DS561-HW6

U43188754
Github Link:
https://github.com/tigeryi1998/ds561-tigeryi/tree/main/hw6

0. SQL Database “dbhw5” from HW5

https://console.cloud.google.com/sql/instances/instance-tigeryi/overview?project=feisty-gasket-398719

Public IP address
34.138.218.160

```
DB_NAME = "dbhw5"
INSTANCE_CONNECTION_NAME = "feisty-gasket-398719:us-east1:instance-tigeryi"
```

Add the following tables into the database in the following schemas:

table1
(successful requests)
Primary Key (ip, time_of_day)

ip	time_of_day	filename

table2
(ip metadata)
Primary Key (ip)

ip	gender	age	income	country	is_banned

table3
(failed requests)
Primary Key

ip	time_of_day	filename	error

1. model1 (ip, country)

stmt = sqlalchemy.text
(“““
SELECT (ip, country)
FROM table2;
”””)
result1 = db.execute(stmt).fetch_all()

result1

ip	country
192.168.1.1	United States of America (USA)

Now we encode string to long and int as the model input

```
def ip2long(ip):
 packedIP = socket.inet_aton(ip)
 return struct.unpack('!L', packedIP)[0]
```

result1

ip	country
3232235777	145

y = f(x)
country = function (ip)

Model is linear support vector machine SVM using SGD

model = sklearn.linear_model.SGDClassifier
model.fit(X,y)

python3 app1.py

2. model2 (income, gender, age, country)

```
stmt = sqlalchemy.text
(“““
SELECT (ip, country)
FROM table2;
”””)
result2 = db.execute(stmt).fetch_all()
```

result2

gender	age	income	country
Female	26-35	60k-100k	Italy

Again encode the categorical string into categorical int as the model input

result2

gender	age	income	country
1	2	4	27

y = f(x1, x2, x3) ; X = [x1, x2, x3]
income = function (gender, age, country)

Model is linear support vector machine SVM using SGD

```
model = sklearn.linear_model.SGDClassifier
model.fit(X,y)
```

python3 app2.py