

# DIAMOND PRICE PREDICTION



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**INNOMATICS RESEARCH LABS**

# Streamlit app with Diamond Price Prediction model.

- ▶ Price prediction is done by using KNN model.
- ▶ User enters the details of Diamond app replies with the price.
- ▶ Streamlit is used for creating the app.
- ▶ Heroku is used for deployment.

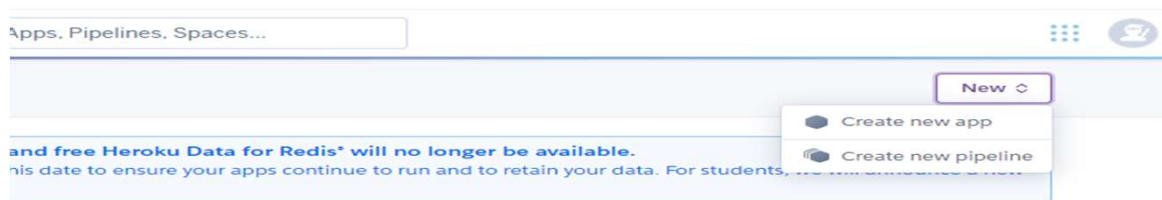


# Heroku deployment steps

- ▶ **Files required**
- ▶ **app.py (.py file and if extra pages are there then pages folder containing extra pages .py files)**
- ▶ **requirements.txt**
- ▶ **procfile**
- ▶ **setup.sh**

## STEP 1:

- ▶ Create a heroku account and login to heroku.com
- ▶ Create new app using new button



- ▶ Give the app name.

A screenshot of the 'Create New App' form in Heroku. At the top, there is a search bar with the text 'Jump to Favorites, Apps, Pipelines, Spaces...'. Below the search bar is a header that says 'Create New App'. The form has two main sections. The first section is 'App name', which has a text input field containing 'diamond-price-predict' and a green checkmark icon to the right. Below the input field, it says 'diamond-price-predict is available'. The second section is 'Choose a region', which has a dropdown menu showing 'United States' with a flag icon. Below the dropdown menu is a button that says 'Add to pipeline...'. At the bottom of the form is a purple button that says 'Create app'.

## STEP 2:

- Login to heroku using CLI heroku login.

```
C:\Users\admin>heroku login -i
heroku: Enter your login credentials
Email: almas.banu082002@gmail.com
Password: *****
Logged in as almas.banu082002@gmail.com
C:\Users\admin>
```

- Change directory to project folder.
- git init
- git status

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19044.2006]
(c) Microsoft Corporation. All rights reserved.

C:\Users\admin\Desktop\internship_flask_sessions\PriceDiamond>git init
Initialized empty Git repository in C:/Users/admin/Desktop/internship_flask_sessions/PriceDiamond/.git/

C:\Users\admin\Desktop\internship_flask_sessions\PriceDiamond>git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    Procfile
    app.py
    dataset/
    diamond_pred.ipynb
    models/
    pages/
    requirements.txt
    setup.sh

nothing added to commit but untracked files present (use "git add" to track)
```

### STEP 3:

- ▶ `git add .`
- ▶ `git commit -m "my first commit" (Commit)`
- ▶ `git status`

```
C:\Users\admin\Desktop\internship_flask_sessions\PriceDiamond>git add .
warning: in the working copy of 'dataset/diamonds.csv', LF will be replaced by CRLF the next time Git
warning: in the working copy of 'diamond_pred.ipynb', LF will be replaced by CRLF the next time Git to
warning: in the working copy of 'setup.sh', LF will be replaced by CRLF the next time Git touches it

C:\Users\admin\Desktop\internship_flask_sessions\PriceDiamond>git commit -m "my first commit"
[master (root-commit) affdf95] my first commit
14 files changed, 57936 insertions(+)
create mode 100644 Procfile
create mode 100644 app.py
create mode 100644 dataset/diamonds.csv
create mode 100644 diamond_pred.ipynb
create mode 100644 models/dt_model.pkl
create mode 100644 models/knn_model.pkl
create mode 100644 models/label_encoder.pkl
create mode 100644 models/lr_model.pkl
create mode 100644 models/rf_model.pkl
create mode 100644 models/scaler.pkl
create mode 100644 pages/diamond.py
create mode 100644 pages/predict.py
create mode 100644 requirements.txt
create mode 100644 setup.sh

C:\Users\admin\Desktop\internship_flask_sessions\PriceDiamond>git status
On branch master
nothing to commit, working tree clean
```

**STEP 4:**

- ▶ heroku git:remote -a appname (my case it is diamond-price-predct)
- ▶ git push heroku master

C:\Windows\System32\cmd.exe

```
C:\Users\admin\Desktop\internship_flask_sessions\PriceDiamond>heroku git:remote -a diamond-price-predct
set git remote heroku to https://git.heroku.com/diamond-price-predct.git


C:\Users\admin\Desktop\internship_flask_sessions\PriceDiamond>git push heroku master
Enumerating objects: 19, done.
Counting objects: 100% (19/19), done.
Delta compression using up to 4 threads
Compressing objects: 100% (17/17), done.
Writing objects: 100% (19/19), 55.49 MiB | 252.00 KiB/s, done.
Total 19 (delta 0), reused 0 (delta 0), pack-reused 0
remote: Compressing source files... done.
```

```
remote:      Released v3
remote:      https://diamond-price-predct.herokuapp.com/ deployed to Heroku
remote:
remote: Starting November 28th, 2022, free Heroku Dynos, free Heroku Postgres, and free Heroku Data for Redis® will no longer be available.
remote: If you have apps using any of these resources, you must upgrade to paid plans by this date to ensure your apps continue to run and to retain your data. For stud
ents, we will announce a new program by the end of September. Learn more at https://blog.heroku.com/next-chapter
remote:
remote: Verifying deploy.... done.
To https://git.heroku.com/diamond-price-predct.git
 * [new branch]      master -> master

C:\Users\admin\Desktop\internship_flask_sessions\PriceDiamond>
```



## App Link 1<sup>st</sup> page



☐ Dataset

What information you want from dataset

Head

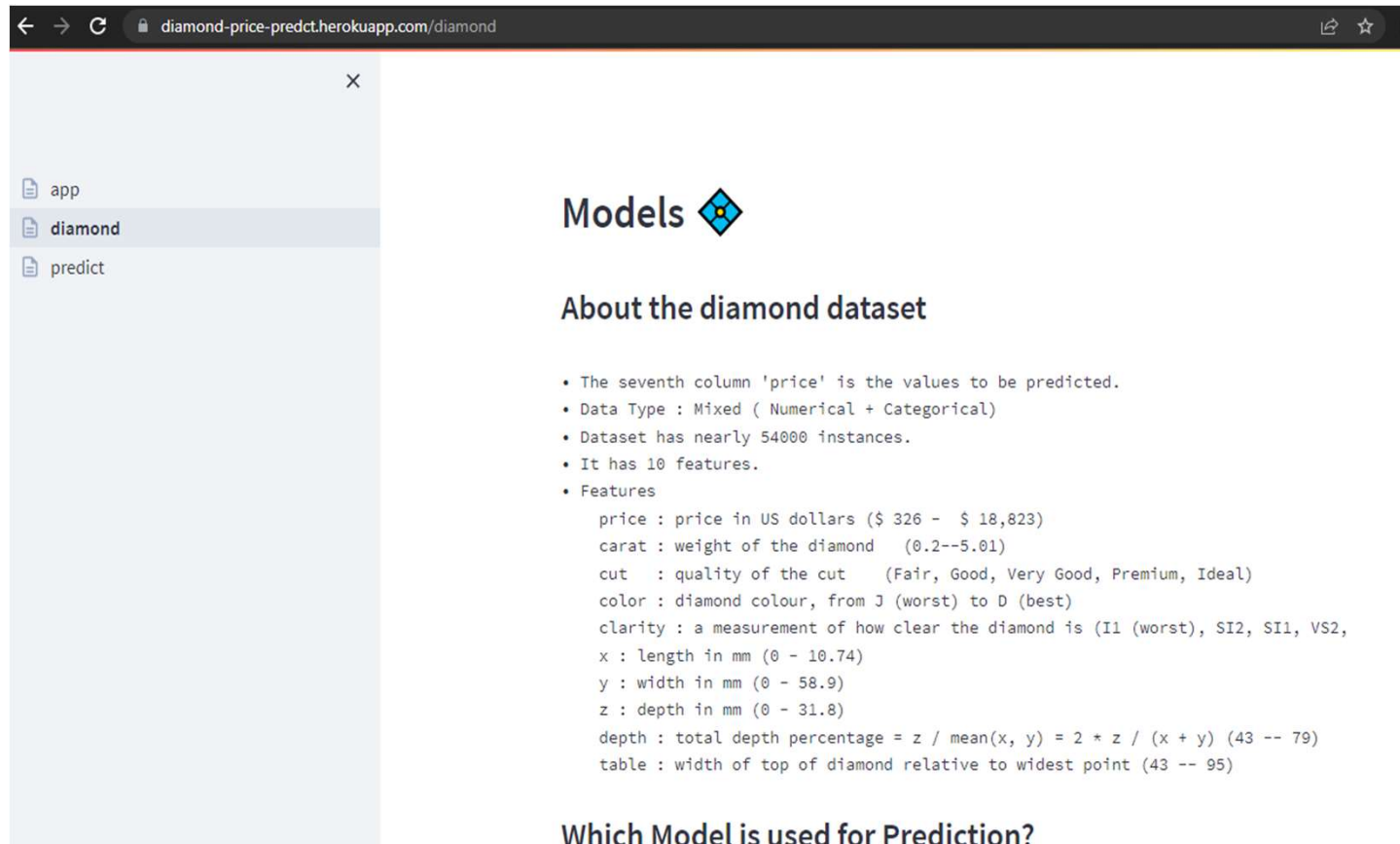
	carat	cut	color	clarity	depth	table	x	y	z	price
0	0.2300	Ideal	E	SI2	61.5000	55.0000	3.9500	3.9800	2.4300	326
1	0.2100	Premium	E	SI1	59.8000	61.0000	3.8900	3.8400	2.3100	326
2	0.2300	Good	E	VS1	56.9000	65.0000	4.0500	4.0700	2.3100	327
3	0.2900	Premium	I	VS2	62.4000	58.0000	4.2000	4.2300	2.6300	334
4	0.3100	Good	J	SI2	63.3000	58.0000	4.3400	4.3500	2.7500	335

Visualization





## 2<sup>nd</sup> page



The screenshot shows a web browser window with the address bar displaying 'diamond-price-predict.herokuapp.com/diamond'. The page has a sidebar on the left with a close button (X) and three menu items: 'app', 'diamond' (which is highlighted), and 'predict'. The main content area is titled 'Models' with a diamond icon. Below this is a section 'About the diamond dataset' containing a bulleted list of information about the dataset and a list of features with their ranges.

### Models

#### About the diamond dataset

- The seventh column 'price' is the values to be predicted.
- Data Type : Mixed ( Numerical + Categorical)
- Dataset has nearly 54000 instances.
- It has 10 features.
- Features
  - price : price in US dollars (\$ 326 - \$ 18,823)
  - carat : weight of the diamond (0.2--5.01)
  - cut : quality of the cut (Fair, Good, Very Good, Premium, Ideal)
  - color : diamond colour, from J (worst) to D (best)
  - clarity : a measurement of how clear the diamond is (I1 (worst), SI2, SI1, VS2,
  - x : length in mm (0 - 10.74)
  - y : width in mm (0 - 58.9)
  - z : depth in mm (0 - 31.8)
  - depth : total depth percentage =  $z / \text{mean}(x, y) = 2 * z / (x + y)$  (43 -- 79)
  - table : width of top of diamond relative to widest point (43 -- 95)

Which Model is used for Prediction?

### 3<sup>rd</sup> page

← → ↻ diamond-price-predict.herokuapp.com/predict

×

app  
diamond  
predict

## Lets Predict Diamond Price

Select the features of the Diamond:

Select the Carat

0.00 6.00

Select the Cut

Ideal

Select the Color

D

Select the Clarity

I1

Select the Length

0.00 15.00