# Week 5: Cloud and API deployment

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## 1.Finding the dataset

I have found a simple dataset for linear regression on Kaggle. The link is below:

<https://www.kaggle.com/datasets/karthickveerakumar/salary-data-simple-linear-regression>

It is a small dataset, 30 observations all together, but enough for me to perform a simple model. The dataset has two columns: YearsExperience and Salary. YearsExperience would be independent variable (or X in my code) and Salary would be dependent variable (y in my code).

## 2.Fitting the model and saving the model

The next step is fitting the model. I created ipynb notebook called *Prepare\_and\_save\_regression\_model.ipynb*. After reading the data from the csv file downloaded from Kaggle website, I checked a couple of things.

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Figure : Reading the data and checking column types

The first thing is checking column types (everything was good, both variables were in float format) and the second thing is describe function which gave me info about number of values, mean, std, min column values, max column values etc. Everything looked good, so the last thing I did to check the data quality was to plot the data to see how it looked. I used the same dataset for article writing so I have checked more things while preparing the article and knew that everything is good from the data side.

Chart, scatter chart

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Figure : Checking descriptive statistics and plotting the scatterplot

After checking the data quality, it was time to fit the model and save it. I used *LinearRegression* library from *sklearn.linear\_model* to fit the model and *pickle.dump* for saving the model. I also did a test where I checked the model coefficient and intercept to see if it produces the same value as the model.

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Figure : Fitting the model, saving the model and checking the regressor coefficient and intercept

## 3.Api model local

I have created app.py file in my repository Heroku-web-app-api:

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After running the file through cmd, we get the url which will be used in postman:

Text

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I copied the url and pasted it into postman. If we go to the route, this is the result:

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We get json response from the web app. If we add predict/ to the route, we can send the years value to the web app:

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We got the predicted salary for the given years of experience.

## 4.HTML model local

I have created the separate model that works a bit different, in the for of the website. I used the index.html that I have found in the resources of the course. This is the app.py in the Heroku-web-app-html repo that I have created:

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If we run this file in the cmd, we get:

Text

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If we copy the url into the browser, we get:

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The result we get is the same as for the api version.

## 3.Models on Heroku

After testing the files locally, I erased the part of code from both app.py files.

This is before:

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This is after:

Text

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I also added a Procfile file to both repos:

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I pushed all the changes to my remote git repos (each app is in separate repo).

After that, I went to Heroku and clicked on Create new app button:

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We have to choose a unique app name and region:

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On the Deploy page, after clicking on github, I choose the repo where the files for my web application are:

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And after that, I started the manual deployment:

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After all the requirements are installed, we get the url of the web app:

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I did the same thing for the api model.