Assignment 1 Extension: Streamlit Deployment

Data Sample Introduction

We've completed the extension of the Assignment 1 and have our Streamlit app ready! Sample data points have been created to test our app with, we need to make sure that the outputs we get from the app and from our notebook are the same.

Note: we added a section 6 within our current notebook on which we add what is needed for the assignment extension.

We have three different samples:
1. **Data Point 1**: Young professional with stable finances (likely to subscribe)
2. **Data Point 2**: Retired person with moderate finances (moderate likelihood)
3. **Data Point 3**: Student with minimal contact history (less likely)

```
# Data Point 1: Young professional with good finances - likely to subscribe
"age": 32,
"job": "management",
"marital": "single",
"education": "tertiary",
"default": "no",
"balance": 5000,
"housing": "yes",
"loan": "no",
"contact": "cellular",
"day": 15,
"month": "may",
"duration": 300,
"campaign": 2,
"pdays": 30,                    # Previously contacted
"previous": 1,
"poutcome": "success",
"pdays_contacted": True,        # Engineered feature
"pdays_clean": 30.0             # Engineered feature
```

```
# Data Point 2: Retired person with moderate finances - moderate likelihood
"age": 65,
"job": "retired",
"marital": "married",
"education": "secondary",
"default": "no",
"balance": 2500,
"housing": "no",
"loan": "no",
"contact": "telephone",
"day": 10,
"month": "jun",
"duration": 180,
"campaign": 3,
"pdays": -1,                    # Never contacted before
"previous": 0,
"poutcome": "unknown",
"pdays_contacted": False,       # Engineered feature
"pdays_clean": np.nan           # Engineered feature
```

```
# Data Point 3: Student with minimal contact - less likely
"age": 22,
"job": "student",
"marital": "single",
"education": "tertiary",
"default": "no",
"balance": 500,
"housing": "no",
"loan": "yes",
"contact": "cellular",
"day": 20,
"month": "aug",
"duration": 100,
"campaign": 5,
"pdays": -1,                    # Never contacted before
"previous": 0,
"poutcome": "unknown",
"pdays_contacted": False,       # Engineered feature
"pdays_clean": np.nan           # Engineered feature
```

Notebook Test

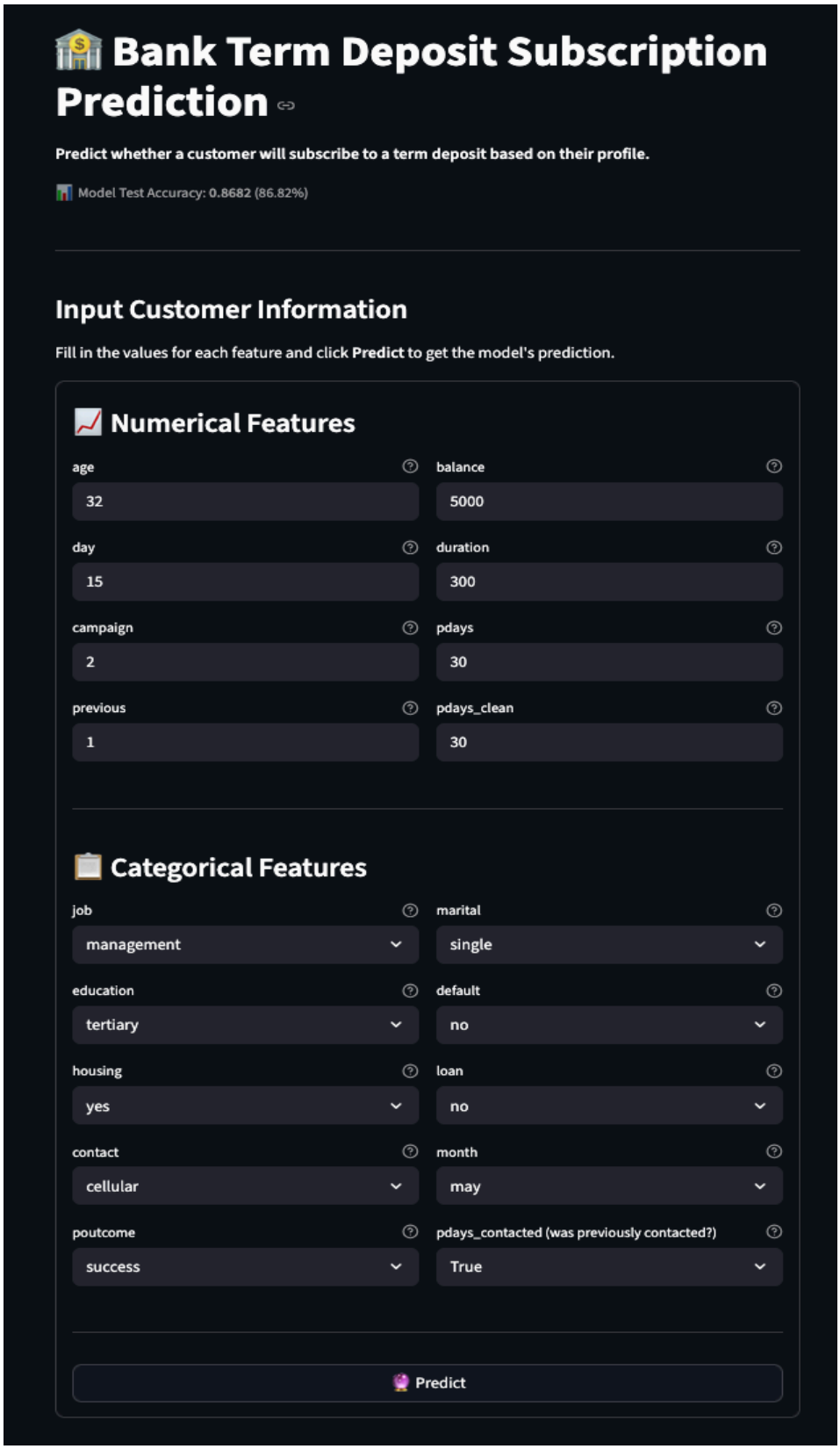
Before working with our app, we'll perform a likelihood to subscribe test on our notebook with our top performing model.

```
======================================================================
PREDICTION RESULTS (to compare with Streamlit)
======================================================================

📊 Data Point 1:
   Prediction: yes
   Probabilities: no=22.7%, yes=77.3%

📊 Data Point 2:
   Prediction: yes
   Probabilities: no=25.2%, yes=74.8%

📊 Data Point 3:
   Prediction: no
   Probabilities: no=54.0%, yes=46.0%

======================================================================
SUMMARY TABLE
======================================================================
 Data Point Prediction Prob(no) Prob(yes)
          1        yes    22.7%     77.3%
          2        yes    25.2%     74.8%
          3         no    54.0%     46.0%
```

Here we have our reference predictions.

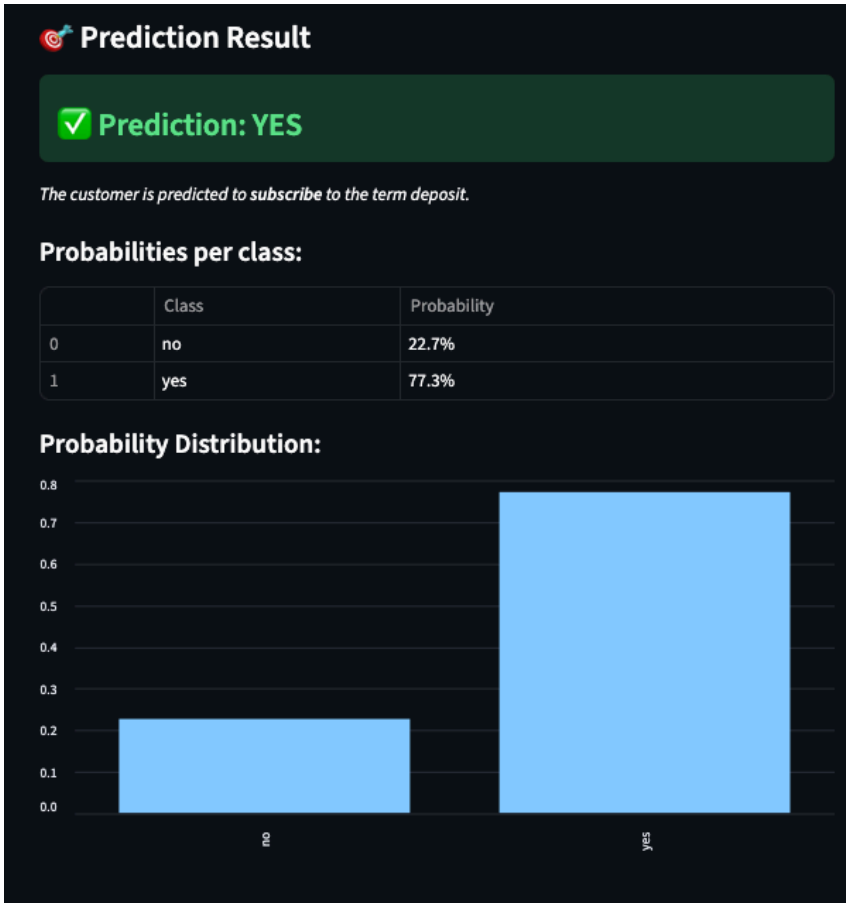
App Introduction

Now we'll go over our Streamlit app, which has been created so that we can introduce all the sample data points manually to check how likely someone is to say yes to the bank's offer.



The app's very beautiful I might add.

Sample Test #1

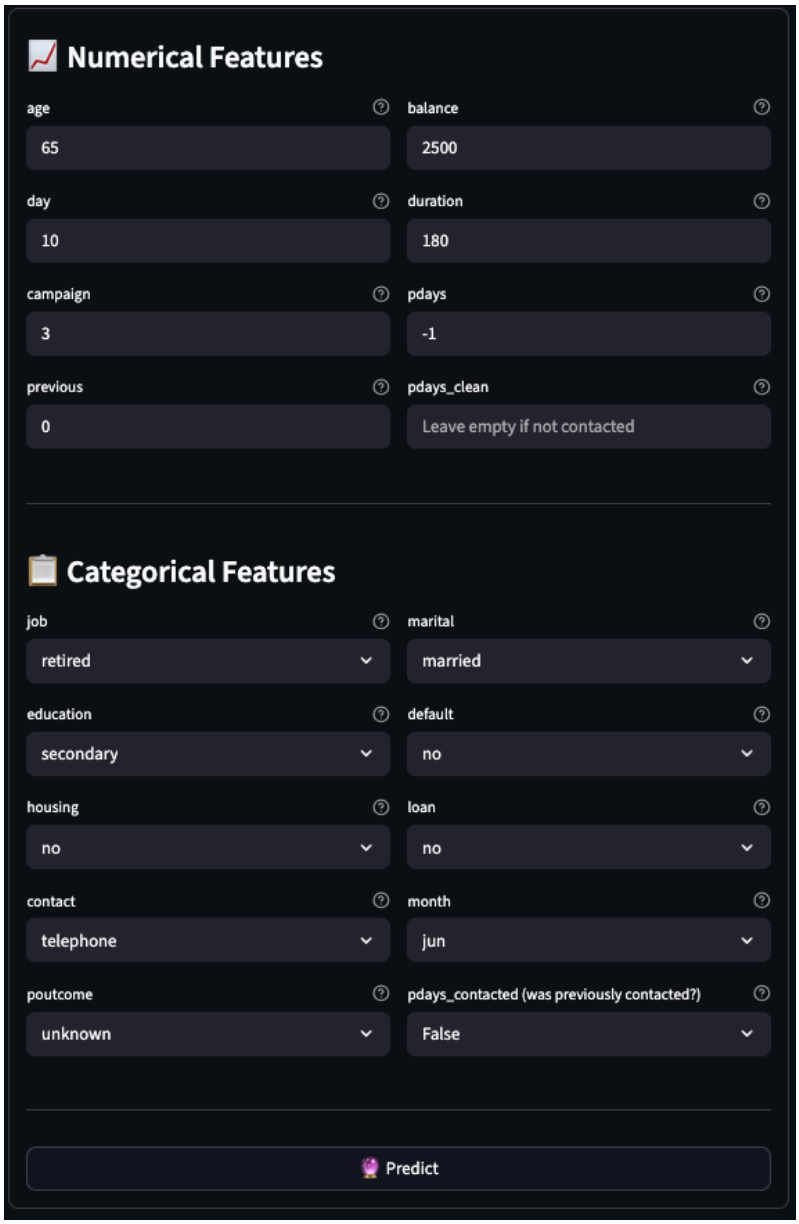


For this example, we predict that the customer will say yes, given the 22.7/77.3 result. So we can see that it perfectly matches the probabilities provided by our model within the notebook!

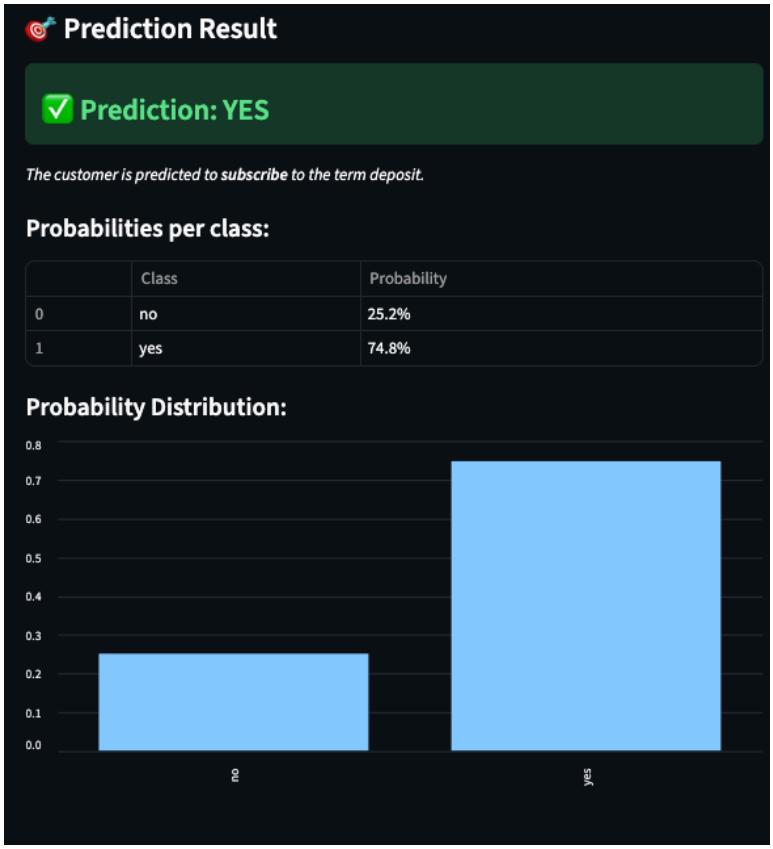
```
============================================
SUMMARY TABLE
============================================
 Data Point Prediction Prob(no) Prob(yes)
          1        yes    22.7%     77.3%
          2        yes    25.2%     74.8%
          3         no    54.0%     46.0%
```

Sample Test #2

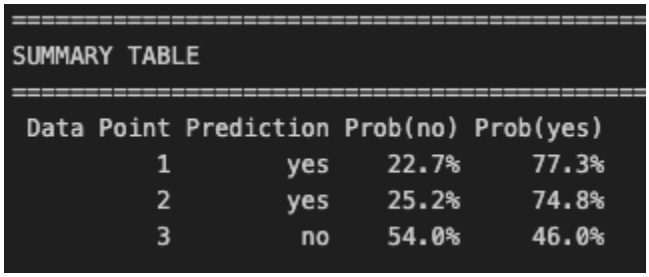
First we enter de sample data



And then we get the results:



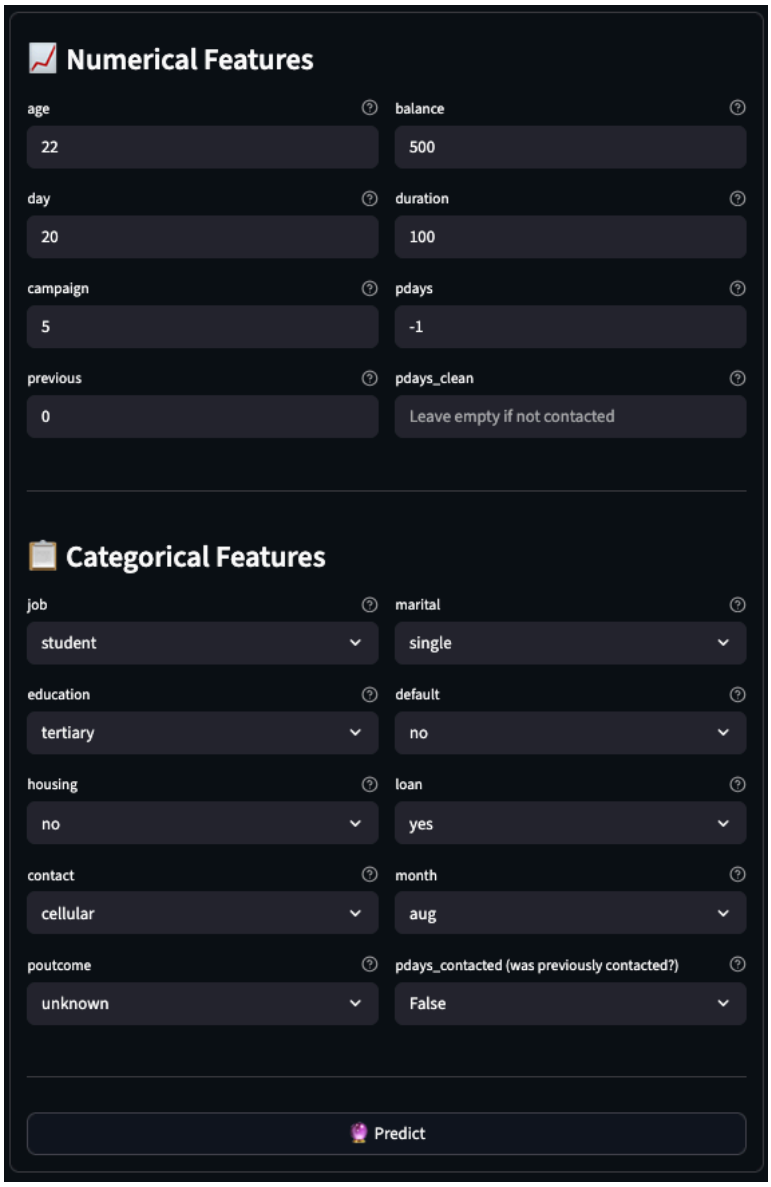
The predictions are 25.2/74.8, so we think the customer will accept the offer.
Again, we got the same results as we did with our notebook!



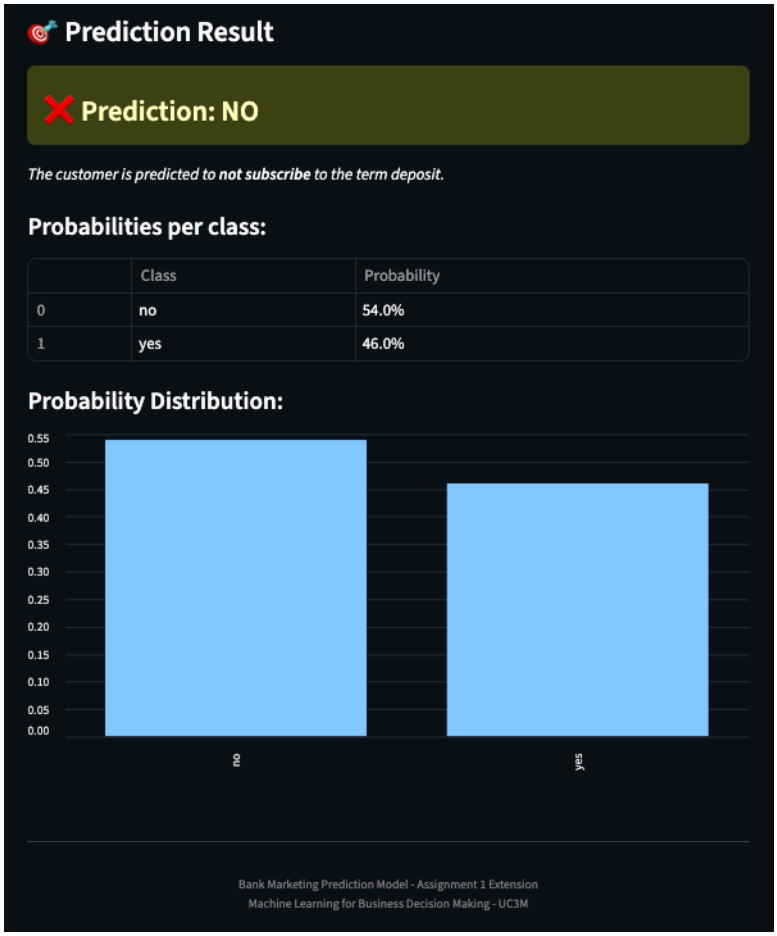
```
================================================
SUMMARY TABLE
================================================
 Data Point Prediction Prob(no) Prob(yes)
          1        yes    22.7%     77.3%
          2        yes    25.2%     74.8%
          3         no    54.0%     46.0%
```

Sample Test #3

Lastly, we'll go through our sample test #3 and introduce the sample data.



Then we click on predict and see that…



The prediction is “NO” with a 54/46 exactly matching what our notebook predicted!

```
================================================
SUMMARY TABLE
================================================
 Data Point Prediction Prob(no) Prob(yes)
          1        yes    22.7%     77.3%
          2        yes    25.2%     74.8%
          3         no    54.0%     46.0%
```