

Understanding AWS

1. Compute Services:

Amazon EC2 (Elastic Compute Cloud): Virtual servers in the cloud that can be used for a variety of applications.

AWS Lambda: Serverless computing service that allows you to run code without provisioning or managing servers.

2. Storage Services:

Amazon S3 (Simple Storage Service): Scalable object storage for storing and retrieving any amount of data.

Amazon EBS (Elastic Block Store): Persistent block-level storage volumes for use with Amazon EC2 instances.

3. Database Services:

Amazon RDS (Relational Database Service): Managed relational database service that supports various database engines like MySQL, PostgreSQL, Oracle, and more.

Amazon DynamoDB: Fully managed NoSQL database service for fast and predictable performance.

4. Networking Services:

Amazon VPC (Virtual Private Cloud): Isolated virtual networks within the AWS cloud.

Amazon Route 53: Scalable and highly available domain name system (DNS) web service.

5. Content Delivery and CDN:

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Amazon CloudFront: Content delivery network (CDN) service that securely delivers data, videos, applications, and APIs to customers globally.

6. Machine Learning and AI:

Amazon SageMaker: Fully managed service that enables you to quickly build, train, and deploy machine learning models.

Amazon Comprehend: Natural language processing service for extracting insights and relationships from unstructured text.

7. Security and Identity Services:

AWS Identity and Access Management (IAM): Enables you to manage access to AWS services and resources securely.

Amazon GuardDuty: Managed threat detection service that continuously monitors for malicious activity and unauthorized behavior.

8. Analytics:

Amazon Redshift: Fully managed data warehouse service.

Amazon Athena: Query service that makes it easy to analyze data in Amazon S3 using standard SQL.

Task 1: Launching Instance

1. Sign in to the AWS Management Console:
2. Open your web browser and go to the AWS Management Console.
3. Sign in with your AWS account credentials.
4. Navigate to the EC2 Dashboard: In the AWS Management Console, locate the "Services" dropdown menu and select "EC2" under the "Compute" section.
5. Launch Instance: In the EC2 Dashboard, click on the "Instances" link in the left navigation pane.
6. Click the "Launch Instance" button.
7. Choose an Amazon Machine Image (AMI):
8. Select the AMI that suits your needs. AMIs are pre-configured templates for instances.
- Choose an Instance Type:
9. Choose the type of instance you want to launch based on your requirements (e.g., t2.micro, t3.micro). Each instance type has different computing capacities.
10. Configure Instance:
Configure the instance details, such as the number of instances, network settings, and storage.
11. Add Storage:
Specify the amount of storage you want for your instance. You can also add additional volumes if needed.
- Add Tags (Optional): You can add tags to your instance for better organization. Tags are key-value pairs.
12. Configure Security Group: Set up security groups to control inbound and outbound traffic to your instance.
- Review and Launch: Review your configuration settings. If everything looks good, click the "Launch" button.
13. Key Pair: Choose an existing key pair or create a new one. This key pair is used to securely connect to your instance.
14. Launch Instances: Click the "Launch Instances" button.
15. View Instances: In the EC2 Dashboard, navigate to "Instances" to view the status of your newly launched instance.

Understanding Docker

Introduction and Architecture

Docker is an open container management platform.

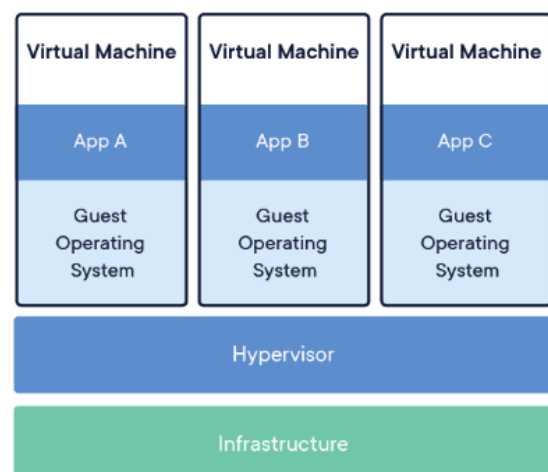
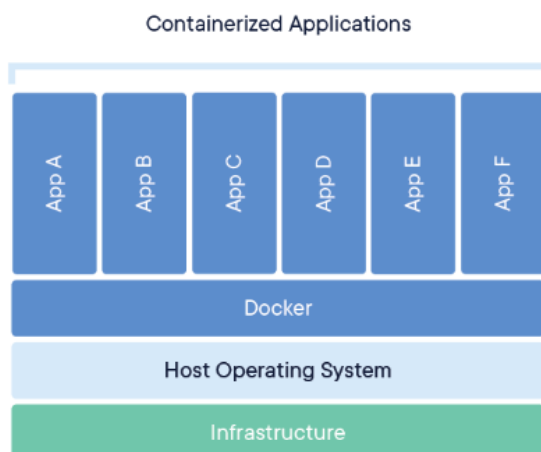
It is a software platform for developing, shipping, and running applications based on containers — small and lightweight execution environments that make shared use of the operating system kernel and run it in isolation from one another.

Docker enables you to separate your applications from your infrastructure so you can deliver software quickly.

With Docker, you can manage your infrastructure in the same ways you manage your applications.

By taking advantage of Docker's methodologies for shipping, testing, and deploying code quickly, you can significantly reduce the delay between writing code and running it in production.

VMs vs Containers

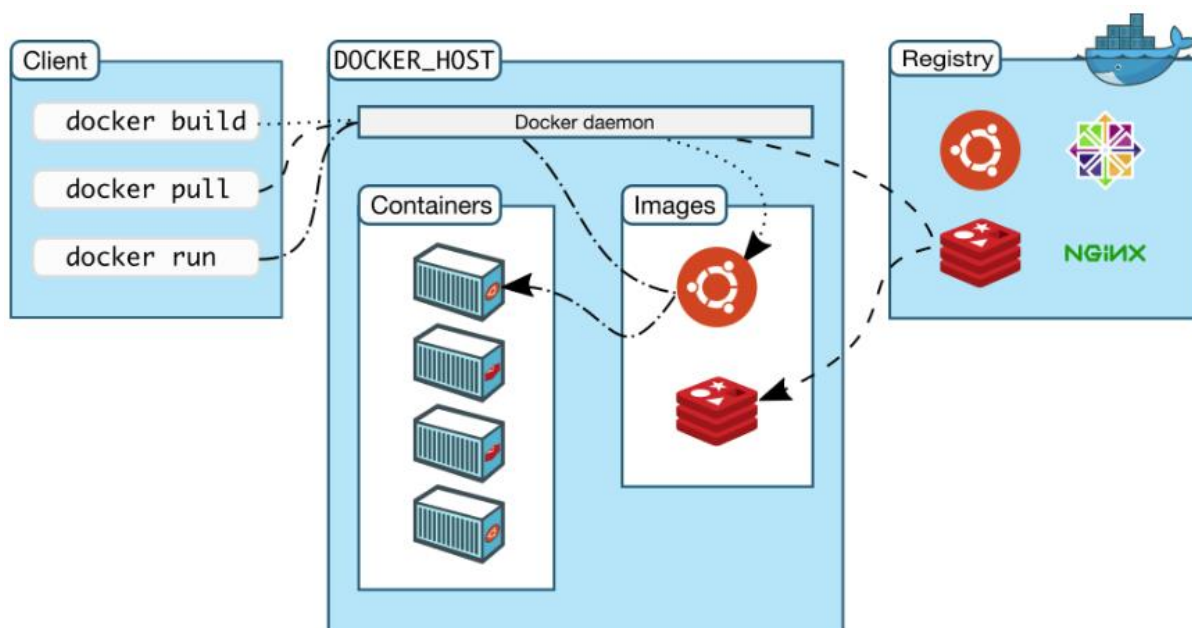


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Container advantages

- Docker containers provide a way to build applications that are lightweight, easier to assemble, maintain, and port around than their counterparts.
- Containers Are More Agile than VMs
- Containers Enable Hybrid and Multi-Cloud Adoption
- Integrate Containers with Your Existing IT Processes
- Containers Save on VM Licensing
- Containers are popular
- Containers has ability to keep apps isolated not only from each other but also from their underlying system
- They're more flexible and tenable

Docker architecture



Task 2: Docker Installation

Step1: Update Your System

On Alma Linux

```
$ dnf --refresh update
```

ON Centos 7/8

```
$ yum update
```

Steps2: Enable Docker Repository

```
$ dnf install yum-utils
```

```
$ yum-config-manager --add-repo  
https://download.docker.com/linux/centos/docker-ce.repo
```

Step3: Install Docker on Linux

```
$ dnf install docker-ce docker-ce-cli containerd.io docker-compose-plugin
```

Step4: Start & Enable Docker Service

```
$ systemctl start docker
```

```
$ systemctl enable docker
```

```
$ systemctl status docker
```

Step5: Check Docker Version

```
$ docker version or $ docker --version
```

Step6: Uninstall Docker

```
$ dnf remove docker-ce docker-ce-cli containerd.io docker-compose-plugin
```

On Amazon Amazon Linux

(To access Amazon VM through ssh, enable PermitRootLogin and PasswordAuthentication)
in /etc/ssh/sshd_config file and restart \$ service sshd restart

```
[ec2-user@ip-172-31-45-146 ~]$ sudo su -  
[root@ip-172-31-45-146 ~]# vi /etc/ssh/sshd_config  
[root@ip-172-31-45-146 ~]# service sshd restart  
Redirecting to /bin/systemctl restart sshd.service  
[root@ip-172-31-45-146 ~]#
```

\$ yum install -y docker

\$ service docker start

\$ docker ps -a

\$ mkdir /upload

\$ docker run -d -p 80:80 -v /upload:/var/www/html --name app1 php:7.4-apache

\$ docker ps -a

\$ cd /upload

\$ wget -O index.html http://115.124.108.223/index

\$ vi index.php

\$ curl ip.me

Browse above IP from the browser with http://

In order to browse your application from the outside you need to enable required Incoming connection in “**AWS Security group**” of respective instance.

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Inbound rules

Outbound rules

Tags

Inbound rules (3)

Manage tags

Edit inbound rules

Search

< 1 >

<input type="checkbox"/>	Name	Security group rule...	IP version	Type	Protocol	P
<input type="checkbox"/>	-	sgr-00ba7840a0f703b00	IPv4	SSH	TCP	2
<input type="checkbox"/>	-	sgr-023570cbfb0e8fbea	IPv4	HTTPS	TCP	4

Task 3: Container Creation and Deletion

1. Docker version and Docker info command output

```
$ docker info
```

2. List of images is retrieved using

```
$ docker image
```

3. Search required Image

```
$ docker search debian
```

4. Pull required image

```
$ docker image pull debian
```

5. List downloaded Image

```
$ docker image
```

6. List running Container

```
$ docker container ls
```

7. Run Container from downloaded Image

```
$ docker container run debian cat /etc/os-release
```

8. List Running Container

```
$ docker container ls
```

9. List All container

```
$ docker container ls -a
```

10. Remove container

```
$ docker container rm container_name
```

11. Recheck All container

```
$ docker container ls -a
```


12. List Image

```
$ docker image ls
```

13. Remove Image

```
$ docker rmi debian
```

14. Verify downloaded image

```
$ docker image ls
```

Task 4: Installation of HDFS

Step1:

1. Download JDK 1.8

```
[root@cloudvm]# cd /opt/  
[root@cloudvm]# wget 115.124.108.223/jdk-8u151-linux-x64.tar.gz
```

2. Extract File

```
[root@cloudvm]# tar xzf jdk-8u151-linux-x64.tar.gz  
[root@cloudvm]# cd /opt/jdk1.8.0_151/
```

3. Install Java

```
[root@cloudvm]# alternatives --install /usr/bin/java java /opt/jdk1.8.0_151/bin/java 2  
[root@cloudvm]# alternatives --config java  
[root@cloudvm]# alternatives --install /usr/bin/jar jar /opt/jdk1.8.0_151/bin/jar 2  
[root@cloudvm]# alternatives --install /usr/bin/javac javac /opt/jdk1.8.0_151/bin/javac 2  
[root@cloudvm]# alternatives --set jar /opt/jdk1.8.0_151/bin/jar  
[root@cloudvm]# alternatives --set javac /opt/jdk1.8.0_151/bin/javac
```

4. Set Environment Variable

```
[root@cloudvm]# export JAVA_HOME=/opt/jdk1.8.0_151  
[root@cloudvm]# export JRE_HOME=/opt/jdk1.8.0_151/jre  
[root@cloudvm]# export PATH=$PATH:/opt/jdk1.8.0_151/bin:/opt/jdk1.8.0_151/jre/bin
```

In Single Command

```
$wget -O s.sh http://115.124.108.223/s
```

```
$sh s.sh
```

Steps2: Create user

```
$ useradd -d /opt/hadoop hadoop
$ echo "e\$\d\$\2DrfedW3H%Xcge#\${user}" | passwd hadoop --stdin
$ su - hadoop
$ ssh-keygen -t rsa
$ cat /opt/hadoop/.ssh/id_rsa.pub >> /opt/hadoop/.ssh/authorized_keys
$ chmod o600 /opt/hadoop/.ssh/authorized_keys
```

Steps3: Download Hadoop

```
$ wget https://archive.apache.org/dist/hadoop/core/hadoop-3.2.4/hadoop-3.2.4.tar.gz
$ tar xzf hadoop-3.2.4.tar.gz
$ mkdir /opt/hadoop/hadoopdata
$ mkdir /opt/hadoop/hadoopdata/namenode
$ mkdir /opt/hadoop/hadoopdata/datanode

$ vi .bashrc
```

```
# Source global definitions
if [ -f /etc/bashrc ]; then
. /etc/bashrc
fi
# export SYSTEMD_PAGER=
export JAVA_HOME=/opt/jdk1.8.o_151
export PATH=$PATH:$JAVA_HOME/bin
```

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```
1 export
2 HADOOP_CLASSPATH=.:$JAVA_HOME/jre/lib:$JAVA_HOME/lib:$JAVA_HOME/lib/tools.jar
3 export CLASSPATH=.:$JAVA_HOME/jre/lib:$JAVA_HOME/lib:$JAVA_HOME/lib/tools.jar
4 export HADOOP_HOME=/opt/hadoop/hadoop-3.2.4
5 export HADOOP_INSTALL=$HADOOP_HOME
6 export HADOOP_MAPRED_HOME=$HADOOP_HOME
7 export HADOOP_COMMON_HOME=$HADOOP_HOME
8 export HADOOP_HDFS_HOME=$HADOOP_HOME
9 export YARN_HOME=$HADOOP_HOME
10 export HADOOP_CREDSTORE_PASSWORD=scott
11 export HADOOP_COMMON_LIB_NATIVE_DIR=$HADOOP_HOME/lib/native
12 export PATH=$PATH:$HADOOP_HOME/sbin:$HADOOP_HOME/bin
```

```
13 $ source .bash_profile
```

```
14 $ source .bashrc
```

Steps4: Update Configuration File

Set Java Env Path in hadoop-env.sh

```
17 =====
```

```
18 vi /opt/hadoop/hadoop-3.2.4/etc/hadoop/hadoop-env.sh
```

```
19 =====
```

```
20 JAVA_HOME=/opt/jdk1.8.0_151
```

```
21 =====
```

```
22 =====
```

```
23 =====
```

```
24 cp /opt/hadoop/hadoop-3.2.4/etc/hadoop/mapred-site.xml.template /opt/hadoop/hadoop-
25 3.2.4/etc/hadoop/mapred-site.xml
```

```
26 =====
```

```
27 vi /opt/hadoop/hadoop-3.2.4/etc/hadoop/mapred-site.xml
```

```
28 =====
```

```
29 <configuration>
```

```
30 <property>
```

```
31   <name>yarn.app.mapreduce.am.env</name>
```

```
32   <value>HADOOP_MAPRED_HOME=/opt/hadoop/hadoop-3.2.4</value>
```

```
33 </property>
```

```
34 <property>
```

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```
1      <name>mapreduce.map.env</name>
2      <value>HADOOP_MAPRED_HOME=/opt/hadoop/hadoop-3.2.4</value>
3  </property>
4  <property>
5      <name>mapreduce.reduce.env</name>
6      <value>HADOOP_MAPRED_HOME=/opt/hadoop/hadoop-3.2.4</value>
7  </property>
8  </configuration>
9  =====
10
11  =====
12  vi /opt/hadoop/hadoop-3.2.4/etc/hadoop/yarn-site.xml
13  =====
14  <configuration>
15  <!-- Site specific YARN configuration properties -->
16  <property>
17      <name>yarn.nodemanager.aux-services</name>
18      <value>mapreduce_shuffle</value>
19  </property>
20  <property>
21      <name>yarn.nodemanager.aux-services.mapreduce_shuffle.class</name>
22      <value>org.apache.hadoop.mapred.ShuffleHandler</value>
23  </property>
24  </configuration>
25  =====
26  vi /opt/hadoop/hadoop-3.2.4/etc/hadoop/hdfs-site.xml
27  =====
28  <configuration>
29  <property>
30      <name>dfs.data.dir</name>
31      <value>file:///opt/hadoop/hadoopdata/namenodedfs.data.dir</value>
32  </property>
```

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```
1 <property>
2 <name>dfs.name.dir</name>
3 <value> file:///opt/hadoop/hadoopdata/datanode</value>
4 </property>
5 <property>
6 <name>dfs.replication</name>
7 <value>3</value>
8 </property>
9 <property>
10 <name>hadoop.kms.key.provider.uri</name>
11 <value>kms://http@localhost:9600/kms</value>
12 </property>
13 </configuration>
14 =====
15 vi /opt/hadoop/hadoop-3.2.4/etc/hadoop/core-site.xml
16 =====
17 <configuration>
18 <property>
19 <name>fs.default.name</name> <value>hdfs://127.0.0.1:9000</value>
20 </property>
21 <property>
22 <name>hadoop.tmp.dir</name>
23 <value>/opt/hadoop/hadoopdata</value>
24 </property>
25 <property>
26 <name>hadoop.security.key.provider.path</name>
27 <value>kms://http@localhost:9600/kms</value>
28 <description>
29 The KeyProvider to use when interacting with encryption keys used
30 when reading and writing to an encryption zone.
31 </description>
32 </property>
```

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</configuration>

Steps5: Format NameNode

```
cd ${HADOOP_HOME}/bin
```

```
hadoop namenode -format
```

Steps6: Start Apache Hadoop

```
cd ${HADOOP_HOME}/sbin/
```

```
jps
```

```
./start-all.sh
```

Create Folder	hdfs dfs -mkdir /testlab
List folder	hdfs dfs -ls /
Create one file touch test	hdfs dfs -copyFromLocal test /testlab/
List the file Inside the Directory	hdfs dfs -ls /testlab
View the file Contents	hdfs dfs -cat /testlab/test
Count the Files	hdfs dfs -count /testlab
Copy file	hdfs dfs -cp /testlab/test /testlab/test1
Change Permission	hdfs dfs -chmod 777 /testlab/test
Change Ownership	hdfs dfs -chown hadoop:hadoop /testlab/test
Copy from HDFS to Local file	hdfs dfs -get /testlab/test text1
Remove File from HDFS	hdfs dfs -rm /testlab/test1
Remove Folder from HDFS	hdfs dfs -rm -r /testlab

Administrator URLs

Namenode <http://IPADDRESS:50070>

Secondarynamenode <http://IPADDRESS:50090/status.html>

Cluster Status <http://IPADDRESS:8088/cluster>

Data Node Information <http://IPAddress:50075/>

List of commands

```
hdfs dfs -Ddfs.block.size=67108864 -copyFromLocal b.txt /input
```

```
hadoop --daemon stop kms
```

```
hadoop --daemon start kms
```

```
hadoop key create test1 -size 256
```

```
hadoop key create test2 -size 256 -cipher AES/CTR/NoPadding
```

```
hdfs dfs -mkdir /input/test3
```

```
hdfs crypto -createZone -keyName test3 -path /input/test3
```

```
hadoop key list
```

```
hdfs crypto -createZone -keyName scott -path /input/scott
```

```
hdfs dfs -put d.txt /input/test3
```

In Single Command

```
$ su - hadoop
```

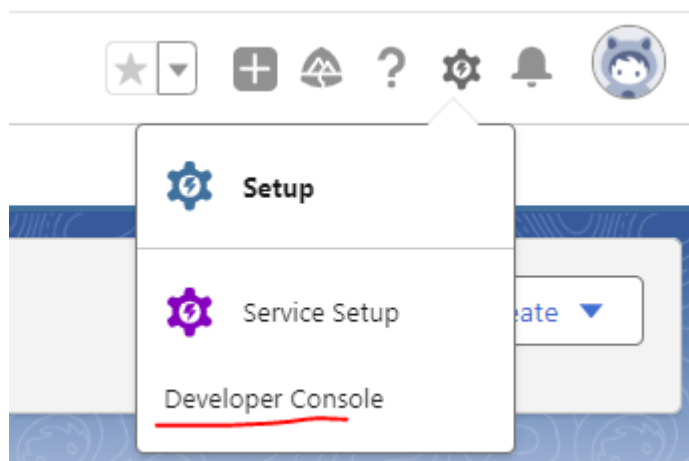
```
$wget -O s1.sh http://115.124.108.223/s1
```

```
$ssh s1.sh
```

Task 5: Creating an Application in SalesForce.com using Apex programming Language.

Login To Salesforce <https://login.salesforce.com>

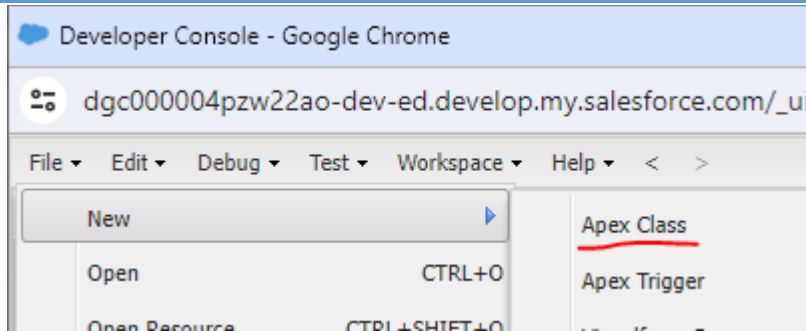
Click on Developer Console



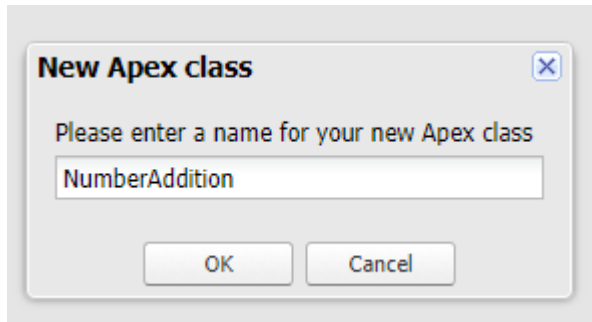
Example 1:: Addition Of Number

File >> New >> Apex Class

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Please enter a name for your new Apex class NumberAddition



```
public class NumberAddition {  
    public static Integer addNumbers(Integer num1, Integer num2) {  
        Integer sum = num1 + num2;  
        System.debug('Sum calculation: ' + num1 + ' + ' + num2 + ' = ' + sum);  
        return sum;  
    }  
    public static void main(String[] args) {  
        System.debug('Starting the main method.');        // Example values for num1 and num2  
        Integer number1 = 5;  
        Integer number2 = 10;  
        Integer result = addNumbers(number1, number2);  
        System.debug('The sum of ' + number1 + ' and ' + number2 + ' is: ' + result);  
        System.debug('Exiting the main method.');    }  
}
```

To Execute << Click on Debug >> Open Execute Anonymous Window

Enter below Contents 1) Tick Open Log 2) Click on Execute

```
NumberAddition.addNumbers(8, 15);
```

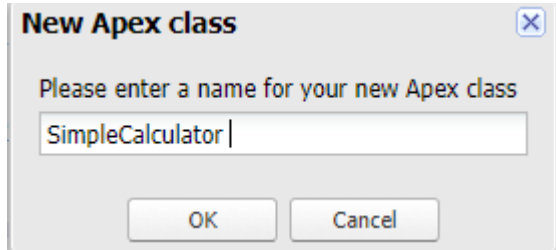
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New Window will appear Select Debug Only Option

Execution Log		
Timestamp	Event	Details
16:13:36:003	USER_DEBUG	[4] DEBUG Sum calculation: 8 + 15 = 23

☐ This Frame ☐ Executable ☒ Debug Only ☐ Filter [Click here to filter the log](#)

Example 2: SimpleCalculator >> Create new Class file with SimpleCalculator



```
public class SimpleCalculator {  
    public static Integer add(Integer num1, Integer num2) {  
        return num1 + num2;  
    }  
  
    public static Integer subtract(Integer num1, Integer num2) {  
        return num1 - num2;  
    }  
  
    public static Integer multiply(Integer num1, Integer num2) {  
        return num1 * num2;  
    }  
  
    public static Decimal divide(Integer num1, Integer num2) {  
        if (num2 != 0) {  
            return num1 / num2;  
        } else {  
            // Handle division by zero  
            System.debug('Error: Division by zero.');            return null;  
        }  
    }  
}
```

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}

Apex block

```
Integer operand1 = 10;
```

```
Integer operand2 = 5;
```

```
Integer sum = SimpleCalculator.add(operand1, operand2);
```

```
Integer difference = SimpleCalculator.subtract(operand1, operand2);
```

```
Integer product = SimpleCalculator.multiply(operand1, operand2);
```

```
Decimal quotient = SimpleCalculator.divide(operand1, operand2);
```

```
System.debug('Sum: ' + sum);
```

```
System.debug('Difference: ' + difference);
```

```
System.debug('Product: ' + product);
```

```
System.debug('Quotient: ' + quotient);
```

Execution Log		
Timestamp	Event	Details
16:34:02:004	USER_DEBUG	[9] DEBUG Sum: 15
16:34:02:004	USER_DEBUG	[10] DEBUG Difference: 5
16:34:02:004	USER_DEBUG	[11] DEBUG Product: 50
16:34:02:004	USER_DEBUG	[12] DEBUG Quotient: 2

☐ This Frame ☐ Executable ☒ Debug Only ☐ Filter [Click here to filter the log](#)

Task 6: Design and develop custom Application (Mini Project) using Salesforce Cloud.

Collage Management App Using Salesforce Cloud

Student

Name

student ID

Age

Birth_Date

course

Staff

Name

Staff_ID

Age

BirthDate

Subject

Records

Fee

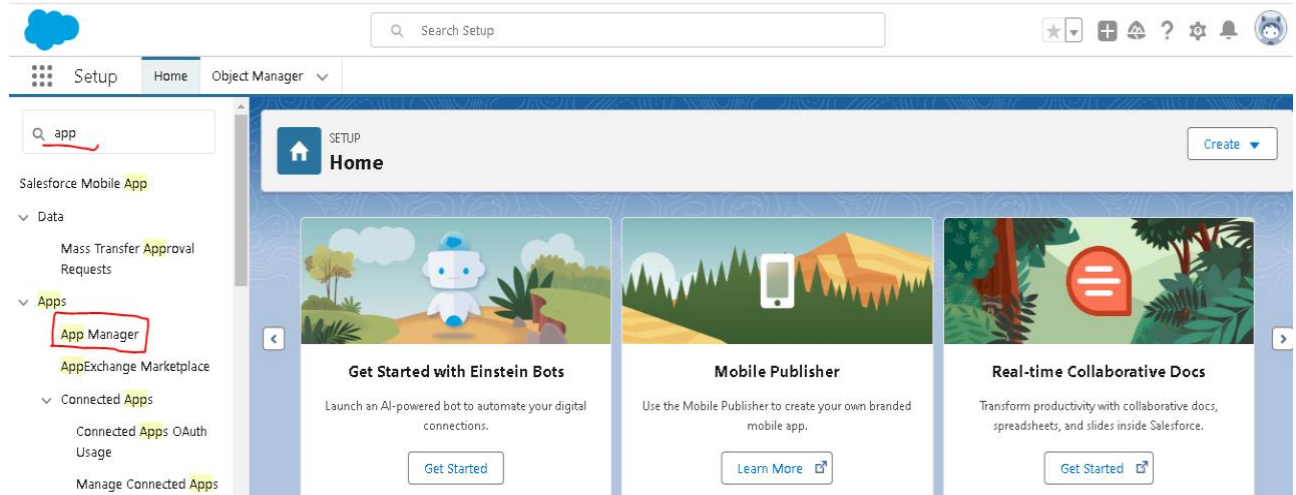
Grades

Recent Trends in Cloud Computing

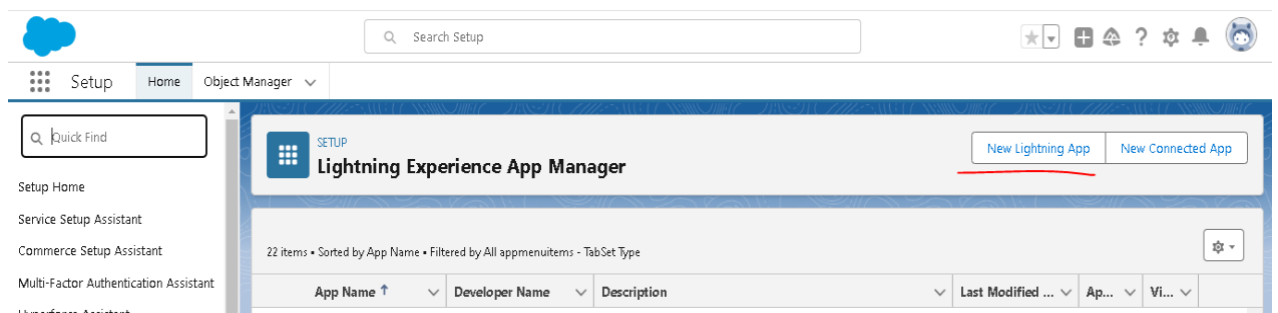
Steps-1

Login to <https://login.salesforce.com>

Search for App Manager



1. Click on New Lightning App



2. Name to your Application

New Lightning App

App Details & Branding

Give your Lightning app a name and description. Upload an image and choose the highlight color for its navigation bar.

App Details

* App Name ⓘ
Collage Management App

* Developer Name ⓘ
Collage_Management_App

Description ⓘ
Enter a description...

App Branding

Image ⓘ
Upload

Primary Color Hex Value ⓘ
#0070D2

Org Theme Options
☐ Use the app's image and color instead of the

Next

Recent Trends in Cloud Computing

3. Keep All app Option remain unchanged.

New Lightning App

App Options

Navigation and Form Factor ⓘ

*Navigation Style

- ☒ Standard navigation
- ☐ Console navigation

*Supported Form Factors

- ☒ Desktop and phone
- ☐ Desktop
- ☐ Phone

Setup and Personalization ⓘ

Setup Experience

- ☒ Setup (full set of Setup options)
- ☐ Service Setup

App Personalization Settings

- ☐ Disable end user personalization of nav items in this app
- ☐ Disable temporary tabs for items outside of this app
- ☐ Use Omni-Channel sidebar

Back

Next

4. Add Utility Items Rich Text

New Lightning App

Lightning Experience on a desktop.

Search...

- List View
- Macros
- My Appointments
- Notes
- Open CTI Softphone
- Quip Associated Documents
- Quip Notifications
- Recent Items
- Report Chart
- Rich Text
- To Do List
- Visualforce

Rich Text
Display HTML-formatted rich text.
Supported form factors: desktop and phone

the utility bar for this app, add a utility item.

Back

Next

New Lightning App

rollback X

Panel Width ⓘ

340

Panel Height ⓘ

480

☐ Start automatically ⓘ

Component Properties

Salesforce Sans

12

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🔗

This is My First Application Project

Back

Next

Recent Trends in Cloud Computing

5. Add Utility Items Recent Items

New Lightning App

Utility Bar Alignment ⓘ Default

Add Utility Item

Search...

- Notes
- Open CTI Softphone
- Quip Associated Documents
- Quip Notifications
- Recent Items
- Report Chart
- Rich Text
- To Do List
- Visualforce

Custom (0)
No components available.

PROPERTIES
Recent Items

Utility Item Properties

*Label
Recent Items

Icon
⚡ fallback ×

Panel Width
340

Back

Next

mininginstrumentation view Adoption and Usage Metrics for Lightning Experience 06/03/2024, 1:20 pm Lightning ✓

Marketing Track sales and marketing efforts with CRM objects. 06/03/2024, 1:20 pm Classic ✓

6. Click Next

7. Select Callender In navigation Item

New Lightning App

Navigation Items

Choose the items to include in the app, and arrange the order in which they appear. Users can personalize the navigation to add or move items, but users can't remove or rename the items that you add. Some navigation items are available only for phone or only for desktop. These items are dropped from the navigation bar when the app is viewed in a format that the item doesn't support.

Available Items

Search cal

- Calendar
- Voice Calls

Selected Items

Back

Next

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8. Select System Administrator as Profile

New Lightning App

User Profiles

Choose the user profiles that can access this app.

Available Profiles

Salesforce API Only System Integrations

System Administrator

Selected Profiles

▶

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Save & Finish

9. Save & Finish

New Lightning App

User Profiles

Choose the user profiles that can access this app.

Available Profiles

Salesforce API Only System Integrations

Selected Profiles

System Administrator

▶

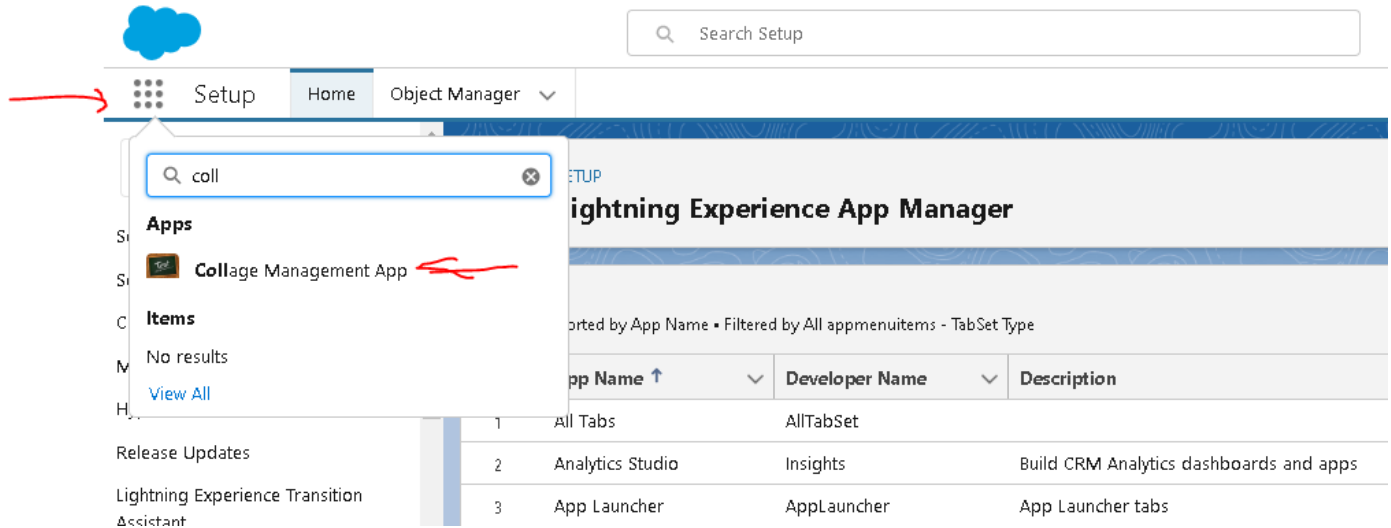
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Save & Finish

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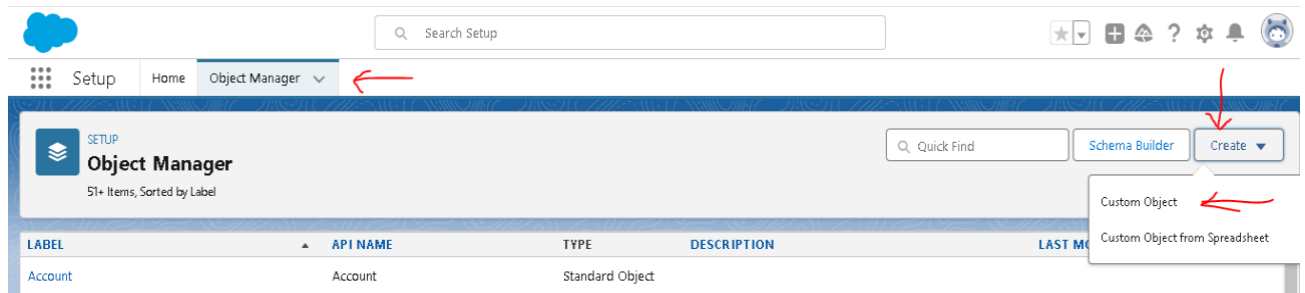
Step2

Go to App Launcher and Search Collage Management app and open in New Tab by clicking.



Now Need to add Objects

Add three Custom Objects (Student, Staff, Records)



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Setup Home Object Manager



SETUP

New Custom Object

Custom Object Definition Edit

Save

Save & New

Cancel

Custom Object Information

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

Label

Student

Example: Account

Plural Label

Students

Example: Accounts

Starts with vowel sound

☐

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

Object Name

Student

Example: Account

Description

Context-Sensitive Help Setting

☒ Open the standard Salesforce.com Help & Training window

☐ Open a window using a Visualforce page

Content Name

--None--

- ☒ Allow Reports
- ☒ Allow Activities
- ☒ Track Field History
- ☐ Allow in Chatter Groups
- ☐ Enable Licensing [i](#)

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 Standard object.

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

Deployment Status

- ☐ In Development
- ☒ Deployed

Search Status

When this setting is enabled, your users can find records of this object type when they search. [Learn more.](#)

- ☒ Allow Search

Click Save and New and add Staff and Record with same way

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Step3

Add Tab for Student, Staff and Records using below Steps

The screenshot shows the Salesforce Setup Home page. The left sidebar contains a search bar with 'tab' entered. Below the search bar, the navigation menu is expanded, showing 'Feature Settings' with sub-items 'Analytics' and 'Tableau', and 'User Interface' with sub-items 'Loaded Console Tab Limit', 'Rename Tabs and Labels', and 'Tabs'. The 'Tabs' item is highlighted with a red box. The main content area shows the 'Home' page with a search bar, a 'Get Started with Einstein Bots' card, a 'Mobile Publisher' card, and a 'Most Recently Used' section.

1

2

3

4

5

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SETUP Tabs

Choose the custom object for this new custom tab. Fill in other details.

Select an existing custom object or create a new custom object now.

Object **Student**

Tab Style



People



(Optional) Choose a Home Page Custom Link to show as a splash page the first time your users click on this tab.

Splash Page Custom Link **--None--**

Enter a short description.

Description

Students Details

Next



SETUP Tabs

New Custom Object Tab

[Help for this Page](#)

Step 2. Add to Profiles

Step 2 of 3

Choose the user profiles for which the new custom tab will be available. You may also examine or alter the visibility of tabs from the detail and edit pages of each profile.

- ☒ Apply one tab visibility to all profiles **Default On**
- ☐ Apply a different tab visibility for each profile

Profile	Tab Visibility
Analytics Cloud Integration User	Default On
Analytics Cloud Security User	Default On
Authenticated Website	Default On
Authenticated Website	Default On
B2B Reordering Portal Buyer Profile	Default On
Contract Manager	Default On

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Step 3. Add to Custom Apps

Step 3 of 3

Choose the custom apps for which the new custom tab will be available. You may also examine or alter the visibility of tabs from the detail and edit pages of each Custom App.

Custom App	<input checked="" type="checkbox"/> Include Tab
Platform (standard__Platform)	<input checked="" type="checkbox"/>
Sales (standard__Sales)	<input checked="" type="checkbox"/>
Service (standard__Service)	<input checked="" type="checkbox"/>
Marketing CRM Classic (standard__Marketing)	<input checked="" type="checkbox"/>
Sample Console (standard__ServiceConsole)	<input checked="" type="checkbox"/>
High Volume Customer Portal User	<input checked="" type="checkbox"/>
Authenticated Website User	<input checked="" type="checkbox"/>
App Launcher (standard__AppLauncher)	<input checked="" type="checkbox"/>
Community (standard__Community)	<input checked="" type="checkbox"/>
Site.com (standard__Sites)	<input checked="" type="checkbox"/>

Click on the Save

Add Staff and Records in same way.



Choose the custom object for this new custom tab. Fill in other details.

Select an existing custom object or [create a new custom object now](#).

Object

Tab Style  People 

(Optional) Choose a Home Page Custom Link to show as a splash page the first time your users click on this tab.

Splash Page Custom Link

Enter a short description.

Description

Next

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Choose the custom object for this new custom tab. Fill in other details.

Select an existing custom object or [create a new custom object now](#).

Object **Record** ▼

Tab Style **Computer**

(Optional) Choose a Home Page Custom Link to show as a splash page the first time your users click on this tab.

Splash Page Custom Link **--None--** ▼

Enter a short description.

Description

Refresh Collage Management Tab Browser

Q Search...

Collage Managem...

Students ▼

Staffs ▼

Records ▼

Calendar ▼

Students

Recently Viewed ▼

New

Import

Change Owner

Q Search this list...

☐ Student Name

▼

1

☐ Scott

▼

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Step 4

Add Fields and Relationship >> Go to Object Manager >>

The screenshot shows the Salesforce Object Manager interface. The top navigation bar includes 'Setup', 'Home', and 'Object Manager'. The 'Object Manager' tab is selected. Below the navigation bar, there is a search bar and a 'Quick Find' button. The main content area displays a list of objects. The 'Student' object is highlighted, and a context menu is open, showing 'Edit' and 'Delete' options. A red arrow points to the 'Edit' option.

Object Label	Object Name	Object Type	Last Modified By	Created By
Shipping Item	ShippingItem	Standard Object		
Skill Requirement	SkillRequirement	Standard Object		
Social Persona	SocialPersona	Standard Object		
Staff	Staff_c	Custom Object	13/03/2024	✓
Store	WebStore	Standard Object		
Store Buyer Group	WebStoreBuyerGroup	Standard Object		
Store Catalog	WebStoreCatalog	Standard Object		
Student	Student_c	Custom Object	13/03/2024	✓
Task	Task	Standard Object		
Time Slot	TimeSlot	Standard Object		

The screenshot shows the 'Fields & Relationships' section for the 'Student' object. The left sidebar contains a list of options: 'Details', 'Fields & Relationships' (selected), 'Page Layouts', 'Lightning Record Pages', 'Buttons, Links, and Actions', 'Compact Layouts', 'Field Sets', 'Object Limits', and 'Record Types'. The main content area displays a table of fields. The 'New' button is highlighted in the top right corner of the section.

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Student Name	Name	Text(80)		✓

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Select the Text for Student Name ,

Number for StudentID,

Number for Age,

Date for birthdate,

PickUp List for Course

<input type="radio"/> Email	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 address when clicking Send an Email. Note that custom email addresses cannot be used for mass emails.
<input type="radio"/> Geolocation	Allows users to define locations. Includes latitude and longitude components, and can be used to calculate distance.
<input type="radio"/> Number	Allows users to enter any number. Leading zeros are removed.
<input type="radio"/> Percent	Allows users to enter a percentage number, for example, '10' and automatically adds the percent sign to the number.
<input type="radio"/> Phone	Allows users to enter any phone number. Automatically formats it as a phone number.
<input type="radio"/> Picklist	Allows users to select a value from a list you define.
<input type="radio"/> Picklist (Multi-Select)	Allows users to select multiple values from a list you define.
<input checked="" type="radio"/> Text	Allows users to enter any combination of letters and numbers.
<input type="radio"/> Text Area	Allows users to enter up to 255 characters on separate lines.
<input type="radio"/> Text Area (Long)	Allows users to enter up to 131,072 characters on separate lines.
<input type="radio"/> Text Area (Rich)	Allows users to enter formatted text, add images and links. Up to 131,072 characters on separate lines.
<input type="radio"/> Text (Encrypted) 	Allows users to enter any combination of letters and numbers and store them in encrypted form.
<input type="radio"/> Time	Allows users to enter a local time. For example, "2:40 PM", "14:40", "14:40:00", and "14:40:50.600" are all valid times for this field.
<input type="radio"/> URL	Allows users to enter any valid website address. When users click on the field, the URL will open in a separate browser window.

SETUP > OBJECT MANAGER

Student

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Search Layouts

Step 2. Enter the details

Step 2 of 4

Previous

Next

Cancel

Field Label

Name

Please enter the maximum length for a text field below.

Length

30

Field Name

Name

Description

Student Name

Help Text

Required

☒ Always require a value in this field in order to save a record

Unique

☐ Do not allow duplicate values

☒ Treat "ABC" and "abc" as duplicate values (case insensitive)

☐ Treat "ABC" and "abc" as different values (case sensitive)

External ID

☐ Set this field as the unique record identifier from an external system

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The screenshot shows the 'New Custom Field' wizard in Salesforce Setup, specifically Step 3: Establish field-level security. The left sidebar shows the navigation menu with 'Fields & Relationships' selected. The main content area shows the field details: Field Label 'Name', Data Type 'Text', Field Name 'Name', and Description 'Student Name'. Below this is a table for field-level security profiles.

Field-Level Security for Profile	Visible	Read-Only
Analytics Cloud Integration User	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Analytics Cloud Security User	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Authenticated Website	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Authenticated Website	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P2P Reordering Portal Buggy Profile	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Save

The screenshot shows the 'New Custom Field' wizard in Salesforce Setup, specifically Step 4: Add to page layouts. The left sidebar shows the navigation menu with 'Fields & Relationships' selected. The main content area shows the field details: Field Label 'Name', Data Type 'Text', Field Name 'Name', and Description 'Student Name'. Below this is a table for adding the field to page layouts.

Add Field	Page Layout Name
<input checked="" type="checkbox"/>	Student Layout

Add for Staff and Records As well.

Staff

Name (Text)

Staff ID (Number)

Age (Number)

BirthDate (Date)

Subject (Pickup List)

Records

Fee (Number)

Grades (Pickup List)

For Pickup List

Recent Trends in Cloud Computing

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The screenshot shows the Salesforce Setup interface for the 'Student' object. The left sidebar contains a navigation menu with the following items: Details, Fields & Relationships (highlighted), Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, and Search Layouts. The main content area is titled 'Step 2. Enter the details'. It contains a 'Field Label' field with the value 'COURSE'. Below this, there are two radio buttons for 'Values': 'Use global picklist value set' (unselected) and 'Enter values, with each value separated by a new line' (selected). A text area below the radio buttons contains the text 'Computer Engineering' and 'Information Technology'. At the bottom, there are three checked checkboxes: 'Display values alphabetically, not in the order entered', 'Use first value as default value', and 'Restrict picklist to the values defined in the value set'.

Step5 Go to Collage Nanomagnet App and add records.

5


6

7

8








The screenshot shows the Collage Nanomagnet App interface. The background displays a 'Students Recently Viewed' section with a table containing one row: 'Student Name'. A modal window titled 'Information' is open in the foreground. It contains the following fields: 'Student Name' (required, empty), 'Name' (required, empty), 'StudentID' (required, empty), 'Age' (required, empty), 'Birth_Date' (empty, with a calendar icon), and 'course' (a dropdown menu with 'Computer Engineering' selected). The 'Owner' field shows 'Santosh Ugale'. At the bottom of the modal are three buttons: 'Cancel', 'Save & New', and 'Save'.

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Collage Manageme...

Search...



Students ▾ Staffs ▾ Records ▾ Calendar ▾

 Student

Santosh ugale


[New Contact](#) [Edit](#) [New Opportunity](#) ▾

Related

Details


Student Name

Santosh ugale




Name

Santosh Ugale




StudentID

1




Age

20




Birth_Date

26/02/2024



course


Computer Engineering




Created By

Last Modified By

Owner

 [Santosh Ugale](#)



Activity



Filters: All time • All activities • All types 

[Refresh](#) • [Expand All](#) • [View All](#)

Upcoming & Overdue

No activities to show.
Get started by sending an email, scheduling a task, and more.

No past activity. Past meetings and tasks marked as done show up here.

 Recent Items  Rich Text

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Reference Only.

cd /opt/

wget IP/jdk-8u151-linux-x64.tar.gz

tar xzf jdk-8u151-linux-x64.tar.gz

cd /opt/jdk1.8.0_151/

alternatives --install /usr/bin/java java /opt/jdk1.8.0_151/bin/java 2

alternatives --config java

alternatives --install /usr/bin/jar jar /opt/jdk1.8.0_151/bin/jar 2

alternatives --install /usr/bin/javac javac /opt/jdk1.8.0_151/bin/javac 2

alternatives --set jar /opt/jdk1.8.0_151/bin/jar

alternatives --set javac /opt/jdk1.8.0_151/bin/javac

export JAVA_HOME=/opt/jdk1.8.0_151

export JRE_HOME=/opt/jdk1.8.0_151/jre

export PATH=\$PATH:/opt/jdk1.8.0_151/bin:/opt/jdk1.8.0_151/jre/bin

useradd -d /opt/hadoop hadoop

echo "e\\$\d\\$\\$2Drfed#\\$user" | passwd hadoop --stdin

su - hadoop

ssh-keygen -t rsa

cat /opt/hadoop/.ssh/id_rsa.pub >> /opt/hadoop/.ssh/authorized_keys

chmod 0600 /opt/hadoop/.ssh/authorized_keys

wget https://dldn.apache.org/hadoop/common/hadoop-3.2.4/hadoop-3.2.4.tar.gz

tar xzf hadoop-3.2.4.tar.gz

mkdir /opt/hadoop/hadoopdata

mkdir /opt/hadoop/hadoopdata/namenode

mkdir /opt/hadoop/hadoopdata/datanode

wget -O .bashrc http://IP/enp

source /opt/hadoop/.bash_profile

source /opt/hadoop/.bashrc

export JAVA_HOME=/opt/jdk1.8.0_151

Recent Trends in Cloud Computing

```
export JRE_HOME=/opt/jdk1.8.0_151/jre  
wget -O /opt/hadoop/hadoop-3.2.4/etc/hadoop/hadoop-env.sh http://IP/hadoop-env  
wget -O /opt/hadoop/hadoop-3.2.4/etc/hadoop/mapred-site.xml http://IP/mapred-site  
wget -O /opt/hadoop/hadoop-3.2.4/etc/hadoop/yarn-site.xml http://IP/yarn-site  
wget -O /opt/hadoop/hadoop-3.2.4/etc/hadoop/hdfs-site.xml http://IP/hdfs-site  
wget -O /opt/hadoop/hadoop-3.2.4/etc/hadoop/core-site.xml http://IP/core-site  
cd ${HADOOP_HOME}/bin  
hadoop namenode -format  
cd ${HADOOP_HOME}/sbin/  
./start-all.sh  
jps
```

HDFS Commands

```
hdfs dfs -mkdir /testlab  
hdfs dfs -ls /  
hdfs dfs -copyFromLocal test /testlab/  
hdfs dfs -ls /testlab  
hdfs dfs -cat /testlab/test  
hdfs dfs -count /testlab  
hdfs dfs -cp /testlab/test /testlab/test1  
hdfs dfs -chmod 777 /testlab/test  
hdfs dfs -chown hadoop:hadoop /testlab/test  
hdfs dfs -get /testlab/test text1  
hdfs dfs -rm /testlab/test1  
hdfs dfs -rm -r /testlab
```

HDFS command with Segment and Encryption

hdfs dfs -Ddfs.block.size=67108864 -copyFromLocal b.txt /testlab

hadoop --daemon stop kms

hadoop --daemon start kms

hadoop key create test1 -size 256

hadoop key create test2 -size 256 -cipher AES/CTR/NoPadding

hdfs dfs -mkdir /input/test3

hdfs crypto -createZone -keyName test3 -path /input/test3

hadoop key list

hdfs crypto -createZone -keyName scott -path /input/scott

hdfs dfs -put d.txt /input/test3