

strategy prepared Services
manual web seamless
leveraging Ice application
integration deployment automated
containers Delightful AWS
Khan report scalability infrastructure
Docker documents process cloud
Ahmed approaches Amazon encompasses

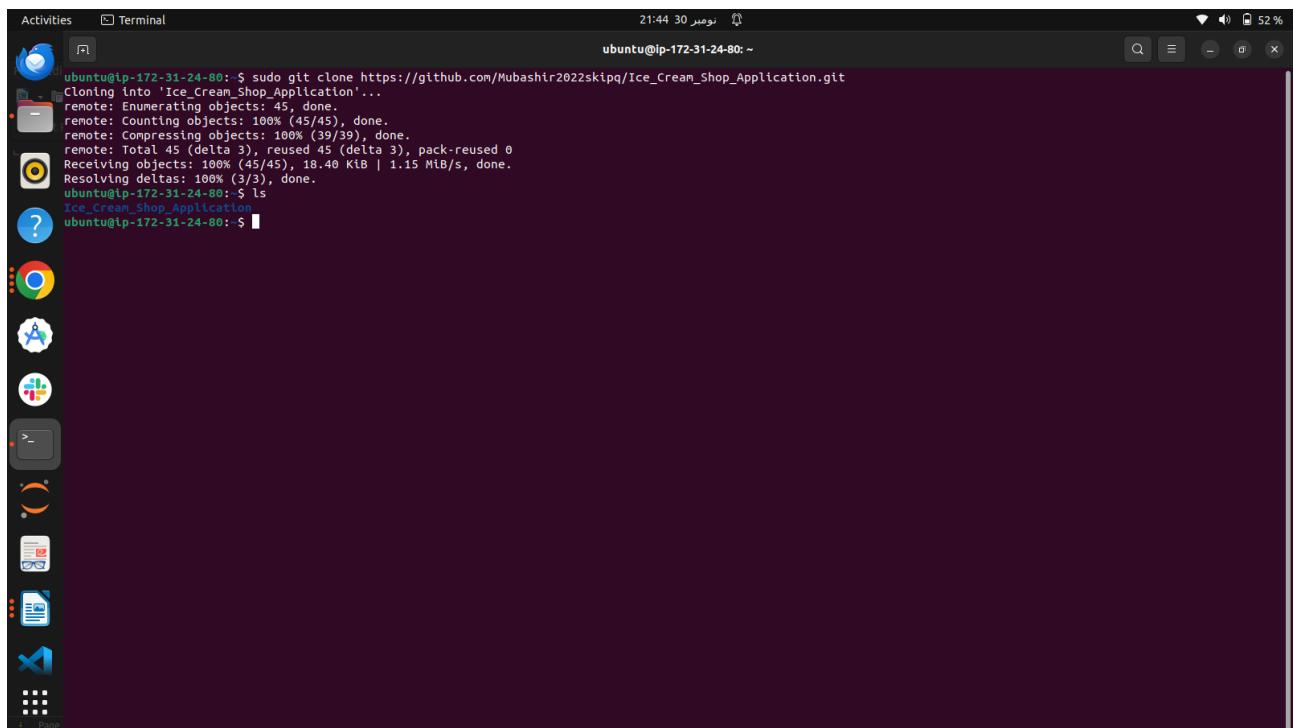
Introduction

Basically I have created a web application ice cream shop called Delightful Ice Cream it is built on Bootstrap and Django I have used Bootstrap for designing and Django I have used for backend development. and I have used CSRF token for security it has navbar and carousel effect and different form of cards to order favourite and also has admin panel of contact page where data is saved

Manually Deployment:

Step 1: Clone the Project

Clone the project repository in the local machine (aws linux Machine).



A screenshot of a terminal window on an AWS Linux machine. The terminal shows the command `sudo git clone https://github.com/Mubashir2022skipq/Ice_Cream_Shop_Application.git` being run, followed by the output of the cloning process. The repository was cloned successfully, and the directory `Ice_Cream_Shop_Application` was created.

```
ubuntu@ip-172-31-24-80: ~
Cloning into 'Ice_Cream_Shop_Application'...
remote: Enumerating objects: 45, done.
remote: Counting objects: 100% (45/45), done.
remote: Compressing objects: 100% (39/39), done.
remote: Total 45 (delta 3), reused 45 (delta 3), pack-reused 0
Receiving objects: 100% (45/45), 18.40 KiB | 1.15 MiB/s, done.
Resolving deltas: 100% (3/3), done.
ubuntu@ip-172-31-24-80: ~ ls
Ice_Cream_Shop_Application
ubuntu@ip-172-31-24-80: ~
```

The repository clone successfully.

Step 2: Install python version 3:

first we install python 3 in the local machine create the python programming environment.

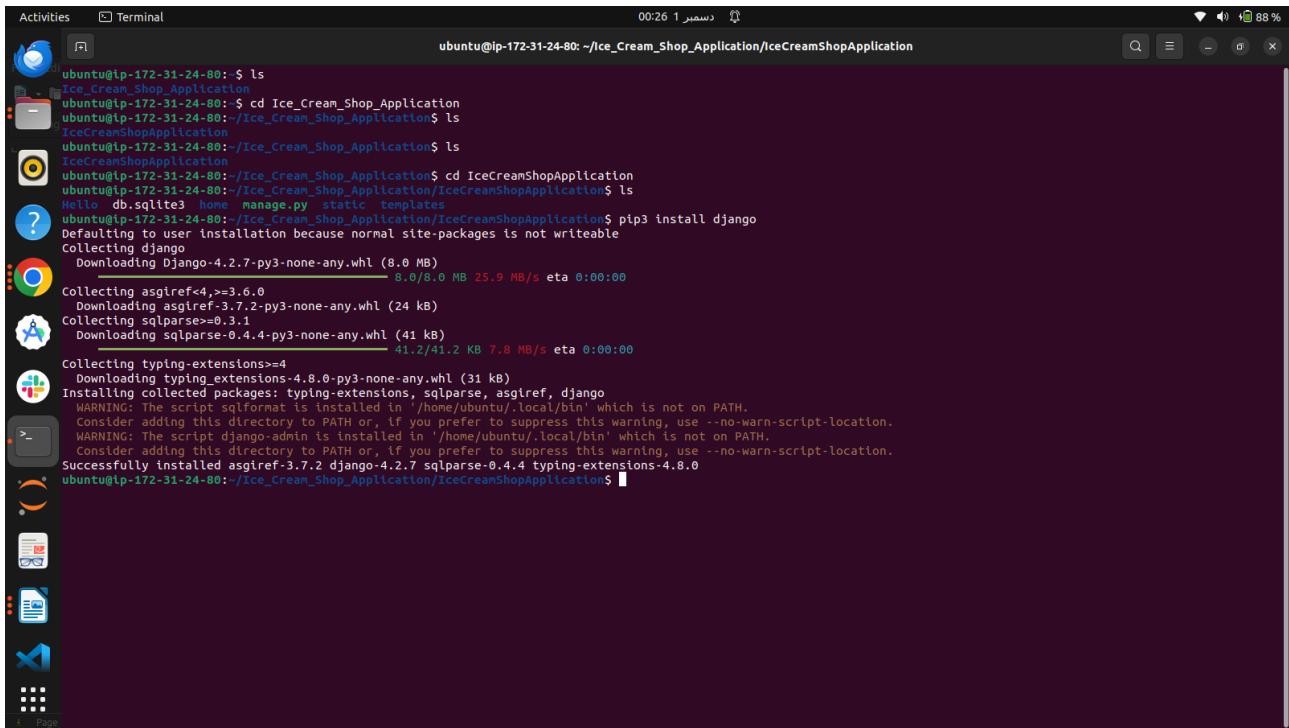
```
Activities Terminal 21:55 ٢٠١٩ ubuntu@ip-172-31-24-80: ~
ubuntu@ip-172-31-24-80: $ sudo apt install python3
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
python3 is already the newest version (3.10.6-1-22.04).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
ubuntu@ip-172-31-24-80: $ sudo apt install python3-pip
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  build-essential bzip2 cpp cpp-11 dpkg-dev fakeroot fontconfig-config
  fonts-dejavu-core g++ g++-11 gcc gcc-11 gcc-11-base javascript-common
  libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl
  libasano libatomici1 libc-dev-bin libc-dev-tools libc6-dev libcc1-0
  libcrypt-dev libdeflated libdpkg-perl libexpat1-dev libfakeroot libgcc1-0
  libfile-fcntllock-perl libfontconfig1 libgcc1-0-dev libgd3 libgomp1 libisl23
  libitm libjbig0 libjpeg-turbo8 libjpeg8 libjs-jquery libjs-sphinxdoc
  libjs-underscore liblsan0 libmpc3 libns1-dev libpython3-dev
  libpython3.10-dev libquadmath0 libstdc++-11-dev libtiff5 libtrpc-dev
  libtsan0 libubsan1 libwebp7 libxpm4 linux-libc-dev lto-disabled-list make
  manpages-dev python3-dev python3-wheel python3.10-dev rpcsvc-proto
  zlib1g-dev
Suggested packages:
  bzip2-doc cpp-doc gcc-11-locales debian-keyring g++-multilib g++-11-multilib
  gcc-11-doc gcc-multilib autoconf automake bison gdb gcc-doc
  gcc-11-multilib apache2 | lighttpd | httpd glibc-doc bzr libgd-tools
  libstdc++-11-doc make-doc
The following NEW packages will be installed:
  build-essential bzip2 cpp cpp-11 dpkg-dev fakeroot fontconfig-config
  fonts-dejavu-core g++ g++-11 gcc gcc-11 gcc-11-base javascript-common
  libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl
  libasano libatomici1 libc-dev-bin libc-dev-tools libc6-dev libcc1-0
  libcrypt-dev libdeflated libdpkg-perl libexpat1-dev libfakeroot libgcc1-0
  libfile-fcntllock-perl libfontconfig1 libgcc1-0-dev libgd3 libgomp1 libisl23
  libitm libjbig0 libjpeg-turbo8 libjpeg8 libjs-jquery libjs-sphinxdoc
  libjs-underscore liblsan0 libmpc3 libns1-dev libpython3-dev
  libpython3.10-dev libquadmath0 libstdc++-11-dev libtiff5 libtrpc-dev
  libtsan0 libubsan1 libwebp7 libxpm4 linux-libc-dev lto-disabled-list make
  manpages-dev python3-dev python3-wheel python3.10-dev
  rpcsvc-proto zlib1g-dev
0 upgraded, 64 newly installed, 0 to remove and 0 not upgraded.
Need to get 71.3 MB of archives.
After this operation, 239 MB of additional disk space will be used.
Do you want to continue? Fy/nl v
```

```
Activities Terminal 21:55 ٢٠١٩ ubuntu@ip-172-31-24-80: ~
ubuntu@ip-172-31-24-80: ~
Setting up cpp-11 (11.4.0-1ubuntu1-22.04) ...
Setting up fontconfig-config (2.13.1-4.2ubuntu5) ...
Setting up dpkg-dev (1.21.1ubuntu2.2) ...
Setting up liblsan1-sphinxdoc (4.3.2-1) ...
Setting up libgcc-11-dev:amd64 (11.4.0-1ubuntu1-22.04) ...
Setting up libgcc1 (11.4.0-1ubuntu1-22.04) ...
Setting up cpp (4:11.2.0-1ubuntu1) ...
Setting up libc6-dev:amd64 (2.35-0ubuntu3.4) ...
Setting up libtiff5:amd64 (4.3.0-ubuntu0.7) ...
Setting up libfontconfig1:amd64 (2.13.1-4.2ubuntu5) ...
Setting up gcc (4:11.2.0-1ubuntu1) ...
Setting up libexpat1-dev:amd64 (2.4.7-1ubuntu0.2) ...
Setting up libgd3:amd64 (2.3.0-2ubuntu2) ...
Setting up libstdc++-11-dev:amd64 (11.4.0-1ubuntu1-22.04) ...
Setting up libiberty-dev:amd64 (1:1.2.11.dfsg-2ubuntu9.2) ...
Setting up libc-dev-tools (2.35-0ubuntu3.4) ...
Setting up g++-11 (11.4.0-1ubuntu1-22.04) ...
Setting up libpython3.10-dev:amd64 (3.10.12-1-22.04.3) ...
Setting up python3.10-dev (3.10.12-1-22.04.3) ...
Setting up g++ (4:11.2.0-1ubuntu1) ...
update-alternatives: using /usr/bin/g++ to provide /usr/bin/c++ (c++) in auto mode
Setting up build-essential (12.9ubuntu3) ...
Setting up libpython3-dev:amd64 (3.10.6-1-22.04) ...
Setting up python3-dev (3.10.6-1-22.04) ...
Processing triggers for man-db (2.18.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.4) ...
Scanning processes...
Scanning candidates...
Scanning linux images...
Restarting services...
Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart getty@tty1.service
systemctl restart network-dispatcher.service
systemctl restart unattended-upgrades.service
systemctl restart user@1000.service
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-24-80: ~
```

Now the successfully installed the pip and python version 3.

Step 3: Install Django

Then we will install the django for django application.

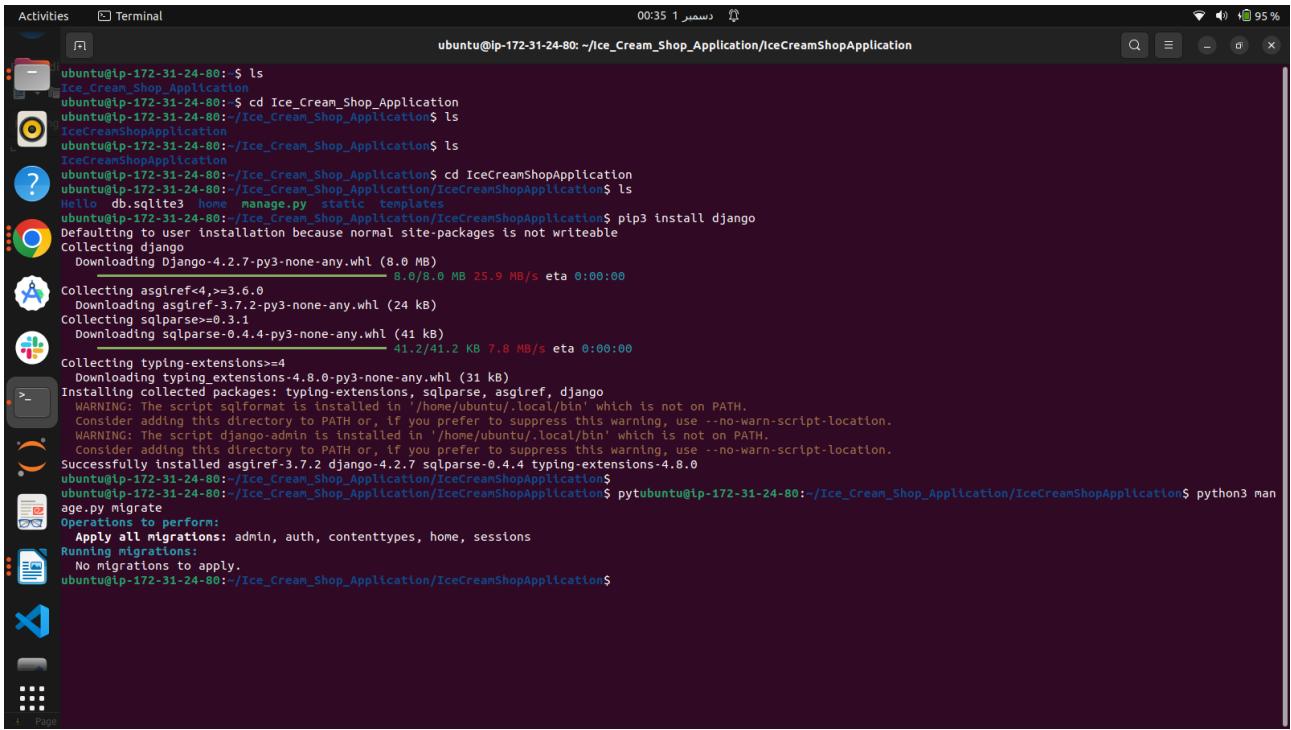


```
Activities Terminal 00:26 1 88%  
ubuntu@ip-172-31-24-80: ~/  
Ice_Cream_Shop_Application  
ubuntu@ip-172-31-24-80: ~/  
Ice_Cream_Shop_Application$ ls  
IceCreamShopApplication  
ubuntu@ip-172-31-24-80: ~/  
Ice_Cream_Shop_Application$ cd IceCreamShopApplication  
ubuntu@ip-172-31-24-80: ~/  
Ice_Cream_Shop_Application/IceCreamShopApplication$ ls  
db.sqlite3 home manage.py static templates  
Hello db.sqlite3 home manage.py static templates  
ubuntu@ip-172-31-24-80: ~/  
Ice_Cream_Shop_Application/IceCreamShopApplication$ pip3 install django  
Defaulting to user installation because normal site-packages is not writeable  
Collecting django  
  Downloading Django-4.2.7-py3-none-any.whl (8.0 MB)  
    0.0/8.0 MB 25.9 MB/s eta 0:00:00  
Collecting asgiref<4,>=3.6.0  
  Downloading asgiref-3.7.2-py3-none-any.whl (24 kB)  
Collecting sqlparse>0.3.1  
  Downloading sqlparse-0.4.4-py3-none-any.whl (41 kB)  
    41.2/41.2 KB 7.8 MB/s eta 0:00:00  
Collecting typing_extensions>=4  
  Downloading typing_extensions-4.8.0-py3-none-any.whl (31 kB)  
Installing collected packages: typing_extensions, sqlparse, asgiref, django  
  WARNING: The script sqlformat is installed in '/home/ubuntu/.local/bin' which is not on PATH.  
    Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.  
  WARNING: The script django-admin is installed in '/home/ubuntu/.local/bin' which is not on PATH.  
    Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.  
Successfully installed asgiref-3.7.2 django-4.2.7 sqlparse-0.4.4 typing_extensions-4.8.0  
ubuntu@ip-172-31-24-80: ~/  
Ice_Cream_Shop_Application/IceCreamShopApplication$
```

Now, we Done the installation.

Step 4: Migrate (for configuration)

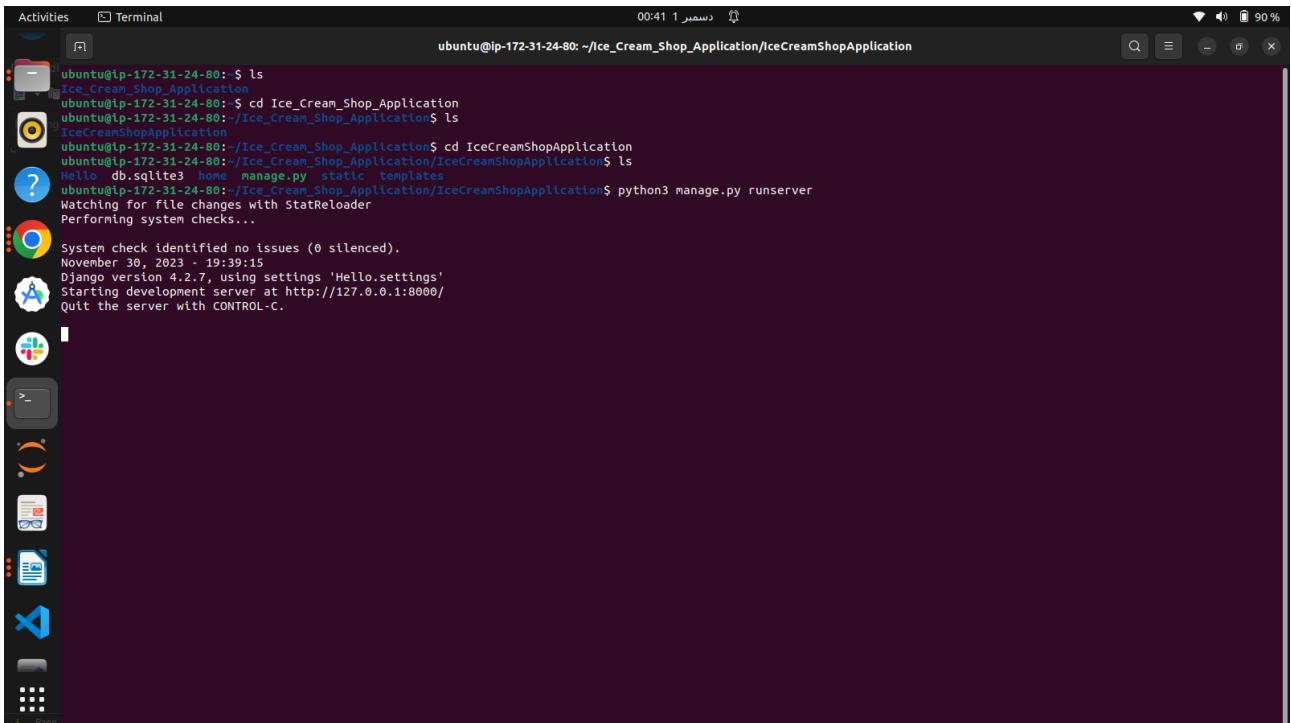
This command for used to detect the any change of the project.



```
ubuntu@ip-172-31-24-80: ~ /Ice_Cream_Shop_Application/IceCreamShopApplication
00:35 1 دسمبر ٢٠٢٣
ubuntu@ip-172-31-24-80: $ ls
Ice_Cream_Shop_Application
ubuntu@ip-172-31-24-80: $ cd Ice_Cream_Shop_Application
ubuntu@ip-172-31-24-80: ~/Ice_Cream_Shop_Application $ ls
IceCreamShopApplication
ubuntu@ip-172-31-24-80: ~/Ice_Cream_Shop_Application $ ls
IceCreamShopApplication
ubuntu@ip-172-31-24-80: ~/Ice_Cream_Shop_Application $ cd IceCreamShopApplication
ubuntu@ip-172-31-24-80: ~/Ice_Cream_Shop_Application/IceCreamShopApplication $ ls
Hello db.sqlite3 home manage.py static templates
ubuntu@ip-172-31-24-80: ~/Ice_Cream_Shop_Application/IceCreamShopApplication $ pip3 install django
Defaulting to user installation because normal site-packages is not writeable
Collecting django
  Downloading Django-4.2.7-py3-none-any.whl (8.0 MB)
    0.0/8.0 MB 25.9 MB/s eta 0:00:00
Collecting asgiref<4,>=3.6.0
  Downloading asgiref-3.7.2-py3-none-any.whl (24 kB)
Collecting sqlparse==0.3.1
  Downloading sqlparse-0.4.4-py3-none-any.whl (41 kB)
    41.2/41.2 KB 7.8 MB/s eta 0:00:00
Collecting typing-extensions>=4
  Downloading typing_extensions-4.8.0-py3-none-any.whl (31 kB)
Installing collected packages: typing-extensions, sqlparse, asgiref, django
  WARNING: The script sqlformat is installed in '/home/ubuntu/.local/bin' which is not on PATH.
  Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
  WARNING: The script django-admin is installed in '/home/ubuntu/.local/bin' which is not on PATH.
  Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
Successfully installed asgiref-3.7.2 django-4.2.7 sqlparse-0.4.4 typing-extensions-4.8.0
ubuntu@ip-172-31-24-80: ~/Ice_Cream_Shop_Application/IceCreamShopApplication $
ubuntu@ip-172-31-24-80: ~/Ice_Cream_Shop_Application/IceCreamShopApplication $ python3 manage.py migrate
Operations to perform:
  Apply all migrations: admin, auth, contenttypes, home, sessions
Running migrations:
  No migrations to apply.
ubuntu@ip-172-31-24-80: ~/Ice_Cream_Shop_Application/IceCreamShopApplication $
```

Step 5: Running the python development Server:

Now we run the python development server using this command (python3 manage.py runserver 0.0.0.0:8001)



```
Activities Terminal 00:41 1 دسمبر ٢٠٢٣
ubuntu@ip-172-31-24-80: ~ /Ice_Cream_Shop_Application/IceCreamShopApplication
ubuntu@ip-172-31-24-80: $ ls
Ice_Cream_Shop_Application
ubuntu@ip-172-31-24-80: $ cd Ice_Cream_Shop_Application
ubuntu@ip-172-31-24-80: ~/Ice_Cream_Shop_Application $ ls
IceCreamShopApplication
ubuntu@ip-172-31-24-80: ~/Ice_Cream_Shop_Application $ cd IceCreamShopApplication
ubuntu@ip-172-31-24-80: ~/Ice_Cream_Shop_Application/IceCreamShopApplication $ ls
Hello db.sqlite3 home manage.py static templates
ubuntu@ip-172-31-24-80: ~/Ice_Cream_Shop_Application/IceCreamShopApplication $ python3 manage.py runserver
Watching for file changes with StatReloader
Performing system checks...
System check identified no issues (0 silenced).
November 30, 2023 - 19:39:15
Django version 4.2.7, using settings 'Hello.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
```

Step 5: Add the Security Rules (for access)

In the Adding security rule menu of ec2 instance, a security rule is introduced by adding port in inbound rule menu.

Inbound rules Info						
Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info	
sgr-00acb50cd174710c3	SSH	TCP	22	Custom ▾	<input type="text" value="Q"/> <input type="text" value="0.0.0.0"/> X	Delete
sgr-02bfd269204d0135f	HTTPS	TCP	443	Custom ▾	<input type="text" value="Q"/> <input type="text" value="0.0.0.0"/> X	Delete
sgr-0c80ed3b96ae96ca3	HTTP	TCP	80	Custom ▾	<input type="text" value="Q"/> <input type="text" value="0.0.0.0"/> X	Delete
-	Custom TCP	TCP	8001	Anyw... ▾	<input type="text" value="Q"/> <input type="text" value="0.0.0.0"/> X	Delete
Add rule						

and then access the application but the error will be occur to the of cause disallowing hosts

DisallowHost at /
Invalid HTTP_HOST header: '13.51.165.122:8001'. You may need to add '13.51.165.122' to ALLOWED_HOSTS.

Step 7: Resolve the Error

To determine a refused have mistake, I allowed all hosts by setting 'ALLOWED_HOSTS = ["*"]' in the Django project's settings. This design permits the application to acknowledge demands from any host.

```
# SECURITY WARNING: don't run with debug turned on in production!
DEBUG = True

ALLOWED_HOSTS = ['*']

# Application definition

INSTALLED_APPS = [
    'home.apps.HomeConfig',
    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
]
:wq
```

Activities

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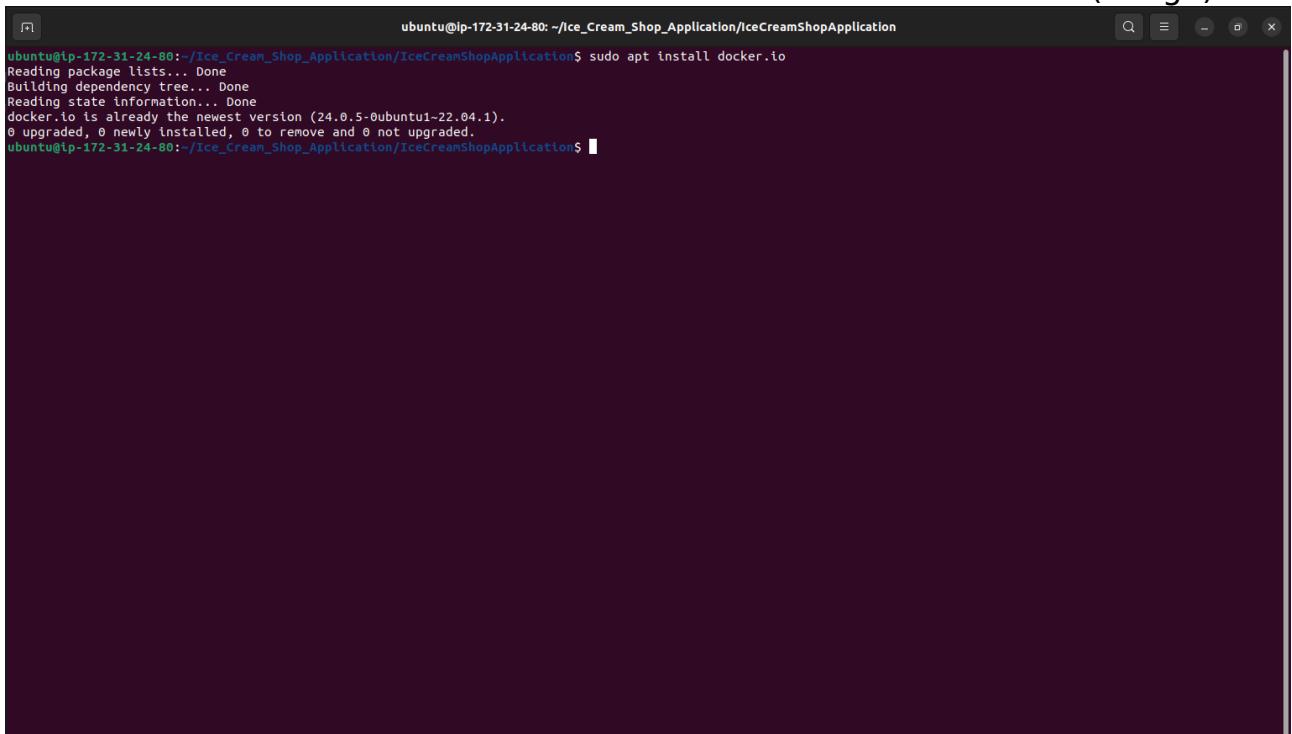
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We are perfectly deploy the application on aws cloud (ec2 instance) and successfully access.

Automatically Deploy By the using Dockers (image) :

Step 1: Install the Docker

Install the docker in our local machine and then use docker service (image)



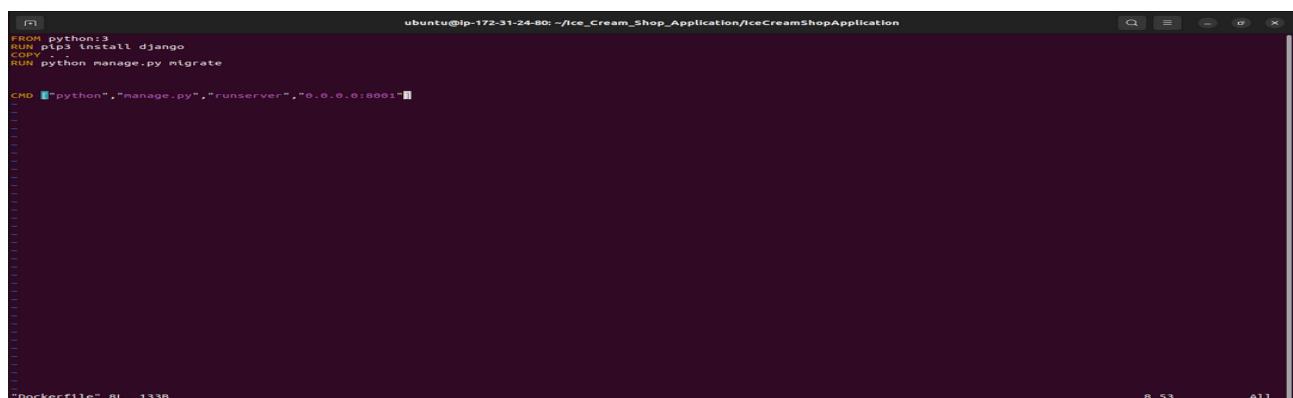
```
ubuntu@ip-172-31-24-80:~/Ice_Cream_Shop_Application/IceCreamShopApplication$ sudo apt install docker.io
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
docker.io is already the newest version (24.0.5-0ubuntu1-22.04.1).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
ubuntu@ip-172-31-24-80:~/Ice_Cream_Shop_Application/IceCreamShopApplication$
```

Now, successfully installed docker.

Step 2: Create the Docker File:

Now we will creating the docker file using this command vi Dockerfile. Whenever we create a Docker file, we will create it with the file name Dockerfile.

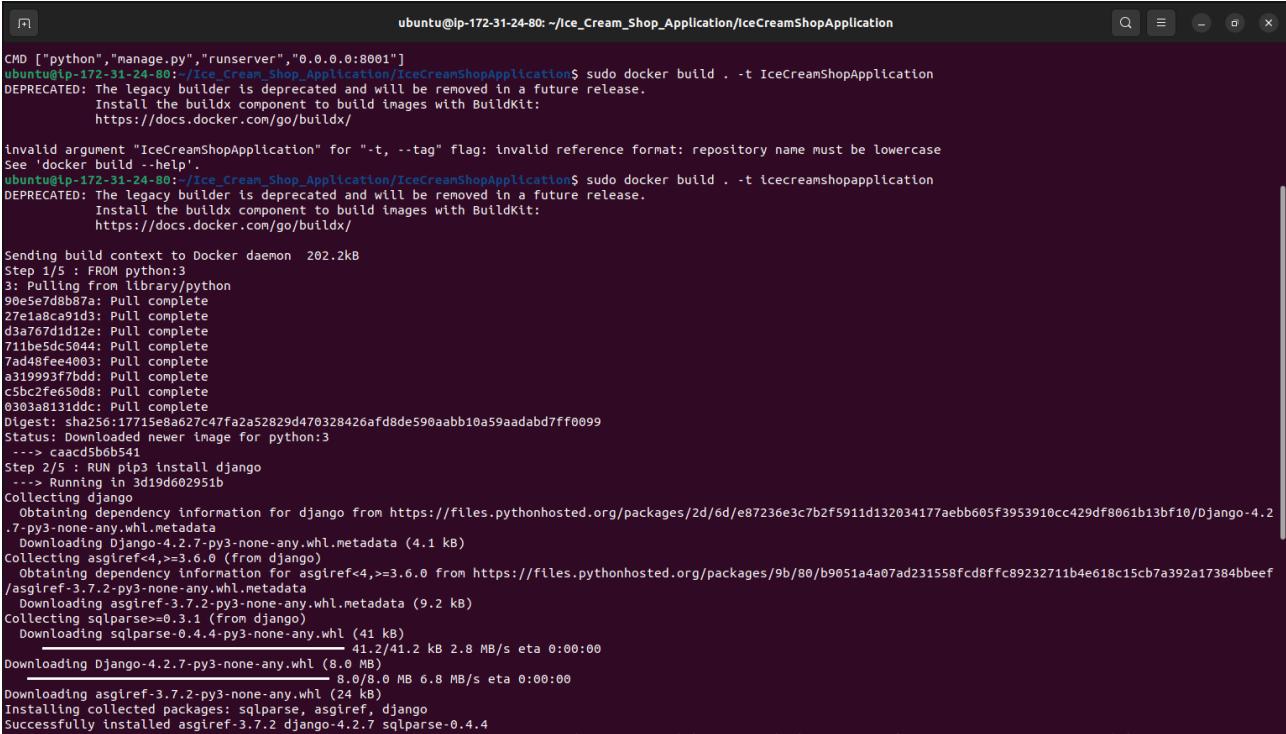
Earlier we were manually typing the commands, now we have created a docker file, now inside the docker file we will type all the commands that we were writing manually and run this docker file.



```
FROM python:3
RUN pip3 install django
CMD ["python", "manage.py", "runserver", "0.0.0.0:8001"]
Dockerfile 8L, 133B
```

Step 3: Build the Docker file

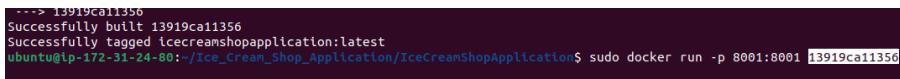
Now build the docker base-image.



```
ubuntu@lp-172-31-24-80: ~/Ice_Cream_Shop_Application/IceCreamShopApplication
CMD ["python","manage.py","runserver","0.0.0.0:8001"]
ubuntu@lp-172-31-24-80:~/Ice_Cream_Shop_Application/IceCreamShopApplication$ sudo docker build . -t IceCreamShopApplication
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
Install the buildx component to build images with BuildKit:
https://docs.docker.com/go/buildx/
invalid argument "IceCreamShopApplication" for "-t, --tag" flag: invalid reference format: repository name must be lowercase
See 'docker build --help'.
ubuntu@lp-172-31-24-80:~/Ice_Cream_Shop_Application/IceCreamShopApplication$ sudo docker build . -t icecreamshopapplication
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
Install the buildx component to build images with BuildKit:
https://docs.docker.com/go/buildx/
Sending build context to Docker daemon 202.2kB
Step 1/5 : FROM python:3
3: Pulling from library/python
90e5e7d8b87a: Pull complete
27e1a8ca91d3: Pull complete
d3a767d1d12e: Pull complete
711be5dc5044: Pull complete
7ad48fee4003: Pull complete
a319993f7bdd: Pull complete
c5bc2fe650d8: Pull complete
0303a8131ddc: Pull complete
Digest: sha256:17715e8a627c47fa2a52829d476328426af8de590aab10a59aadabd7ff0099
Status: Downloaded newer image for python:3
--> caacd5b6b541
Step 2/5 : RUN pip3 install django
--> Running in 3d19d602951b
Collecting django
  Obtaining dependency information for django from https://files.pythonhosted.org/packages/2d/6d/e87236e3c7b2f5911d132034177aebb605f3953910cc429df80e1b13bf10/Django-4.2.7-py3-none-any.whl.metadata
    Downloading Django-4.2.7-py3-none-any.whl.metadata (4.1 kB)
Collecting asgiref<4,>=3.6.0 (from django)
  Obtaining dependency information for asgiref<4,>=3.6.0 from https://files.pythonhosted.org/packages/9b/80/b9051a4a07ad231558fcdb8ffc89232711b4e618c15cb7a392a17384bbeef/asgiref-3.7.2-py3-none-any.whl.metadata
    Downloading asgiref-3.7.2-py3-none-any.whl.metadata (9.2 kB)
Collecting sqlparse==0.3.1 (from django)
  Downloading sqlparse-0.3.1-py3-none-any.whl (41 kB)
     41.2/41.2 kB 2.8 MB/s eta 0:00:00
Downloading Django-4.2.7-py3-none-any.whl (8.0 MB)
  8.0/8.0 MB 6.8 MB/s eta 0:00:00
Downloading asgiref-3.7.2-py3-none-any.whl (24 kB)
Installing collected packages: sqlparse, asgiref, django
Successfully installed asgiref-3.7.2 django-4.2.7 sqlparse-0.4.4
```

Step 4: Run the Docker container

Then, run the docker container .



```
--> 13919ca11356
Successfully built 13919ca11356
Successfully tagged icecreamshopapplication:latest
ubuntu@lp-172-31-24-80:~/Ice_Cream_Shop_Application/IceCreamShopApplication$ sudo docker run -p 8001:8001 13919ca11356
```

Step 5: Serve the application

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A screenshot of a Linux desktop environment, likely elementary OS, showing a web browser window. The browser title is "Contact | DelightfulIceCream". The address bar shows "Not secure | 13.51.165.122:8001/contact". The page content features a large image of a vintage yellow telephone on a wooden surface. Below the image, the text "Contact us" is centered. There are two input fields: "Name" with placeholder "Enter your Name" and "Email" with placeholder "Enter your Email". To the left of the browser window is a vertical dock containing icons for various applications like Google Chrome, Terminal, and file management.

Now, We are perfectly deployed the application on aws (ec2 instance) using docker container.

This report is prepared by “Mubashir Ahmed Khan”.