Deployment Recommendations

Serving Model Predictions: REST API as Web Service

The Model predictions can be served as a Web Service by using REST API. Airbnb can get the predicted price by using the REST API and provides it to the user host directly. The following code snippet shows how this can be accomplished.

```
# REST API Service to get Price Predictions for Airbnb listings
@app.route("/predict", methods=["POST"])
def predict():

    # initialize the data dictionary that will be returned from the view
    data = {"success": False}

    # ensure an image was properly uploaded to our endpoint
    if flask.request.method == "POST":
        data["predictions"] = []

        parser = reqparse.RequestParser()
        parser.add_argument('country', type=str, help='Country')
        parser.add_argument('city', type=str, help='City')
        parser.add_argument('neighbourhood', type=str, help='Neighbourhood')
        parser.add_argument('roomtype', type=str, help='Room type')
        args = parser.parse_args()

        # Create input to Model from form data
        df_input = pd.DataFrame([[country, city, neighbourhood, propertytype, roomtype, bedtype,
                            cancellationpolicy, hostresponsetime, accommodates, num_bedrooms, num_
                            min_nights, availability_30, availability_60, availability_90, availab
                            num_reviews, reviews_per_month, review_scores_rating, review_scores_ac
                            review_scores_cleanliness, review_scores_checkin, review_scores_commun
                            review_scores_location, review_scores_value, host_response_rate,
                            ]], dtype=float)

        # Inference: Get prediction from Model
        prediction_price = model.predict(df_input)[0]
        prediction_price = round(prediction_price)

        # Add prediction results to JSON data
        r = {"prediction_price": prediction_price, "features": features}
        data["predictions"].append(r)
        # indicate that the request was a success
        data["success"] = True

    # return the data dictionary as a JSON response
    return flask.jsonify(data)
```

Figure 1

The model output is returned as a JSON object.

```
(venv)                                  $ curl -X POST "http://127.0.0.1:5000/predict?country=Netherlands&city=Amsterdam&neighbourhood=Centrum-Oost"
{
  "predictions": [
    {
      "features": {
        "city": "Amsterdam",
        "country": "Netherlands",
        "neighbourhood": "Centrum-Oost",
        "roomtype": "Entire home/apt"
      },
      "prediction_price": 132
    }
  ],
  "success": true
}
```

Figure 2

Users can enter all the relevant details of their listings, the trained Predictive Model will then predict and return the price of the listing given all the features as in the following video(Figure 3).I also mentioned in the future part of full impact analysis that I would like to deploy the technology as sync with the Airbnb(Figure 4).

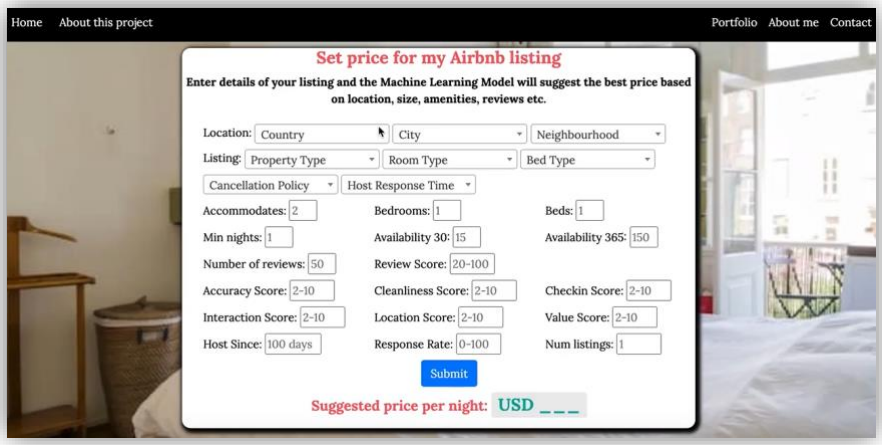
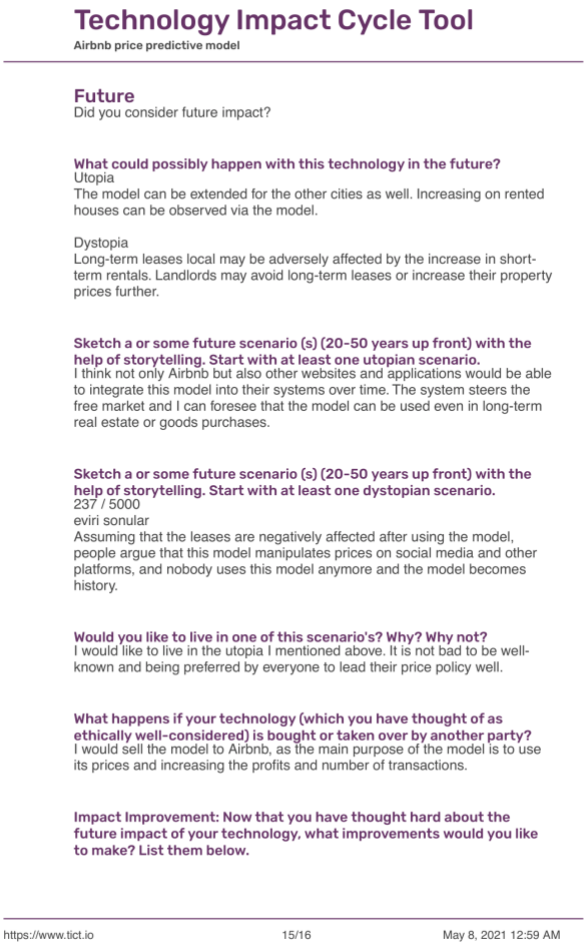


Figure 3



Technology Impact Cycle Tool

Airbnb price predictive model

Future

Did you consider future impact?

What could possibly happen with this technology in the future?
Utopia
The model can be extended for the other cities as well. Increasing on rented houses can be observed via the model.

Dystopia
Long-term leases local may be adversely affected by the increase in short-term rentals. Landlords may avoid long-term leases or increase their property prices further.

Sketch a or some future scenario (s) (20-50 years up front) with the help of storytelling. Start with at least one utopian scenario.
I think not only Airbnb but also other websites and applications would be able to integrate this model into their systems over time. The system steers the free market and I can foresee that the model can be used even in long-term real estate or goods purchases.

Sketch a or some future scenario (s) (20-50 years up front) with the help of storytelling. Start with at least one dystopian scenario.
237 / 5000
eviri sonular
Assuming that the leases are negatively affected after using the model, people argue that this model manipulates prices on social media and other platforms, and nobody uses this model anymore and the model becomes history.

Would you like to live in one of this scenario's? Why? Why not?
I would like to live in the utopia I mentioned above. It is not bad to be well-known and being preferred by everyone to lead their price policy well.

What happens if your technology (which you have thought of as ethically well-considered) is bought or taken over by another party?
I would sell the model to Airbnb, as the main purpose of the model is to use its prices and increasing the profits and number of transactions.

Impact Improvement: Now that you have thought hard about the future impact of your technology, what improvements would you like to make? List them below.

Figure 4