LAB # 8
COLLABORATIVE FILTERING

EXAMPLE:-

```
import pandas as pd
from surprise import Dataset
from surprise import Reader
from surprise import KNNWithMeans
```

```
reader = Reader(rating_scale=(1,10))

movielens = Dataset.load_builtin("ml-100k")

sim_options={"name":"cosine","user_based":False,}

algo= KNNWithMeans(sim_options=sim_options)

trainingSet=data.build_full_trainset()

algo.fit(trainingSet)
prediction=algo.predict('E',5)
prediction.est
```

OUTPUT:

```
Computing the cosine similarity matrix...
Done computing similarity matrix.

2.975
```

Lab Task:

- For the given dataset, build a recommender system using item based collaborative filtering, which recommends movies for a selected user. If we enter a user name into the recommender, the recommender is supposed to return the list of recommended movies which have the highest predicted ratings. Use Nearest Neighbors to calculate the distance between movies by using the cosine similarity

CODE:

```
ratings_dict ={
    "Item":["heart","blue eyes",'let me down','zara sa','judai','saajna','haale dil','hawayen'],
   "User":["haroon",'soban','wasif','haris','kaif','khalil','khurram','ali'],
    "Rating":[7,8,6,9,10,5,9,6],

}

df = pd.DataFrame(ratings_dict)
reader = Reader(rating_scale=(1,10))

data=Dataset.load_from_df(df[["User","Item",'Rating']],reader)



sim_options={"name":"cosine","user_based":False,}

algo= KNNWithMeans(sim_options=sim_options)

trainingSet=data.build_full_trainset()

algo.fit(trainingSet)
prediction=algo.predict('haroon','blue eyes')
prediction.est
```

OUTPUT:

```
Computing the cosine similarity matrix...
Done computing similarity matrix.

8.0
```