```python
import pandas as pd
import numpy as np
import warnings
warnings.filterwarnings("ignore")
```

```python
movie = pd.read_csv("movies.csv")
rating = pd.read_csv("ratings.csv")
```

```python
movie.head()
```

	movieId	title	genres
0	1	Toy Story (1995)	Adventure|Animation|Children|Comedy|Fantasy
1	2	Jumanji (1995)	Adventure|Children|Fantasy
2	3	Grumpier Old Men (1995)	Comedy|Romance
3	4	Waiting to Exhale (1995)	Comedy|Drama|Romance
4	5	Father of the Bride Part II (1995)	Comedy

```python
rating.head()
```

	userId	movieId	rating	timestamp
0	1	31	2.5	1260759144
1	1	1029	3.0	1260759179
2	1	1061	3.0	1260759182
3	1	1129	2.0	1260759185
4	1	1172	4.0	1260759205

```python
movie_final = pd.merge(movie,rating,on="movieId").drop(["genres","timestamp","movieId"],ax
```

```python
movie_final["userId"] = "User"+movie_final["userId"].astype("str")
```

```python
movie_final.head()
```

```
                    title    userId    rating
from surprise import Dataset, SVD, accuracy, Reader
from surprise.model_selection import train_test_split
        1    Toy Story (1995)    User9        4.0

movie_final1 = movie_final
        2    Toy Story (1995)    User15       3.0

reader = Reader(rating_scale=(1,5))


data = Dataset.load_from_df(movie_final,reader)


trainset,testset = train_test_split(data,test_size=0.3,random_state=1)


svd = SVD(n_factors=100)


svd.fit(trainset)

    <surprise.prediction_algorithms.matrix_factorization.SVD at 0x2b35fca7c40>


predictions = svd.test(testset)
accuracy.rmse(predictions)

    RMSE: 0.9023
    0.9023039191919443


movie_final.iloc[200]
user = "User534"
movie = "Toy Story (1995)"


svd.predict(user,movie)

    Prediction(uid='User534', iid='Toy Story (1995)', r_ui=None, est=3.5402059941144537,
```

◄ ▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬ ►

```
movie_user_matrix = movie_final1.pivot_table(index="userId",columns="title",values="rating

movie_user_matrix.head()
```

title	"Great Performances" Cats (1998)	$9.99 (2008)	'Hellboy': The Seeds of Creation (2004)	'Neath the Arizona Skies (1934)	'Round Midnight (1986)	'Salem's Lot (2004)	'Til There Was You (1997)	'bur (19
userId								
User1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	

```
movie_user_matrix.fillna(0,inplace=True)
```

| **User100** | NaN | NaN | NaN | NaN | NaN | NaN | NaN | |

```
movie_user_matrix.head()
```

title	"Great Performances" Cats (1998)	$9.99 (2008)	'Hellboy': The Seeds of Creation (2004)	'Neath the Arizona Skies (1934)	'Round Midnight (1986)	'Salem's Lot (2004)	'Til There Was You (1997)	'bur (19
userId								
User1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
User10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
User100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
User101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
User102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

5 rows × 9064 columns

```
movie_watched = movie_user_matrix["Toy Story (1995)"]
movie_watched
```

```
userId
User1      0.0
User10     0.0
User100    4.0
User101    0.0
User102    0.0
          ...
User95     0.0
User96     0.0
User97     1.0
User98     0.0
User99     4.0
Name: Toy Story (1995), Length: 671, dtype: float64
```

```
similarity_scores = movie_user_matrix.corrwith(movie_watched)
similarity_scores
```

```
title
"Great Performances" Cats (1998)            -0.032411
$9.99 (2008)                                -0.018494
'Hellboy': The Seeds of Creation (2004)      0.040978
'Neath the Arizona Skies (1934)             -0.028157
'Round Midnight (1986)                       0.037176
                                                ...
xXx (2002)                                   0.112633
xXx: State of the Union (2005)               0.060730
¡Three Amigos! (1986)                        0.149133
À nous la liberté (Freedom for Us) (1931)    0.050854
İtirazım Var (2014)                         -0.028157
Length: 9064, dtype: float64
```

```python
similarity_scores.sort_values(ascending=False).head(10)
```

```
title
Toy Story (1995)                             1.000000
Toy Story 2 (1999)                           0.474141
Bug's Life, A (1998)                         0.393799
Groundhog Day (1993)                         0.372371
Monsters, Inc. (2001)                        0.366277
Independence Day (a.k.a. ID4) (1996)         0.356876
Finding Nemo (2003)                          0.348941
Incredibles, The (2004)                      0.346066
Shrek (2001)                                 0.344068
Willy Wonka & the Chocolate Factory (1971)   0.320002
dtype: float64
```