f. Configure Google Analytics by selecting Default Account for Firebase:

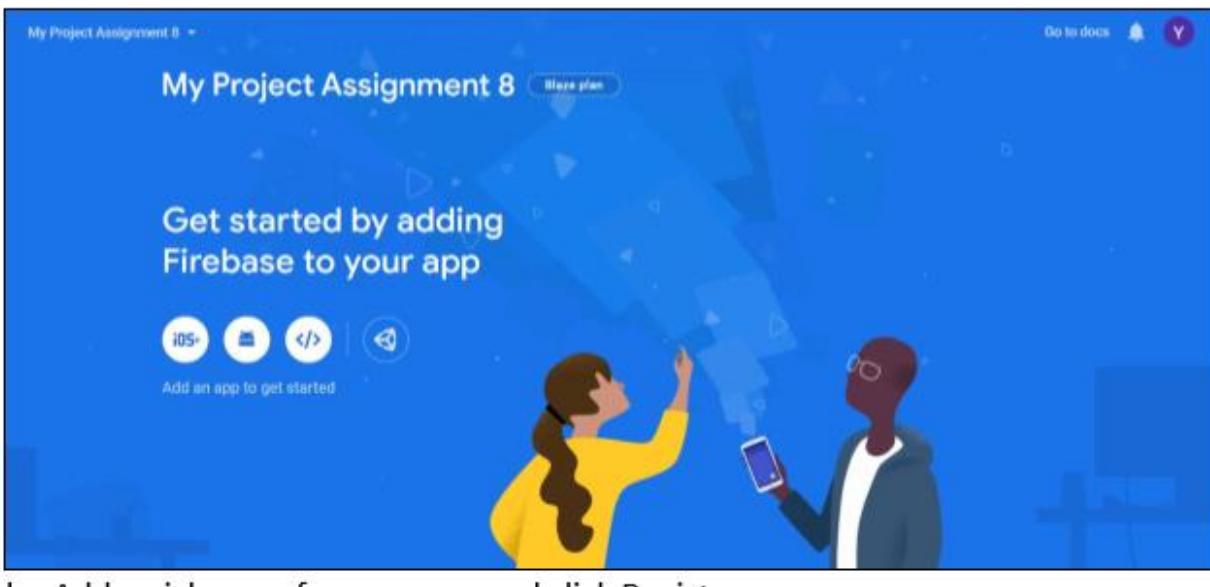


g. We have successfully added Firebase to our project.



5. Adding an App to the Firebase project:

- From the console, go to your project and click '</>' to add your app:



- Add a nickname for your app and click Register app:
- You will receive further configuration details then click Continue to console:
- You will see the app on the console, click on it to view all its details.

Add Firebase to your web app

Register app

Add Firebase SDK

Use npm  Use a script tag 

If you're already using [ES6](#) and a module bundler such as [Webpack](#) or [Babel](#), you can run the following command to install the latest SDK:

```
$ npm install firebase
```

Then, initialize Firebase and begin using the SDKs for the products you'd like to use:

```
// Import the functions you need from the SDKs you need
import { initializeApp } from 'firebase/app';
import { getAnalytics } from 'firebase/analytics';
// TODO: Add SDKs for Firebase products that you want to use
// https://firebase.google.com/docs/web/setup/available-libraries

// Your web app's Firebase configuration
// For Firebase JS SDK v7.20.0 and later, measurementId is optional
const firebaseConfig = {
  apiKey: "AIzaSyCz0mWfPjL572cpjMa12gYKngTaz37vW",
  authDomain: "my-project-assignment-8-347419.firebaseioapp.com",
  projectId: "my-project-assignment-8-347419",
  storageBucket: "my-project-assignment-8-347419.appspot.com",
  messagingSenderId: "748168423425",
  appId: "1:748168423425:web:fdf46e02eb4d1d0ee8239",
  measurementId: "G-3008779E70"
};

// Initialize Firebase
const app = initializeApp(firebaseConfig);
const analytics = getAnalytics(app);
```

Note: This option uses the [minified JavaScript SDK](#), which provides reduced SDK size.

Learn more about Firebase for web: [Get Started](#) , [Web SDK API Reference](#) , [Samples](#) 

[Continue to console](#) 



Your project

Project name	My Project Assignment 8 ✓
Project ID	my-project-assignment-8-347616
Project number	748160425625
Default GCF instance location	Not yet selected ✓
Web API key	No Web API key for this project

Environment

This setting configures your project for different stages of the app lifecycle.

Environment type	Staged ✓
------------------	----------

Public settings

These settings control instances of your project closest to the public.

Public-facing name	project-748160425625 ✓
Support email	Not configured

Your apps

Add app

Web app	WebApp ✓ Web app
App nickname	WebApp ✓
App ID	748160425625 web fa440247c79c994daea6208
Link to a Firebase Hosting site	

SDK setup and configuration

open CDN config

If you're already using [CDN](#) and a module bundler such as [Webpack](#) or [Rollup](#), you can run the following command to install the latest SDK:

[\\$ npm install firebase](#)

Then, initialize Firebase and begin using the SDKs for the products you'd like to use.

```
// Import the Functions you need from the SDKs you need
import { initializeApp } from "firebase/app";
import { getAnalytics } from "firebase/analytics";
// TODO: Add SDKs for Firebase products that you want to use
// https://firebase.google.com/docs/web/setup/available-libraries

// Your web app's Firebase configuration
// For Firebase JS SDK v7.20.0 and later, measurementId is optional
const firebaseConfig = {
  apiKey: "AIzaSyCzK6607FmLbfZsqjQaCgYHqgTzxt3vW",
  authDomain: "my-project-assignment-8-347616.firebaseio.com",
  projectId: "my-project-assignment-8-347616",
  storageBucket: "my-project-assignment-8-347616.appspot.com",
  messagingSenderId: "748160425625",
  appId: "1:748160425625:web:fa440247c79c994daea6208",
  measurementId: "G-LJ99KC398K"
};

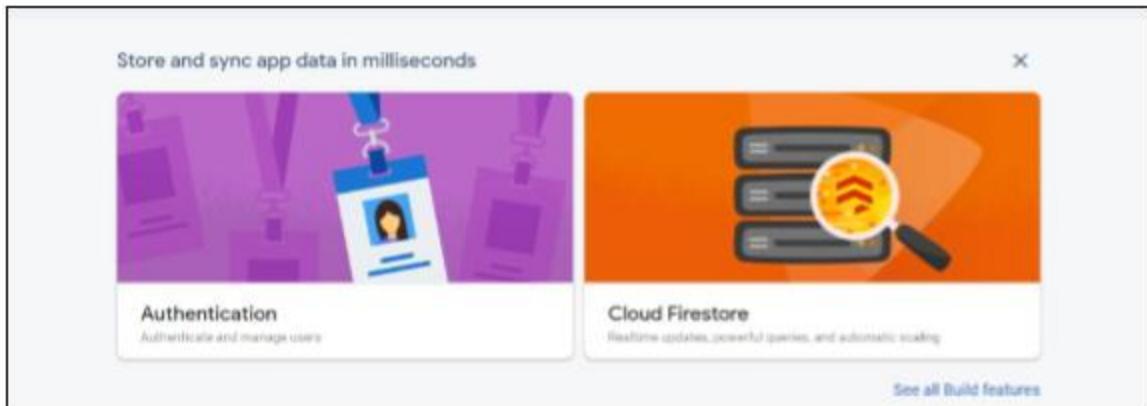
// Initialize Firebase
const app = initializeApp(firebaseConfig);
const analytics = getAnalytics(app);
```

Note: This option uses the [modular JavaScript SDK](#), which provides reduced SDK size.

Learn more about Firebase for web: [Get Started](#) | [Web SDK Reference](#) | [Samples](#)

[Remove this app](#)

6. Authentication in Firebase:



- Go to the project's console and select Authentication:
- In the Sign-in methods you will see various options, select any one option:

A screenshot of the Firebase Authentication console under the 'Sign-in method' tab. The page title is 'Authentication'. It shows a grid of sign-in providers: Native providers (Email/Password, Phone, Anonymous) and Additional providers (Google, Facebook, Play Games, Game Center, Apple, GitHub, Microsoft, Twitter, Yahoo). Below this is a section for 'Authorized domains' with a table showing three entries: 'localhost' (Type: Default), 'my-project-assignment-8-347620.firebaseio.com' (Type: Default), and 'my-project-assignment-8-347620.web.app' (Type: Default). A blue 'Add domain' button is at the top right of the table.

- Perform appropriate configuration for that platform. You can also add domains:

The screenshot shows the Firebase Authentication console for a project named "My Project Assignment 8". The "Sign-in method" tab is selected. Under "Sign-in providers", two methods are listed: "Email/Password" and "Google", both marked as "Enabled". Under "Authorized domains", four domains are listed: "localhost" (Default), "my-project-assignment-8-347418.firebaseio.com" (Default), "my-project-assignment-8-347418.web.app" (Default), and "my-project-assignment-8-347418.appspot.com" (Custom). A dropdown menu at the top right shows "yashnimbalkar15@gmail.com" as the currently selected user. At the bottom right of the main panel are "Cancel" and "Save" buttons. Below the main panel, there is a preview section showing the same "Authorized domains" table.

Authorized domain	Type
localhost	Default
my-project-assignment-8-347418.firebaseio.com	Default
my-project-assignment-8-347418.web.app	Default
my-project-assignment-8-347418.appspot.com	Custom

- d. Then you can see the added sign-in methods and the domains:
- e. Also, when the users login to your application, their details will be visible at the Users tab:
7. Installing dependencies and Running application locally:

The screenshot shows the 'Authentication' section of a project settings page. At the top, there are tabs for 'Users', 'Sign-in method', 'Templates', and 'Usage'. The 'Users' tab is selected. On the right, there are links to 'Go to docs', a notification bell, and a user profile icon. Below the tabs, there's a table header with columns: Identifier, Providers, Created (with a dropdown arrow), Signed In, and User ID. A large button labeled 'Add user' is at the top right of the table area. To the left of the table, there's a circular icon with a person's face and a badge, and text explaining the service: 'Authenticate and manage users from a variety of providers without server-side code'. It includes links to 'Learn more' and 'View the docs', and a blue button labeled 'Set up sign-in method'. At the bottom of the table area, there's a link 'Need help setting up your app?' followed by icons for GitHub, Bitbucket, and a code editor.

- a. Go to the backend directory of your application. By using the command ‘`pip install -t lib -r requirements.txt`’ install the dependencies:
- b. The requirements will be installed at specified location:

```

MINGW64\N\TE\CC\Assignment8\app\python-docs-samples\appengine\standard.firebaseio\firenotes\backend
$ git clone https://github.com/GoogleCloudPlatform/python-docs-samples.git
Cloning into 'python-docs-samples'...
remote: Enumerating objects: 63701, done.
remote: Counting objects: 100% (2720/2720), done.
remote: Compressing objects: 100% (1299/1299), done.
remote: Total 63701 (delta 1542), reused 2220 (delta 1238), pack-reused 60981
Receiving objects: 100% (63701/63701), 74.15 MiB / 2.37 MiB/s, done.
Resolving deltas: 100% (36369/36369), done.
Updating files: 100% (2231/2231), done.

DELLDESKTOP-N5TUSE1 MINGW64 /d/TE/CC/Assignment8/app/python-docs-samples/appengine/standard.firebaseio\firenotes (main)
$ cd backend/
DELLDESKTOP-N5TUSE1 MINGW64 /d/TE/CC/Assignment8/app/python-docs-samples/appengine/standard.firebaseio\firenotes (main)
$ pip install -t lib -r requirements.txt
Ignoring Flask: markers "python_version < \"3.0\" don't match your environment
Ignoring pyjwt: markers "python_version < \"3.0\" don't match your environment
Ignoring google-auth: markers "python_version < \"3.0\" don't match your environment
Collecting Flask<=2.1.0
  Downloading Flask-2.1.0-py3-none-any.whl (95 kB)
    ...
collecting Flask-cors<=3.0.10
  Downloading Flask_cors-3.0.10-py2.py3-none-any.whl (14 kB)
Collecting google-auth<2.6.2
  Downloading google_auth-2.6.2-py2.py3-none-any.whl (156 kB)
    ...
Collecting requests<=2.27.1
  Downloading requests-2.27.1-py2.py3-none-any.whl (61 kB)
    ...
Collecting requests_toolbelt<=0.9.1
  Downloading requests_toolbelt-0.9.1-py2.py3-none-any.whl (54 kB)
    ...
Collecting Werkzeug<=2.0
  Downloading Werkzeug-2.1.1-py3-none-any.whl (224 kB)
    ...

```

```

Collecting itsdangerous<=2.0
  Downloading itsdangerous-2.1.2-py3-none-any.whl (15 kB)
Collecting Jinja2<3.0
  Downloading Jinja2-3.1.1-py3-none-any.whl (132 kB)
    ...
Collecting six
  Using cached six-1.16.0-py3.py3-none-any.whl (11 kB)
Collecting pyaml-modules<=0.2.1
  Downloading pyaml_modules-0.2.8-py2.py3-none-any.whl (155 kB)
    ...
Collecting cachetools<6.0,>=2.0.0
  Downloading cachetools-5.0.0-py3-none-any.whl (9.1 kB)
Collecting rsa<5,>=3.1.4
  Downloading rsa-4.8-py3-none-any.whl (39 kB)
Collecting charset-normalizer<=2.0.0
  Downloading charset_normalizer-2.0.12-py3-none-any.whl (39 kB)
Collecting urllib3<1.27,>=1.21.1
  Downloading urllib3-1.26.9-py2.py3-none-any.whl (138 kB)
    ...
Collecting certifi<=2017.4.17
  Downloading certifi-2021.10.8-py2.py3-none-any.whl (149 kB)
    ...
Collecting idna<4.0,>=2.5
  Downloading idna-3.3-py3-none-any.whl (61 kB)
    ...
Collecting colorama
  Using cached colorama-0.4.4-py2.py3-none-any.whl (16 kB)
Collecting MarkupSafe<2.0
  Downloading MarkupSafe-2.1.1-cp39-cp39-win_amd64.whl (17 kB)
Collecting pyaml<0.3.0,>=0.4.6
  Downloading pyaml-0.4.8-py2.py3-none-any.whl (77 kB)
    ...
Collecting zipp<0.5
  Downloading zipp-3.8.0-py3-none-any.whl (5.4 kB)
Installing collected packages: pyaml, certifi, zipp, Werkzeug, urllib3, six, rsa, pyaml-modules, MarkupSafe, itsdangerous, idna, colorama, charset-normalizer, click, requests-toolbelt, Flask, Flask-cors
Successfully installed Flask-2.1.0 Jinja2-3.1.1 MarkupSafe-2.1.1 six-1.16.0 Werkzeug-2.1.1 cachetools-5.0.0 certifi-2021.10.8 charset-normalizer-3.0.2 idna-3.3 importlib-metadata-4.11.3 itsdangerous-2.1.2 pyaml-0.4.8 pyaml-modules-0.2.8 requests-2.27.1 requests-toolbelt-0.9.1 rsa-4.8 urllib3-2.4.1
WARNING: You are using pip version 22.0.3; however, version 22.0.4 is available.
You should consider upgrading via the 'C:\Users\DELL\AppData\Local\Programs\Python\Python39\python.exe -m pip install --upgrade pip' command.

DELLDESKTOP-N5TUSE1 MINGW64 /d/TE/CC/Assignment8/app/python-docs-samples/appengine/standard.firebaseio\firenotes\backend (main)
$
```

- c. Run ‘py dev_appserver.py frontend/app.yaml backend/app.yaml’ to run your application on localhost

```

Google Cloud Shell

D:\TE\CC\Cloud SDK> python google-cloud-sdk\bin\dev_appserver.py "D:\TE\CC\Assignment8\app\python-docs-samples\appengine\standard\firebase\firenotes\frontend\appengine\standard\firenotes\backend\app.yaml"
INFO 2022-04-17 08:22:05,500 devappserver2.py:316] Skipping SDK update check.
WARNING 2022-04-17 08:22:06,634 simple_search_stub.py:1196] Could not read search indexes from c:\users\dell\appdata\local\temp\appengine.None\search_indexes
INFO 2022-04-17 08:22:06,642 stringio:884] Starting API server at: http://localhost:8090
INFO 2022-04-17 08:22:06,642 dispatcher.py:281] Starting module "default" running at: http://localhost:8080
INFO 2022-04-17 08:22:06,642 dispatcher.py:281] Starting module "backend" running at: http://localhost:8081
INFO 2022-04-17 08:22:06,658 admin_server.py:150] Starting admin server at: http://localhost:8000
INFO 2022-04-17 08:22:14,498 instance.py:294] Instance PID: 23920
INFO 2022-04-17 08:22:14,498 instance.py:294] Instance PID: 15348
INFO 2022-04-17 08:22:22,094 module.py:883] default: "GET / HTTP/1.1" 200 3445
INFO 2022-04-17 08:22:22,974 module.py:883] default: "GET /style.css HTTP/1.1" 200 993
INFO 2022-04-17 08:22:22,990 module.py:883] default: "GET /min.js HTTP/1.1" 200 4882
INFO 2022-04-17 08:22:23,100 module.py:883] default: "GET /favicon.ico HTTP/1.1" 404 -
INFO 2022-04-17 08:22:29,517 module.py:883] default: "GET / HTTP/1.1" 304 -
INFO 2022-04-17 08:22:29,648 module.py:883] default: "GET /style.css HTTP/1.1" 304 -
INFO 2022-04-17 08:22:29,667 module.py:883] default: "GET /min.js HTTP/1.1" 304 -
INFO 2022-04-17 08:22:48,655 module.py:883] default: "GET / HTTP/1.1" 304 -
INFO 2022-04-17 08:22:48,757 module.py:883] default: "GET /style.css HTTP/1.1" 304
INFO 2022-04-17 08:22:48,757 module.py:883] default: "GET /min.js HTTP/1.1" 304 -
INFO 2022-04-17 08:23:28,648 module.py:443] [default] Detected file changes:
  main.js
INFO 2022-04-17 08:23:41,855 module.py:883] default: "GET / HTTP/1.1" 304 -
INFO 2022-04-17 08:23:41,187 module.py:883] default: "GET /style.css HTTP/1.1" 304 -
INFO 2022-04-17 08:23:41,188 module.py:883] default: "GET /min.js HTTP/1.1" 200 4596
INFO 2022-04-17 08:27:27,161 module.py:443] [default] Detected file changes:
  main.js
INFO 2022-04-17 08:27:32,717 module.py:883] default: "GET / HTTP/1.1" 304 -
INFO 2022-04-17 08:27:32,767 module.py:883] default: "GET /style.css HTTP/1.1" 304 -
INFO 2022-04-17 08:27:32,769 module.py:883] default: "GET /min.js HTTP/1.1" 200 4646
INFO 2022-04-17 08:33:15,496 module.py:443] [default] Detected file changes:
  main.js
INFO 2022-04-17 08:33:15,516 module.py:443] [default] Detected file changes:
  main.js
INFO 2022-04-17 08:33:20,418 module.py:883] default: "GET / HTTP/1.1" 304 -
INFO 2022-04-17 08:33:20,450 module.py:883] default: "GET /style.css HTTP/1.1" 304 -
INFO 2022-04-17 08:33:20,461 module.py:883] default: "GET /min.js HTTP/1.1" 200 4697
INFO 2022-04-17 08:36:51,644 module.py:443] [default] Detected file changes:
  main.js
INFO 2022-04-17 08:36:51,644 module.py:443] [default] Detected file changes:
  main.js
INFO 2022-04-17 08:37:29,822 shutdown.py:50] Shutting down...
INFO 2022-04-17 08:37:29,822 stub_util.py:362] Applying all pending transactions and saving the datastore
INFO 2022-04-17 08:37:29,822 stub_util.py:365] Saving search indexes

```

8. Deploying your app:

- Enter ‘gcloud app deploy’ command to deploy your application as shown below:

```

Google Cloud Shell

D:\TE\CC\Cloud SDK> gcloud app deploy "D:\TE\CC\Assignment8\app\python-docs-samples\appengine\standard\firebase\firenotes\backend\index.yaml"
use\firenotes\frontend\app.yaml", "D:\TE\CC\Assignment8\app\python-docs-samples\appengine\standard\firebase\firenotes\backend\app.yaml"
You are creating an app for project [my-project-assignment-8-347418].
WARNING: Creating an App Engine application for a project is irreversible and the region
cannot be changed. More information about regions is at
<a href="https://cloud.google.com/appengine/docs/locations">https://cloud.google.com/appengine/docs/locations</a>.

Please choose the region where you want your App Engine application located:

[1] asia-east1   (supports standard and flexible)
[2] asia-east2   (supports standard and flexible and search_api)
[3] asia-northeast1 (supports standard and flexible and search_api)
[4] asia-northeast2 (supports standard and flexible and search_api)
[5] asia-northeast3 (supports standard and flexible and search_api)
[6] asia-south1   (supports standard and flexible and search_api)

```

- Select appropriate region if prompted.

```
Please choose the region where you want your App Engine application located:
[1] asia-east1 (supports standard and flexible)
[2] asia-east2 (supports standard and flexible and search_api)
[3] asia-northeast1 (supports standard and flexible and search_api)
[4] asia-northeast2 (supports standard and flexible and search_api)
[5] asia-northeast3 (supports standard and flexible and search_api)
[6] asia-south1 (supports standard and flexible and search_api)
[7] asia-southeast1 (supports standard and flexible)
[8] asia-southeast2 (supports standard and flexible and search_api)
[9] australia-southeast1 (supports standard and flexible and search_api)
[10] europe-central2 (supports standard and flexible)
[11] europe-west (supports standard and flexible and search_api)
[12] europe-west2 (supports standard and flexible and search_api)
[13] europe-west3 (supports standard and flexible and search_api)
[14] europe-west6 (supports standard and flexible and search_api)
[15] northamerica-northeast1 (supports standard and flexible and search_api)
[16] southamerica-east1 (supports standard and flexible and search_api)
[17] us-central (supports standard and flexible and search_api)
[18] us-east1 (supports standard and flexible and search_api)
[19] us-east4 (supports standard and flexible and search_api)
[20] us-west1 (supports standard and flexible)
[21] us-west2 (supports standard and flexible and search_api)
[22] us-west3 (supports standard and flexible and search_api)
[23] us-west4 (supports standard and flexible and search_api)
[24] cancel
Please enter your numeric choice: 17

Creating App Engine application in project [my-project-assignment-8-347418] and region [us-central]....done.
Services to deploy:
descriptor: [D:\TE\CC\Assignment8\app\python-docs-samples\appengine\standard\firebase\firenotes\frontend\app.yaml]
source: [D:\TE\CC\Assignment8\app\python-docs-samples\appengine\standard\firebase\firenotes\frontend]
target project: [my-project-assignment-8-347418]
target service: [default]
target version: [28228417t003955]
target url: [https://my-project-assignment-8-347418.uc.r.appspot.com]
target service account: [App Engine default service account]
```

c. The backend and the frontend of your application will be deployed:

```
Google Cloud SDK Shell

descriptor: [D:\TE\CC\Assignment8\app\python-docs-samples\appengine\standard\firebase\firenotes\backend\app.yaml]
source: [D:\TE\CC\Assignment8\app\python-docs-samples\appengine\standard\firebase\firenotes\backend]
target project: [my-project-assignment-8-347418]
target service: [backend]
target version: [28228417t004225]
target url: [https://backend-dot-my-project-assignment-8-347418.uc.r.appspot.com]
target service account: [App Engine default service account]

Configurations to update:
descriptor: [D:\TE\CC\Assignment8\app\python-docs-samples\appengine\standard\firebase\firenotes\backend\index.yaml]
type: [datastore indexes]
target project: [my-project-assignment-8-347418]

Do you want to continue (Y/n)? y

Beginning deployment of service [default]...
=====
# Uploading 0 files to Google Cloud Storage
=====
file upload done.
Updating service [default]...done.
Setting traffic split for service [default]...done.
Deployed service [default] to [https://my-project-assignment-8-347418.uc.r.appspot.com]
Beginning deployment of service [backend]...
=====
# Uploading 572 files to Google Cloud Storage
=====
file upload done.
Updating service [backend]...done.
Setting traffic split for service [backend]...done.
Deployed service [backend] to [https://backend-dot-my-project-assignment-8-347418.uc.r.appspot.com]
.... 100%...done.
Updating config [index]...done.

Indexes are being rebuilt. This may take a moment.

You can stream logs from the command line by running:
$ gcloud app logs tail -s <service>

To view your application in the web browser run:
$ gcloud app browse -s <service>
```