

```
import pandas as pd
import matplotlib.pyplot as plt
from statsmodels.tsa.holtwinters import ExponentialSmoothing
```

```
file_path = "Downloads/train.csv/taxi dataset.csv"
```

```
df = pd.read_csv(file_path)
```

```
print(df.head())
```

	trip_distance	rate_code	store_and_fwd_flag	payment_type	fare_amount	\
0	9.01	1	N	1	26.0	
1	0.20	1	N	1	3.0	
2	9.65	1	N	1	41.5	
3	9.50	1	N	1	30.0	
4	5.80	1	N	1	21.5	

	extra	mta_tax	tip_amount	tolls_amount	imp_surcharge	total_amount	\
0	0.0	0.5	8.14	5.76	0.3	40.70	
1	0.0	0.5	0.75	0.00	0.3	4.55	
2	0.0	0.5	9.61	5.76	0.3	57.67	
3	0.5	0.5	9.25	5.76	0.3	46.31	
4	0.5	0.5	4.56	0.00	0.3	27.36	

	pickup_location_id	dropoff_location_id	year	month	day	day_of_week	\
0	262	138	2018	3	7	2	
1	263	236	2018	2	25	6	
2	138	230	2018	1	29	0	
3	186	138	2018	9	25	1	
4	162	87	2018	8	20	0	

	hour_of_day	trip_duration	calculated_total_amount
0	6	2131.0	24.30
1	10	2377.0	37.40
2	8	1286.0	30.36
3	20	2586.0	4.30
4	21	1575.0	23.80

```
df['datetime'] = pd.to_datetime(df[['year', 'month', 'day']]) +
pd.to_timedelta(df['hour_of_day'], unit='h')
```

```
df = df.sort_values(by='datetime')
```

```
df.set_index('datetime', inplace=True)
```

```
df_daily = df[['total_amount']].resample('D').sum()
```

```
model = ExponentialSmoothing(df_daily['total_amount'], trend="add",
seasonal="add", seasonal_periods=7)
```

```
fit = model.fit()
```

C:\Users\HDC0422279\anaconda3\Lib\site-packages\statsmodels\tsa\holtwinters\model.py:918: ConvergenceWarning:

```
Optimization failed to converge. Check mle_retvals.  
warnings.warn(  

```

```
forecast = fit.forecast(7)
```

```
plt.figure(figsize=(12, 6))  
plt.plot(df_daily.index, df_daily['total_amount'], label="Actual",  
color='blue')  
plt.plot(forecast.index, forecast, label="Forecast", color='red',  
linestyle="dashed")  
plt.xlabel("Date")  
plt.ylabel("Total Fare Amount")  
plt.title("Daily Taxi Fare Amount Forecasting")  
plt.legend()  
plt.grid()  
plt.show()
```

