

# Model Deployment with Flask Using Heroku

Name: OVBUDE Uankhehi

Batch Code: LISUM09

Date of Submission: 30/07/2021

Submitted to:

## Model Deployment Stages

### Stage 1: Choose a problem and gather data

The problem is predicting student GPA using their SAT scores.

The data used for this project contains two variables:

1. GPA scores
2. SAT scores

### Stage 2: Build and save the machine learning model.

The goal of this model is to predict GPA score using SAT scores.

It was built using a linear regression model, from the scikit-learn library in python, and saved using the pickle library.

```
1 import pandas as pd
2 import pickle
3 from sklearn.linear_model import LinearRegression
4 import seaborn as sns
5 sns.set()
6
7 df = pd.read_csv("Dataset/data.csv")
8
9 x = df['SAT']
10 y = df['GPA']
11
12 # changing the dimensionality of x from 1d array to 2d array, to fit the sklearn regression library
13 x_matrix = x.values.reshape(-1,1)
14
15 reg = LinearRegression()
16 reg.fit(x_matrix, y)
17
18 # Save model
19 with open("model.pkl", "wb") as file:
20     pickle.dump(reg, file)
21
```

### Step 3: Deploy using Flask

Having installed flask, the next stage is building the app.py module.

```

1 from flask import Flask, render_template, request
2 import marks as m
3
4 app = Flask(__name__)
5
6
7 @app.route("/", methods=["GET", "POST"])
8 def marks():
9     global mk
10    mk = 0
11    if request.method == "POST":
12        sat_score = request.form["sat_score"]
13        marks_pred = m.gpa_prediction(sat_score)
14        mk = marks_pred
15
16    return render_template("index.html", my_marks=mk)
17
18 |
19 if __name__ == "__main__":
20     app.run(debug=True)
21

```

Then, create the index.html file for the web browser.

```

1 <html>
2 <head lang=en>
3   <title>Model Deployment</title>
4
5   <meta charset="utf-8">
6   <meta http-equiv="Content-type" content="text/html; charset=utf-8">
7   <meta name="viewport" content="width=device-width, initial-scale=1">
8
9 <body>
10   <h1>Predict your GPA</h1>
11
12   <p>Enter your SAT score!</p>
13
14   <form action="/" method="post">
15     <input type="number" name="sat_score" placeholder="sat score">
16     <input type="submit">
17   </form>
18
19   <p>Your predicted GPA is: </p>
20   {{my_marks}}
21
22 </body>
23 </head>
24 </html>
25 |

```

#### Step 4: Prepare for deployment on Heroku

Heroku provides a free domain name, and a cloud storage to host our application.

Having registered on the Heroku website, Create a Procfile, a GitHub repository and a requirements.txt file.

##### Procfile

```
1 web: gunicorn app:app
```

##### Requirements.txt

```
1 flask>=1.1.2
2 pandas>=1.4.3
3 numpy>=1.19.2
4 seaborn>=0.11.2
5 sklearn>=0.0
6 scikit-learn>=1.1.1
```

#### Step 5: Deployment on Heroku

Create a new app

App name

gpa-predicton



gpa-predicton is available

Choose a region




United States





Add to pipeline...

Create app

Then, find and connect to your GitHub repository, created for the project.

 Heroku Git  
Use Heroku CLI

 GitHub  
Connect to GitHub

 Container Registry  
Use Heroku CLI

 ovated



Model-Deployment

Search


 ovated/Model-Deployment-with-Flask-on-Heroku

Connect

Finally, Deploy the application.

Connected to  [ovated / Model-Deployment-with-Flask-on-Heroku](#) by  [ovated](#)

Disconnect...

 Releases in the [activity feed](#) link to GitHub to view commit diffs

 You can now change your main deploy branch from "master" to "main" for both manual and automatic deploys, please follow the instructions [here](#).

Enable automatic deploys from GitHub

Every push to the branch you specify here will deploy a new version of this app. **Deploys happen automatically:** be sure that this branch is always in a deployable state and any tests have passed before you push. [Learn more](#)

Choose a branch to deploy

 main

☐ Wait for CI to pass before deploy  
Only enable this option if you have a Continuous Integration service configured on your repo.

Enable Automatic Deploys

Deploy a GitHub branch

This will deploy the current state of the branch you specify below. [Learn more](#).

Choose a branch to deploy

 main

Deploy Branch

Project repository: <https://github.com/ovated/Model-Deployment-with-Flask-on-Heroku>

Deployed application link: <https://gpa-predicton.herokuapp.com/>