

Advanced Database Systems Design

Assignment-3

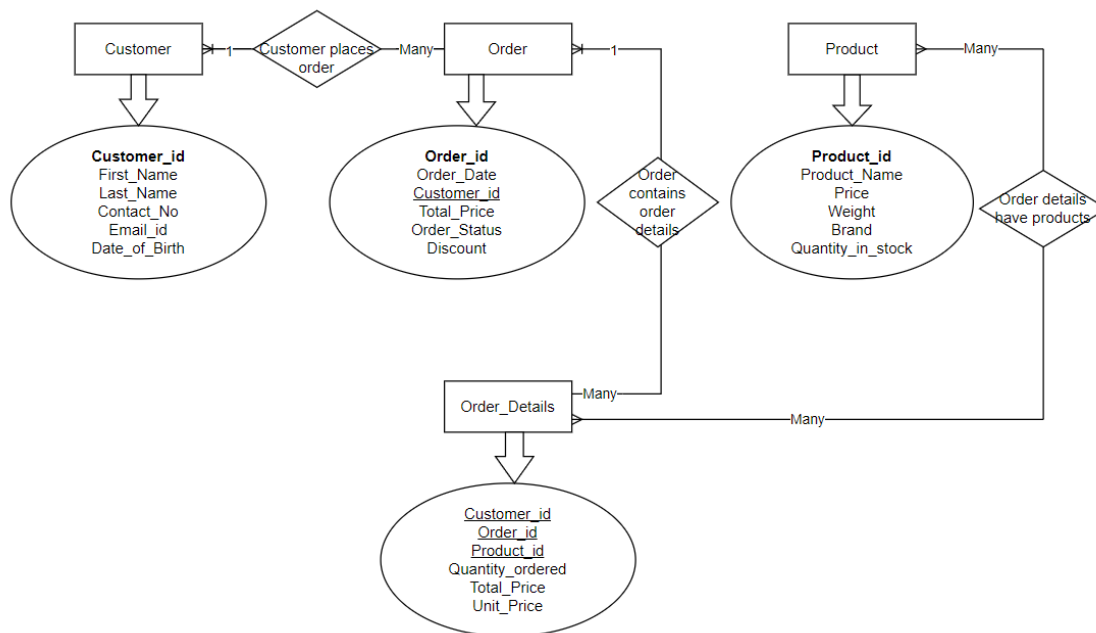
Harini Padmaja Solleti

811288992

ER Diagram:

Below is an ER diagram of an online store where customers can order products.

I have used <https://app.diagrams.net/> to draw this ER diagram.

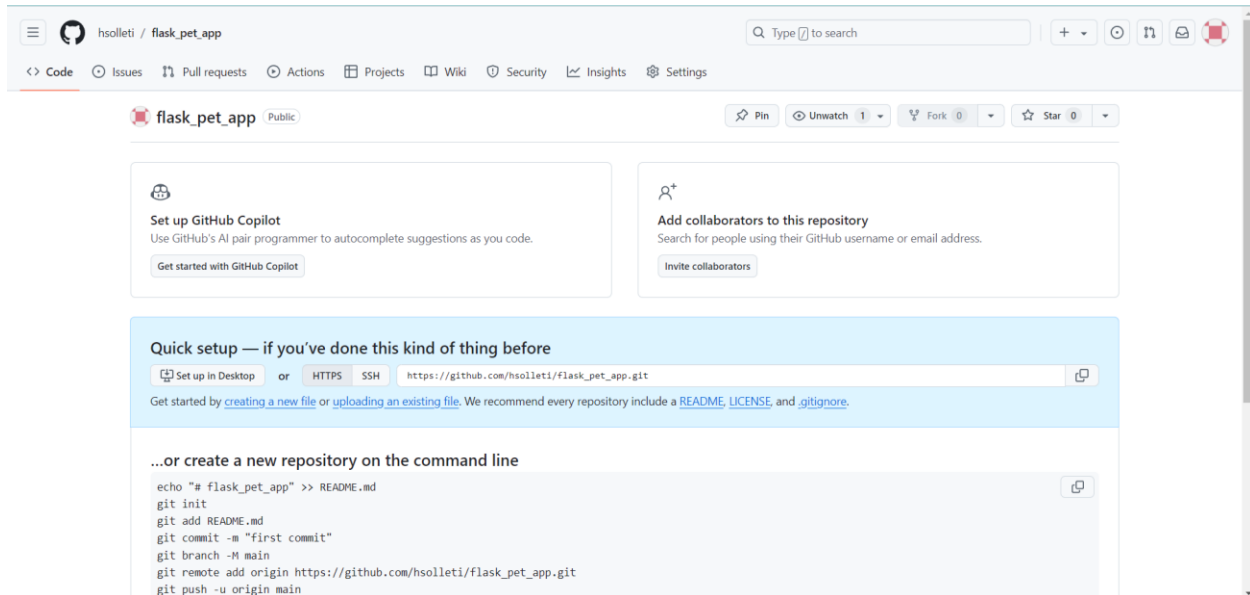


- I have drawn this ER diagram with four entities i.e., Customer, Order, Products and Order_Details which is a common entity table for Order and Product.
- Then I have listed a few attributes under each entity.
- We have Primary keys and foreign keys like Customer_id, Order_id, and Product_id.
- I have shown Primary keys in **bold** and foreign keys in underline.
- Relationships and cardinalities:
 - Customer and Order: One customer can place many orders (One to Many).
 - Order and Order_details: Every order will contain details in the Order_details (1 to Many).
 - Product and Order_details: Order_details will contain which product is ordered and many products can be ordered and are a part of many order_details (Many to Many).
- Finally, the above information breakdown can help us to understand the er diagram better about the entities, attributes, relationships, and the cardinalities.

Web Application Development

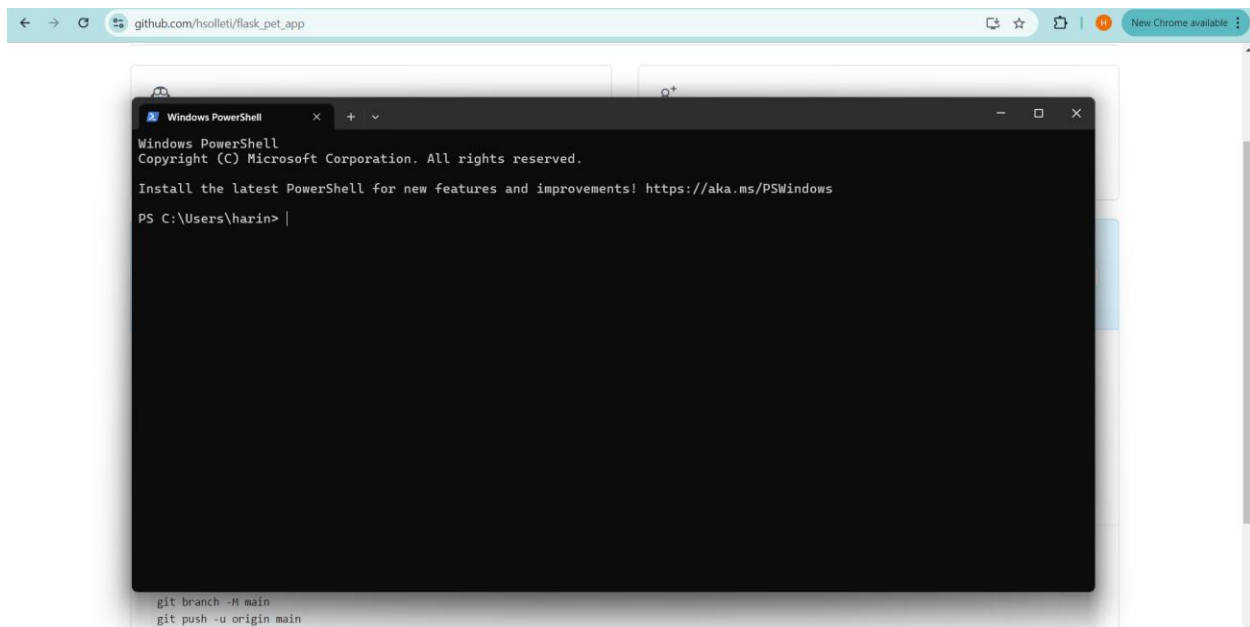
Step-1:

I have created a new repository and named it **flask_pet_app**. I have made it public and did not check the README or gitignore as it is mentioned not to do so in the instructions.



Step-2:

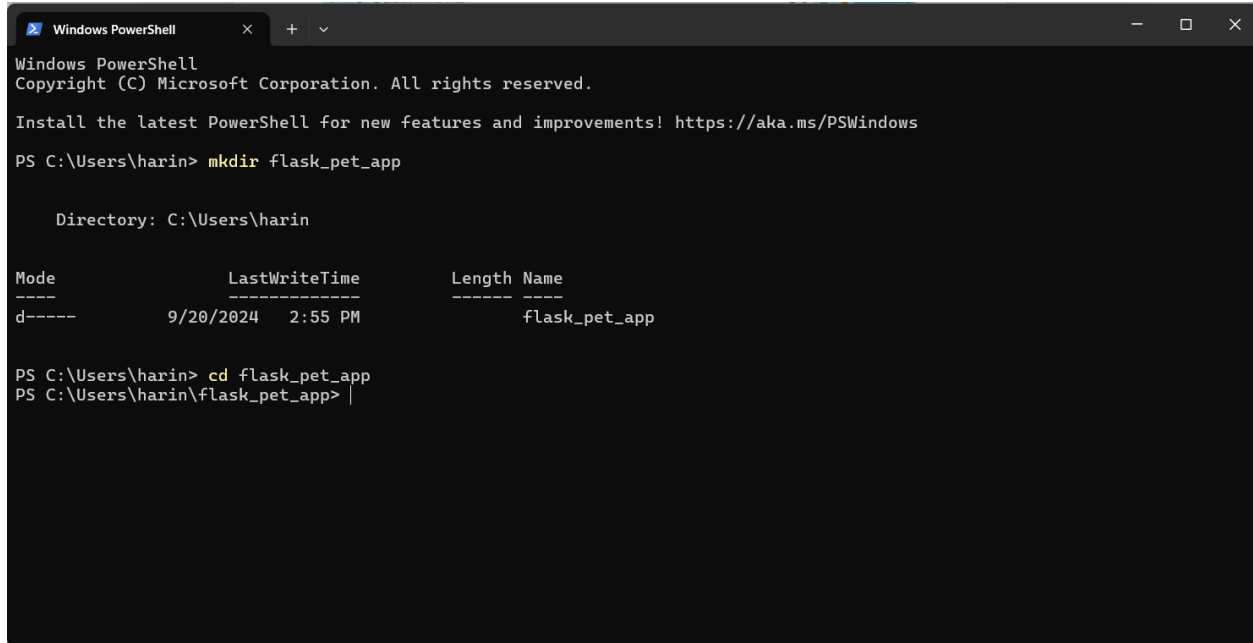
To setup the Flask Project locally I have used **Windows+X** keys to open the terminal.



I have created and navigated the project directory using:

mkdir flask_pet_app

cd flask_pet_app



```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\harin> mkdir flask_pet_app

Directory: C:\Users\harin

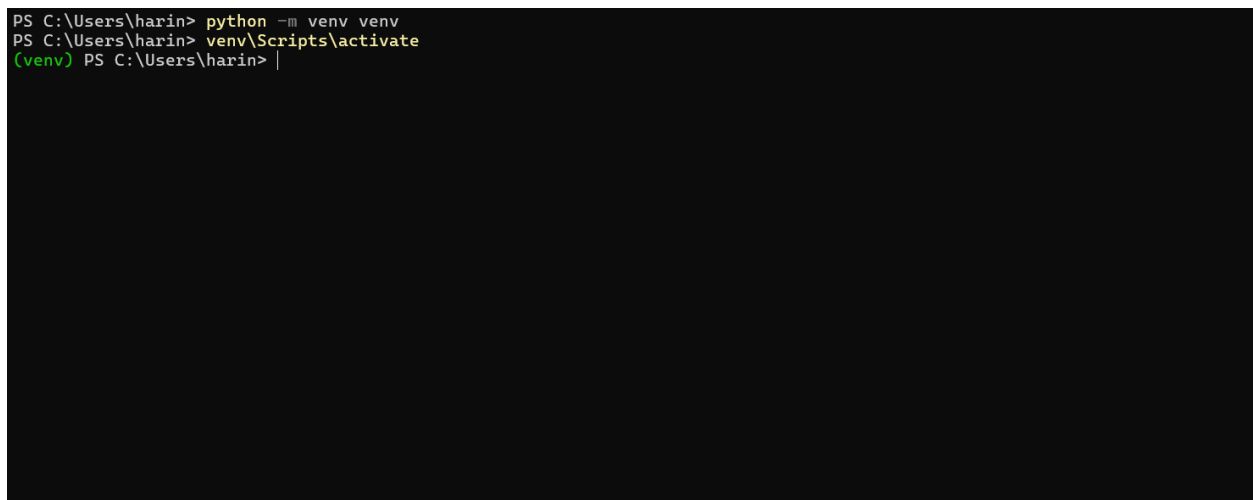
Mode                LastWriteTime         Length Name
----                -
d-----          9/20/2024   2:55 PM             flask_pet_app

PS C:\Users\harin> cd flask_pet_app
PS C:\Users\harin\flask_pet_app> |
```

I have created a virtual environment to isolate the dependencies and activated the virtual environment. The codes that I have used are,

python -m venv venv

venv\Scripts\activate



```
PS C:\Users\harin> python -m venv venv
PS C:\Users\harin> venv\Scripts\activate
(venv) PS C:\Users\harin> |
```

The next part is to install Flask and dependencies with-

pip install flask sqlalchemy flask-sqlalchemy flask-wtf

```
Windows PowerShell
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PS C:\Users\harin> python -m venv venv
PS C:\Users\harin> venv\Scripts\activate
(venv) PS C:\Users\harin> pip install flask sqlalchemy flask-sqlalchemy flask-wtf
Collecting flask
  Downloading flask-3.0.3-py3-none-any.whl.metadata (3.2 kB)
Collecting sqlalchemy
  Downloading SQLAlchemy-2.0.35-cp312-cp312-win_amd64.whl.metadata (9.9 kB)
Collecting flask-sqlalchemy
  Downloading flask_sqlalchemy-3.1.1-py3-none-any.whl.metadata (3.4 kB)
Collecting flask-wtf
  Downloading flask_wtf-1.2.1-py3-none-any.whl.metadata (3.4 kB)
Collecting Werkzeug>=3.0.0 (from flask)
  Downloading werkzeug-3.0.4-py3-none-any.whl.metadata (3.7 kB)
Collecting Jinja2>=3.1.2 (from flask)
  Using cached Jinja2-3.1.4-py3-none-any.whl.metadata (2.6 kB)
Collecting itsdangerous>=2.1.2 (from flask)
  Downloading itsdangerous-2.2.0-py3-none-any.whl.metadata (1.9 kB)
Collecting click>=8.1.3 (from flask)
  Downloading click-8.1.7-py3-none-any.whl.metadata (3.0 kB)
Collecting blinker>=1.6.2 (from flask)
  Downloading blinker-1.8.2-py3-none-any.whl.metadata (1.6 kB)
Collecting typing-extensions>=4.6.0 (from sqlalchemy)
  Downloading typing_extensions-4.12.2-py3-none-any.whl.metadata (3.0 kB)
Collecting greenlet!=0.4.17 (from sqlalchemy)
  Downloading greenlet-3.1.1-cp312-cp312-win_amd64.whl.metadata (3.9 kB)
Collecting wtforms (from flask-wtf)
  Downloading wtforms-3.1.2-py3-none-any.whl.metadata (5.3 kB)
Collecting colorama (from click>=8.1.3->flask)
  Using cached colorama-0.4.6-py2.py3-none-any.whl.metadata (17 kB)
Collecting MarkupSafe>=2.0 (from Jinja2>=3.1.2->flask)
  Using cached MarkupSafe-2.1.5-cp312-cp312-win_amd64.whl.metadata (3.1 kB)
Downloading flask-3.0.3-py3-none-any.whl (101 kB)
Downloading SQLAlchemy-2.0.35-cp312-cp312-win_amd64.whl (2.1 MB)
2.1/2.1 MB 1.9 MB/s eta 0:00:00
Downloading flask_sqlalchemy-3.1.1-py3-none-any.whl (25 kB)
Downloading flask_wtf-1.2.1-py3-none-any.whl (12 kB)
Downloading blinker-1.8.2-py3-none-any.whl (9.5 kB)
Downloading click-8.1.7-py3-none-any.whl (97 kB)
Downloading greenlet-3.1.1-cp312-cp312-win_amd64.whl (299 kB)
Downloading itsdangerous-2.2.0-py3-none-any.whl (18 kB)
Using cached Jinja2-3.1.4-py3-none-any.whl (133 kB)
Downloading typing_extensions-4.12.2-py3-none-any.whl (37 kB)
Downloading werkzeug-3.0.4-py3-none-any.whl (227 kB)
Downloading wtforms-3.1.2-py3-none-any.whl (145 kB)
Using cached MarkupSafe-2.1.5-cp312-cp312-win_amd64.whl (17 kB)
Using cached colorama-0.4.6-py2.py3-none-any.whl (25 kB)
Installing collected packages: typing-extensions, MarkupSafe, itsdangerous, greenlet, colorama, blinker, wtforms, Werkzeug, sqlalchemy, Jinja2, click, flask, flask-wtf, flask-sqlalchemy
Successfully installed Jinja2-3.1.4 MarkupSafe-2.1.5 Werkzeug-3.0.4 blinker-1.8.2 click-8.1.7 colorama-0.4.6 flask-3.0.3 flask-sqlalchemy-3.1.1 flask-wtf-1.2.1 greenlet-3.1.1 itsdangerous-2.2.0 sqlalchemy-2.0.35 typing-extensions-4.12.2 wtforms-3.1.2
(venv) PS C:\Users\harin>
```

Step-3:

The next step is to initialize Git and connect to Github. I have initialized Git in local directory using **git init**.

```
PS C:\Users\harin> git init
Initialized empty Git repository in C:/Users/harin/.git/
PS C:\Users\harin>
```

Now, I have created files like app.py, models.py, forms.py, and the templates directory for my project. I am adding my codes below for each file I have created:

app.py:

```
File Edit Selection View Go Run Terminal Help
Restricted Mode is intended for safe code browsing. Trust this window to enable all features. Manage Learn More

app.py
C:\Users\harin> flask_pet_app > app.py
1 from flask import Flask, render_template
2 from flask_sqlalchemy import SQLAlchemy
3
4 app = Flask(__name__)
5 app.config['SQLALCHEMY_DATABASE_URI'] = 'sqlite:///pets.db'
6 db = SQLAlchemy(app)
7
8 class Pet(db.Model):
9     id = db.Column(db.Integer, primary_key=True)
10    name = db.Column(db.String(80), nullable=False)
11    age = db.Column(db.Integer, nullable=False)
12    species = db.Column(db.String(80), nullable=False)
13
14 @app.route('/')
15 def index():
16     pets = Pet.query.all()
17     return render_template('view_pets.html', pets=pets)
18
19 def add_sample_data():
20     # Check if the table is empty before adding sample data
21     if Pet.query.count() == 0:
22         sample_pets = [
23             Pet(name='Buddy', age=3, species='Dog'),
24             Pet(name='Mittens', age=2, species='Cat'),
25             Pet(name='Goldie', age=1, species='Fish'),
26         ]
27         db.session.bulk_save_objects(sample_pets)
28         db.session.commit()
29
30 if __name__ == '__main__':
31     with app.app_context():
32         db.drop_all() # Drops all tables
33         db.create_all() # Creates tables again
34         add_sample_data() # Add sample pets
35     app.run(debug=True)
36
```

models.py:

```
File Edit Selection View Go Run Terminal Help
Restricted Mode is intended for safe code browsing. Trust this window to enable all features. Manage Learn More

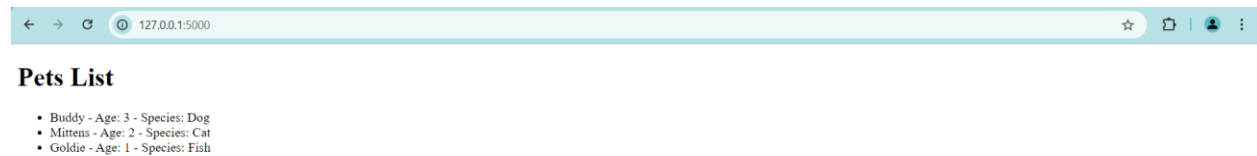
models.py
C:\Users\harin> flask_pet_app > models.py
1 from flask_sqlalchemy import SQLAlchemy
2
3 db = SQLAlchemy()
4
5 class Pet(db.Model):
6     id = db.Column(db.Integer, primary_key=True)
7     name = db.Column(db.String(100), nullable=False)
8     age = db.Column(db.Integer, nullable=False)
9     type = db.Column(db.String(100), nullable=False)
10
```

forms.py:

```
File Edit Selection View Go Run Terminal Help
Restricted Mode is intended for safe code browsing. Trust this window to enable all features. Manage Learn More

forms.py
C:\Users\harin> flask_pet_app > forms.py
1 from flask_wtf import FlaskForm
2 from wtforms import StringField, IntegerField, SubmitField
3 from wtforms.validators import DataRequired
4
5 class PetForm(FlaskForm):
6     name = StringField('Name', validators=[DataRequired()])
7     age = IntegerField('Age', validators=[DataRequired()])
8     type = StringField('Type', validators=[DataRequired()])
9     submit = SubmitField('Add Pet')
10
```

Once I have created the required files, I got the output like the below using <http://127.0.0.1:5000/>



I have used **git add**. to add the files to Git for which I have created to commit.

```
Windows PowerShell x Windows PowerShell x + v
(venv) PS C:\Users\harin\flask_pet_app> git add .
warning: in the working copy of 'flask_pet_app/venv/Include/site/python3.12/greenlet/greenlet.h', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/MarkupSafe-2.1.5.dist-info/INSTALLER', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/MarkupSafe-2.1.5.dist-info/WHEEL', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/MarkupSafe-2.1.5.dist-info/top_level.txt', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/SQLAlchemy-2.0.35.dist-info/INSTALLER', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/SQLAlchemy-2.0.35.dist-info/WHEEL', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/SQLAlchemy-2.0.35.dist-info/top_level.txt', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/blinker-1.8.2.dist-info/INSTALLER', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/blinker-1.8.2.dist-info/LICENSE.txt', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/blinker-1.8.2.dist-info/METADATA', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/blinker-1.8.2.dist-info/WHEEL', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/blinker/_init_.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/blinker/utilities.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/blinker/base.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/click-8.1.7.dist-info/INSTALLER', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/click-8.1.7.dist-info/LICENSE.rst', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/click-8.1.7.dist-info/METADATA', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/click-8.1.7.dist-info/WHEEL', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/click-8.1.7.dist-info/top_level.txt', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/click/_init_.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/click/compat.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/click/termui_impl.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/click/textwrap.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/click/winconsole.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/click/core.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/click/decorators.py', LF will be replaced by CRLF the next time Git touches it
```

```
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/requests/sessions.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/requests/status_codes.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/requests/structures.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/requests/utils.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/resolvelib/_init_.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/resolvelib/compat/collections_abc.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/resolvelib/providers.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/resolvelib/reporters.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/resolvelib/resolvers.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/resolvelib/structs.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/rich/_init_.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/rich/_main_.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/rich/_cell_widths.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/rich/_emoji_codes.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/rich/_emoji_replace.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/rich/_export_format.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/rich/_extension.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/rich/_fileno.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/rich/_inspect.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/rich/_log_render.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/rich/_loop.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/pip/_vendor/rich/_null_file.py', LF will be replaced by CRLF the next time Git touches it
```

[illegible]

Now, I have committed all the staged files with **git commit -m "Initial commit for Flask Pet App"**

```
(venv) PS C:\Users\harin\flask_pet_app> git config --global user.name "harin"
(venv) PS C:\Users\harin\flask_pet_app> git config --global user.email "hsocketi@kent.edu"
(venv) PS C:\Users\harin\flask_pet_app> git commit -m "Initial commit for Flask Pet App"
[master (root-commit) d11a4e9] Initial commit for Flask Pet App
2044 files changed, 465661 insertions(+)
create mode 100644 flask_pet_app/__pycache__/app.cpython-312.pyc
create mode 100644 flask_pet_app/__pycache__/forms.cpython-312.pyc
create mode 100644 flask_pet_app/__pycache__/models.cpython-312.pyc
create mode 100644 flask_pet_app/app.py
create mode 100644 flask_pet_app/forms.py
create mode 100644 flask_pet_app/instance/pets.db
create mode 100644 flask_pet_app/models.py
create mode 100644 flask_pet_app/templates/view_pets.html
create mode 100644 flask_pet_app/venv/Include/site/python3.12/greenlet/greenlet.h
create mode 100644 flask_pet_app/venv/Lib/site-packages/MarkupSafe-2.1.5.dist-info/INSTALLER
create mode 100644 flask_pet_app/venv/Lib/site-packages/MarkupSafe-2.1.5.dist-info/LICENSE.rst
create mode 100644 flask_pet_app/venv/Lib/site-packages/MarkupSafe-2.1.5.dist-info/METADATA
create mode 100644 flask_pet_app/venv/Lib/site-packages/MarkupSafe-2.1.5.dist-info/RECORD
create mode 100644 flask_pet_app/venv/Lib/site-packages/MarkupSafe-2.1.5.dist-info/WHEEL
create mode 100644 flask_pet_app/venv/Lib/site-packages/MarkupSafe-2.1.5.dist-info/top_level.txt
create mode 100644 flask_pet_app/venv/Lib/site-packages/SQLAlchemy-2.0.35.dist-info/INSTALLER
create mode 100644 flask_pet_app/venv/Lib/site-packages/SQLAlchemy-2.0.35.dist-info/LICENSE
create mode 100644 flask_pet_app/venv/Lib/site-packages/SQLAlchemy-2.0.35.dist-info/METADATA
create mode 100644 flask_pet_app/venv/Lib/site-packages/SQLAlchemy-2.0.35.dist-info/RECORD
create mode 100644 flask_pet_app/venv/Lib/site-packages/SQLAlchemy-2.0.35.dist-info/WHEEL
create mode 100644 flask_pet_app/venv/Lib/site-packages/SQLAlchemy-2.0.35.dist-info/top_level.txt
create mode 100644 flask_pet_app/venv/Lib/site-packages/__pycache__/typing_extensions.cpython-312.pyc
create mode 100644 flask_pet_app/venv/Lib/site-packages/blinker-1.8.2.dist-info/INSTALLER
create mode 100644 flask_pet_app/venv/Lib/site-packages/blinker-1.8.2.dist-info/LICENSE.txt
create mode 100644 flask_pet_app/venv/Lib/site-packages/blinker-1.8.2.dist-info/METADATA
create mode 100644 flask_pet_app/venv/Lib/site-packages/blinker-1.8.2.dist-info/RECORD
create mode 100644 flask_pet_app/venv/Lib/site-packages/blinker-1.8.2.dist-info/WHEEL
create mode 100644 flask_pet_app/venv/Lib/site-packages/blinker/_init_.py
create mode 100644 flask_pet_app/venv/Lib/site-packages/blinker/_pycache__/__init__.cpython-312.pyc
create mode 100644 flask_pet_app/venv/Lib/site-packages/blinker/_pycache__/utilities.cpython-312.pyc
create mode 100644 flask_pet_app/venv/Lib/site-packages/blinker/_pycache__/base.cpython-312.pyc
create mode 100644 flask_pet_app/venv/Lib/site-packages/blinker/_utilities.py
create mode 100644 flask_pet_app/venv/Lib/site-packages/blinker/base.py
create mode 100644 flask_pet_app/venv/Lib/site-packages/blinker/py.typed
create mode 100644 flask_pet_app/venv/Lib/site-packages/click-8.1.7.dist-info/INSTALLER
create mode 100644 flask_pet_app/venv/Lib/site-packages/click-8.1.7.dist-info/LICENSE.rst
```



```

create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/nl/LC_MESSAGES/wtforms.po
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/pl/LC_MESSAGES/wtforms.mo
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/pl/LC_MESSAGES/wtforms.po
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/pt/LC_MESSAGES/wtforms.mo
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/pt/LC_MESSAGES/wtforms.po
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/ro/LC_MESSAGES/wtforms.mo
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/ro/LC_MESSAGES/wtforms.po
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/ru/LC_MESSAGES/wtforms.mo
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/ru/LC_MESSAGES/wtforms.po
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/sk/LC_MESSAGES/wtforms.mo
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/sk/LC_MESSAGES/wtforms.po
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/sv/LC_MESSAGES/wtforms.mo
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/sv/LC_MESSAGES/wtforms.po
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/tr/LC_MESSAGES/wtforms.mo
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/tr/LC_MESSAGES/wtforms.po
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/uk/LC_MESSAGES/wtforms.mo
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/uk/LC_MESSAGES/wtforms.po
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/wtforms.pot
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/zh/LC_MESSAGES/wtforms.mo
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/zh/LC_MESSAGES/wtforms.po
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/zh_TW/LC_MESSAGES/wtforms.mo
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/locale/zh_TW/LC_MESSAGES/wtforms.po
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/meta.py
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/validators.py
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/widgets/_init_.py
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/widgets/_pycache_/_init_.cpython-312.pyc
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/widgets/_pycache_/core.cpython-312.pyc
create mode 100644 flask_pet_app/venv/Lib/site-packages/wtforms/widgets/core.py
create mode 100644 flask_pet_app/venv/Scripts/Activate.ps1
create mode 100644 flask_pet_app/venv/Scripts/activate
create mode 100644 flask_pet_app/venv/Scripts/activate.bat
create mode 100644 flask_pet_app/venv/Scripts/deactivate.bat
create mode 100644 flask_pet_app/venv/Scripts/flask.exe
create mode 100644 flask_pet_app/venv/Scripts/pip.exe
create mode 100644 flask_pet_app/venv/Scripts/pip3.12.exe
create mode 100644 flask_pet_app/venv/Scripts/pip3.exe
create mode 100644 flask_pet_app/venv/Scripts/python.exe
create mode 100644 flask_pet_app/venv/Scripts/pythonw.exe
create mode 100644 flask_pet_app/venv/pyvenv.cfg
(venv) PS C:\Users\harin\flask_pet_app>

```

The next step is followed by pushing the code to Github where you have already created a repository in Github in the name of flask_pet_app. The used codes are:

git remote add origin https://github.com/your-username/flask_pet_app.git

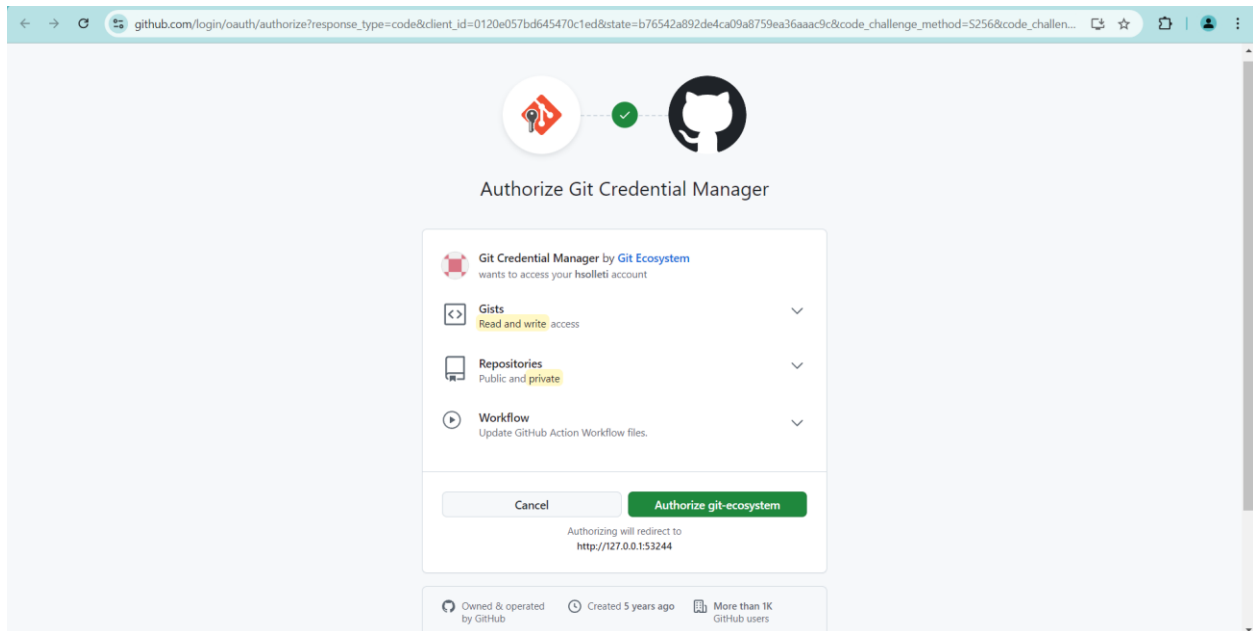
git remote -v

```

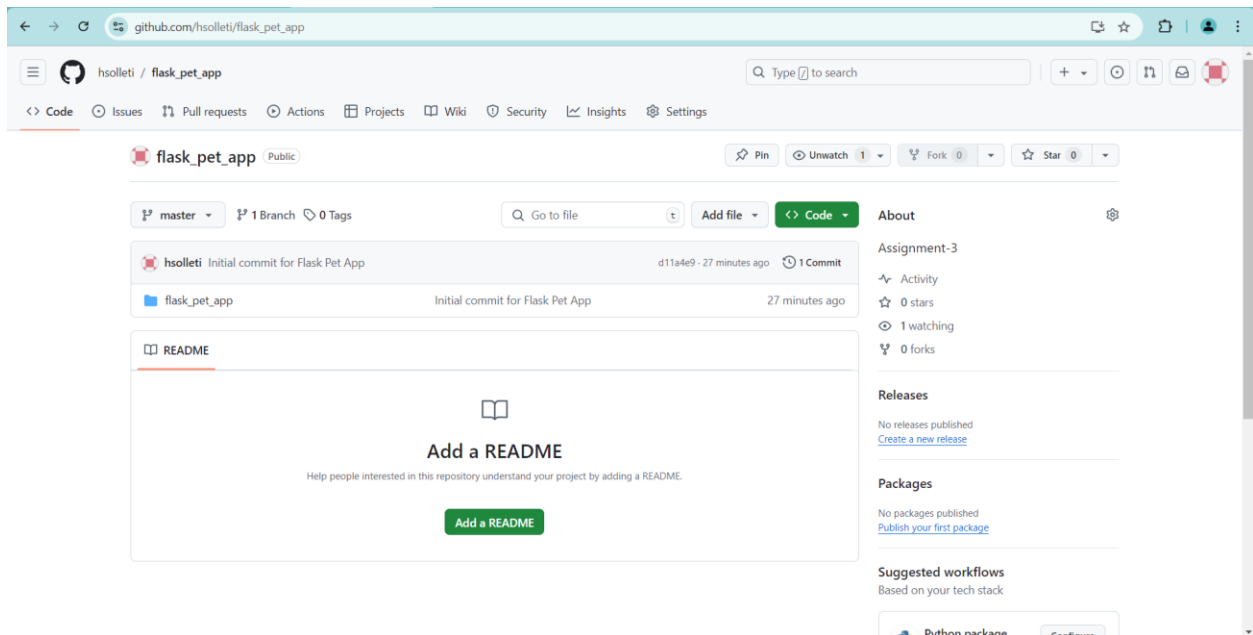
(venv) PS C:\Users\harin\flask_pet_app> git remote add origin https://github.com/hsolleti/flask_pet_app.git
(venv) PS C:\Users\harin\flask_pet_app> git remote -v
origin https://github.com/hsolleti/flask_pet_app.git (fetch)
origin https://github.com/hsolleti/flask_pet_app.git (push)
(venv) PS C:\Users\harin\flask_pet_app> git push -u origin master
info: please complete authentication in your browser...

```

Once I have run this code, **git push -u origin master** it redirected my page from terminal to Github.



And the code files are visible in my repository.



Step-4:

To build and develop Flask locally, I have added routes, models, forms, and templates.

app.py

```
File Edit View

from flask import Flask, render_template, redirect, url_for
from models import db, Pet
from forms import PetForm

app = Flask(__name__)
app.config['SQLALCHEMY_DATABASE_URI'] = 'sqlite:///pets.db'
app.config['SECRET_KEY'] = 'your_secret_key'
db.init_app(app)

# Initialize the database when the app starts
with app.app_context():
    db.create_all()

@app.route('/', methods=['GET', 'POST'])
def index():
    form = PetForm()
    if form.validate_on_submit():
        pet = Pet(name=form.name.data, age=form.age.data, type=form.type.data)
        db.session.add(pet)
        db.session.commit()
        return redirect(url_for('index'))
    pets = Pet.query.all()
    return render_template('view_pets.html', form=form, pets=pets)

if __name__ == '__main__':
    app.run(debug=True)
```

models.py

```
File Edit View

from flask_sqlalchemy import SQLAlchemy

db = SQLAlchemy()

class Pet(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    name = db.Column(db.String(100), nullable=False)
    age = db.Column(db.Integer, nullable=False)
    type = db.Column(db.String(100), nullable=False)
```

forms.py

```
File Edit View

from flask_wtf import FlaskForm
from wtforms import StringField, IntegerField, SubmitField
from wtforms.validators import DataRequired

class PetForm(FlaskForm):
    name = StringField('Name', validators=[DataRequired()])
    age = IntegerField('Age', validators=[DataRequired()])
    type = StringField('Type', validators=[DataRequired()])
    submit = SubmitField('Add Pet')
```

templates.py

```
File Edit View

<doctype html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Pets List</title>
</head>
<body>
    <h1>Pets List</h1>
    <form method="POST">
        {{ form.hidden_tag() }}
        {{ form.name.label }} {{ form.name() }}<br>
        {{ form.age.label }} {{ form.age() }}<br>
        {{ form.type.label }} {{ form.type() }}<br>
        {{ form.submit() }}
    </form>
    <ul>
        {% for pet in pets %}
            <li>{{ pet.name }} - Age: {{ pet.age }} , Type: {{ pet.type }}</li>
        {% endfor %}
    </ul>
</body>
</html>
```

To run Flask application locally, I run **python app.py** and got:

```
(venv) PS C:\Users\harin\flask_pet_app> python app.py
* Serving Flask app 'app'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 134-738-830
```

When opened <http://127.0.0.1:5000/>, the application was followed:



Pets List

Name

Age

Type

The last step is when I run the application, the website worked when I entered the details of name, age, and type. I have attached a picture below for reference.



Pets List

Name

Age

Type

- Jimmy - Age: 14, Type: Dog
- Fluffy - Age: 2, Type: Cat
- Tommy - Age: 4, Type: Dog
- Goldie - Age: 1, Type: Fish
- Ceaser - Age: 3, Type: Dog
- Rocher - Age: 5, Type: Dog
- Kitty - Age: 2, Type: Cat

Step-5:

While developing, I am staging the modified files using **git add**.

```
(venv) PS C:\Users\harin\flask_pet_app> git add .
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask-3.0.3.dist-info/INSTALLER', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask-3.0.3.dist-info/LICENSE.txt', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask-3.0.3.dist-info/METADATA', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask-3.0.3.dist-info/WHEEL', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask-3.0.3.dist-info/entry_points.txt', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/__init__.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/_main_.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/app.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/blueprints.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/cli.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/config.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/ctx.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/debughelpers.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/globals.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/helpers.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/json/_init_.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/json/provider.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/json/tag.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/logging.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/sansio/README.md', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/sansio/app.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/sansio/blueprints.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/sansio/scaffold.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/sessions.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/signals.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/templating.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/testing.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/typing.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/views.py', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'flask_pet_app/venv/Lib/site-packages/flask/wrappers.py', LF will be replaced by CRLF the next time Git touches it
(venv) PS C:\Users\harin\flask_pet_app>
```

Next is to commit the changes with **git commit -m "Added templates for viewing pets"**

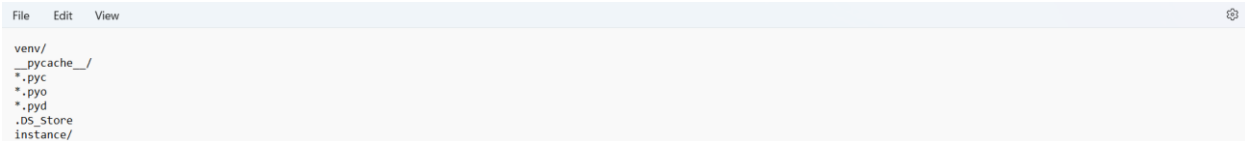
```
(venv) PS C:\Users\harin\flask_pet_app> git commit -m "Added templates for viewing pets"
[master 9074349] Added templates for viewing pets
32 files changed, 36 insertions(+), 36 deletions(-)
create mode 100644 flask_pet_app/.gitignore
```

Now, pushing the files to the repository with **git push**

```
(venv) PS C:\Users\harin\flask_pet_app> git push
Enumerating objects: 70, done.
Counting objects: 100% (70/70), done.
Delta compression using up to 8 threads
Compressing objects: 100% (45/45), done.
Writing objects: 100% (49/49), 158.99 KiB | 4.08 MiB/s, done.
Total 49 (delta 10), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (10/10), completed with 10 local objects.
To https://github.com/hsolleti/flask_pet_app.git
d11a4e9..9074349 master -> master
```

Step-6:

Creating a **.gitignore** file to exclude the unnecessary and cache files using the code **.gitignore**



```
venv/
__pycache__/
*.pyc
*.pyo
*.pyd
.DS_Store
instance/
```

Now committing and pushing the **.gitignore** file with:

git add .gitignore

git commit -m "Added .gitignore"

git push

```
(venv) PS C:\Users\harin\flask_pet_app> git add .gitignore
(venv) PS C:\Users\harin\flask_pet_app> git commit -m "Updated .gitignore"
[master e2537e5] Updated .gitignore
1 file changed, 11 insertions(+), 4 deletions(-)
```

```
(venv) PS C:\Users\harin\flask_pet_app> git push origin master
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 432 bytes | 216.00 KiB/s, done.
Total 4 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/hsolleti/flask_pet_app.git
9074349..e2537e5 master -> master
(venv) PS C:\Users\harin\flask_pet_app> git push
Everything up-to-date
```

Step-7:

For collaborating and further development, I am sharing my Github repository link below:

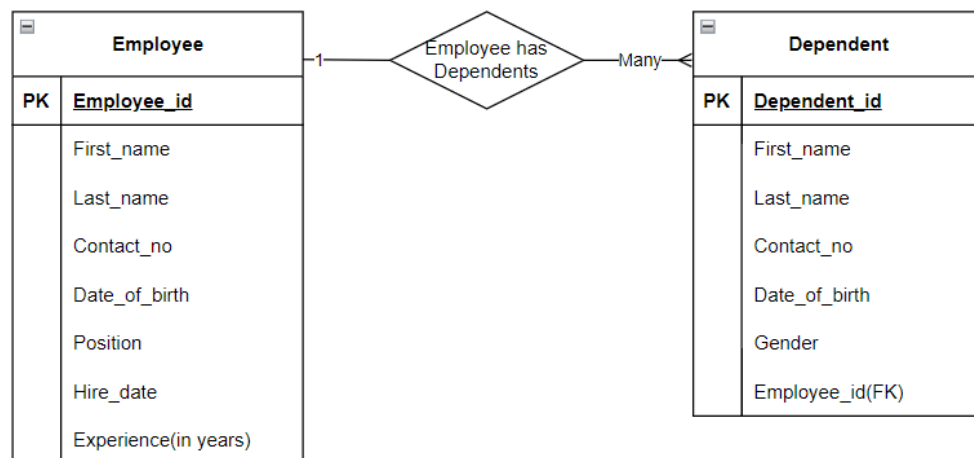
https://github.com/hsolleti/flask_pet_app

What I have learned:

- I learnt to draw ER diagrams.
- Creating entities, getting to know the relationships and cardinalities is what I have learnt from Er diagrams.
- I learnt and explored new codes while doing this assignment.
- I have faced many issues/errors, but I tried various codes and repeatedly tried to change codes and tried to get the correct outputs in each step.
- I got to run codes in terminal or powershell, initiated into git, committed the changes and push to github into the created repository.
- One more thing which I got to know is to develop web application.

Extra/Bonus work:

ER Diagram for a simple database to allow HR to track an employee's dependents.



- I have made this ER diagram simpler which is quite easy to understand.
- I have taken two entities namely Employee and Dependent.
- And listed a few attributes under both the entities naming Employee and Dependent.
- The relationship between these both entities is that every employee has some dependents.
- Coming to the cardinality, one employee can have any number of dependents on him. So, the cardinality will be 1-Many(1-N).