

[nltk_data] Package stopwords is already up-to-date!

INFO:src.data.preprocessing:Processed text columns: ['title', 'description']

INFO:__main__:Training set: 400 interactions

INFO:__main__:Test set: 100 interactions

INFO:__main__:Training recommendation model...

INFO:src.models.recommender:Epoch 1/5 - Train Loss: 0.659432, Val Loss: 0.540482, Time: 0.06s

INFO:src.models.recommender:Epoch 2/5 - Train Loss: 0.494500, Val Loss: 0.384506, Time: 0.05s

INFO:src.models.recommender:Epoch 3/5 - Train Loss: 0.344998, Val Loss: 0.241820, Time: 0.04s

INFO:src.models.recommender:Epoch 4/5 - Train Loss: 0.204763, Val Loss: 0.123907, Time: 0.05s

INFO:src.models.recommender:Epoch 5/5 - Train Loss: 0.105048, Val Loss: 0.054971, Time: 0.04s

INFO:__main__:Evaluating recommendation model...

Generating recommendations: 100%|██████████| 42/42 [00:00<00:00

INFO:__main__:Evaluation metrics: {'precision@5': 0.0,

'recall@5': 0.0, 'ndcg@5': 0.0, 'precision@10': 0.0, 'recall@10': 0.0, 'ndcg@10': 0.0, 'mae':

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0.7544747 , 0.62605417, 0.6536299 , 0.63501668]]}

INFO:__main__:Plotting recommendation quality...

INFO:__main__:Generating recommendations for sample users...

INFO:__main__:Recommendations for user_18:

User user_18 has rated 5 jobs:

- Furniture delivery (Plumbing): 2.4/5.0
- Assemble bed frame (Gardening): 4.6/5.0
- Computer repair (Moving): 4.9/5.0
- Help with moving truck (Gardening): 4.3/5.0
- Chemistry tutoring (Assembly): 1.7/5.0

Top 5 recommendations for user_18:

- Unclog toilet (Tech Support): score = 0.7182
- Paint living room (Electrical): score = 0.6998
- Install new faucet (Assembly): score = 0.6922
- Repair bathroom plumbing (Gardening): score = 0.6870
- Assemble desk (Painting): score = 0.6771

INFO: __main__: Recommendations for user_5:

User user_5 has rated 10 jobs:

- Moving boxes to storage (Delivery): 2.8/5.0
- House cleaning (Assembly): 4.3/5.0
- Furniture delivery (Plumbing): 4.9/5.0
- House cleaning (Assembly): 4.0/5.0
- Clean windows (Assembly): 4.8/5.0
- Assemble bed frame (Assembly): 4.9/5.0
- Fix water heater (Assembly): 4.9/5.0
- Lawn mowing and trimming (Assembly): 4.9/5.0
- Paint bedroom walls (Plumbing): 4.1/5.0
- Wallpaper installation (Assembly): 4.6/5.0

Top 5 recommendations for user_5:

- Unclog toilet (Tech Support): score = 0.7760

- Paint living room (Electrical): score = 0.7576
- Install new faucet (Assembly): score = 0.7500
- Repair bathroom plumbing (Gardening): score = 0.7448
- Assemble desk (Painting): score = 0.7349

INFO: __main__:Recommendations for user_50:

User user_50 has rated 11 jobs:

- Repaint kitchen cabinets (Plumbing): 4.0/5.0
- Smart home device setup (Plumbing): 4.8/5.0
- Install new shower (Moving): 4.4/5.0
- Repair bathroom plumbing (Gardening): 4.3/5.0
- Language lessons (Plumbing): 4.5/5.0
- Carpet cleaning (Moving): 5.0/5.0
- Grocery delivery (Moving): 4.0/5.0
- Assemble desk (Plumbing): 4.7/5.0
- Wallpaper installation (Gardening): 4.3/5.0
- Repaint kitchen cabinets (Plumbing): 4.4/5.0
- Printer setup (Moving): 4.9/5.0

Top 5 recommendations for user_50:

- Unclog toilet (Tech Support): score = 0.7990
- Paint living room (Electrical): score = 0.7807
- Install new faucet (Assembly): score = 0.7730
- Assemble desk (Painting): score = 0.7579
- Software installation (Delivery): score = 0.7560

INFO: __main__:Recommendations for user_37:

User user_37 has rated 9 jobs:

- Home network setup (Electrical): 4.6/5.0

- Ceiling fan installation (Cleaning): 4.4/5.0
- Food delivery (Electrical): 4.5/5.0
- Plant new garden (Cleaning): 4.1/5.0
- Plant new garden (Cleaning): 4.9/5.0
- Repaint kitchen cabinets (Plumbing): 1.3/5.0
- Paint bedroom walls (Plumbing): 2.1/5.0
- Smart home device setup (Plumbing): 1.5/5.0
- Ceiling fan installation (Cleaning): 4.2/5.0

Top 5 recommendations for user_37:

- Unclog toilet (Tech Support): score = 0.7214
- Paint living room (Electrical): score = 0.7030
- Install new faucet (Assembly): score = 0.6954
- Repair bathroom plumbing (Gardening): score = 0.6902
- Assemble desk (Painting): score = 0.6803

INFO:__main__:Recommendations for user_3:

User user_3 has rated 5 jobs:

- Fix pipe leak (Moving): 2.9/5.0
- Build raised garden bed (Tutoring): 4.9/5.0
- Physics homework help (Gardening): 4.2/5.0
- Assemble desk (Painting): 4.8/5.0
- Repair bathroom plumbing (Gardening): 4.6/5.0

Top 5 recommendations for user_3:

- Unclog toilet (Tech Support): score = 0.7190
- Paint living room (Electrical): score = 0.7006
- Install new faucet (Assembly): score = 0.6929
- Software installation (Delivery): score = 0.6759
- Computer repair (Moving): score = 0.6753

INFO:__main__:Finding similar jobs to job_5: Unclog toilet

Similar jobs to Unclog toilet (Tech Support):

- Lawn mowing and trimming (Tech Support): similarity = 0.9918
- Repaint kitchen cabinets (Painting): similarity = 0.9911
- Fix leaking sink (Painting): similarity = 0.9908
- Unclog toilet (Cleaning): similarity = 0.9873
- Essay writing assistance (Tech Support): similarity = 0.9866

INFO:__main__:Analyzing sentiment in sample comments...

Sentiment Analysis:

- 'The service was excellent and completed on time!': 0.9334
- 'The job was done but not to my satisfaction.': 0.4336
- 'Terrible service, would not recommend.': 0.0423
- 'Very professional and skilled worker.': 0.9185

INFO:__main__:Saving the trained model...

INFO:__main__:Demo completed successfully!