Weekly Progress Report 8

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Project Title: INTP22-ML-2 Remaining Usable Life Estimation (NASA Turbine dataset)

Objectives:

1. To deploy trained model using flask app.

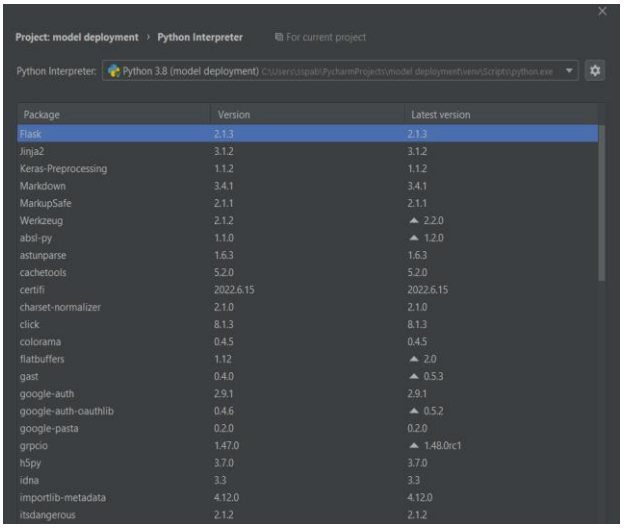
Task done in this week:

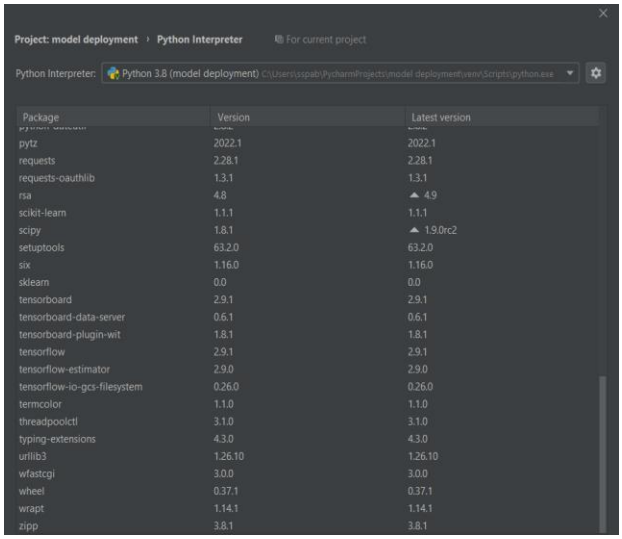
1. Installed flask and other required libraries on laptop.
2. Created a HTML form to take file input from user.
3. Created a flask app.
4. Loaded a trained model to predict RUL.

Installed flask and other required libraries on laptop.

To run a flask app and to work on a model some library's required such as flask, numpy, pandas, tensorflow , requests, Werkzeug.

I have installed above mentioned library's using **pip install {filename}** command.





In above image all the installed libraries and their versions are mentioned.

Created a HTML form to take file input from user.

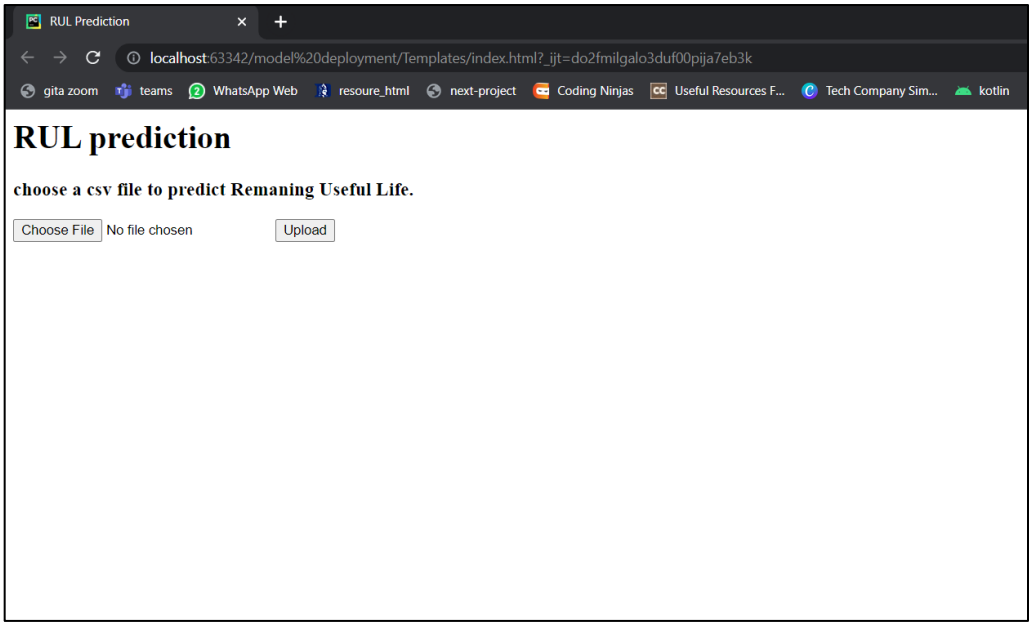
```html
<html>
<head>
    <title>RUL Prediction</title>
</head>
<body>
    <h1>RUL prediction</h1>

    <h3>choose a csv file to predict Remaning Useful Life.</h3>

    <form action = "/predict" method = "post" enctype="multipart/form-data">
        <input type="file" name="file" />
        <input type = "submit" value="Upload">
    </form>
</body>
</html>
```

To take input from a user some interface is required for that purpose this html page is required.

In form tag the action points to the method of a flask app.

After clicking on the submit button execution will go to the predict URL where predict function will be rendered and their further execution will be done.

Result of above HTML code.



Created a flask app.

```
app = Flask(__name__)

app.config['UPLOAD_FOLDER']='static/files'

@app.route('/')
def upload():
    return render_template("index.html")



@app.route('/predict', methods=['POST'])
def predict():
    if request.method == 'POST':
        f = request.files['file']
        path='./static/files/'+f.filename
        f.save(path)
```

To create app using flask first we have to initialize the flask function that is done on first line.

While rendering template I was facing **template not found error** because to store a template I haven't created a template folder.

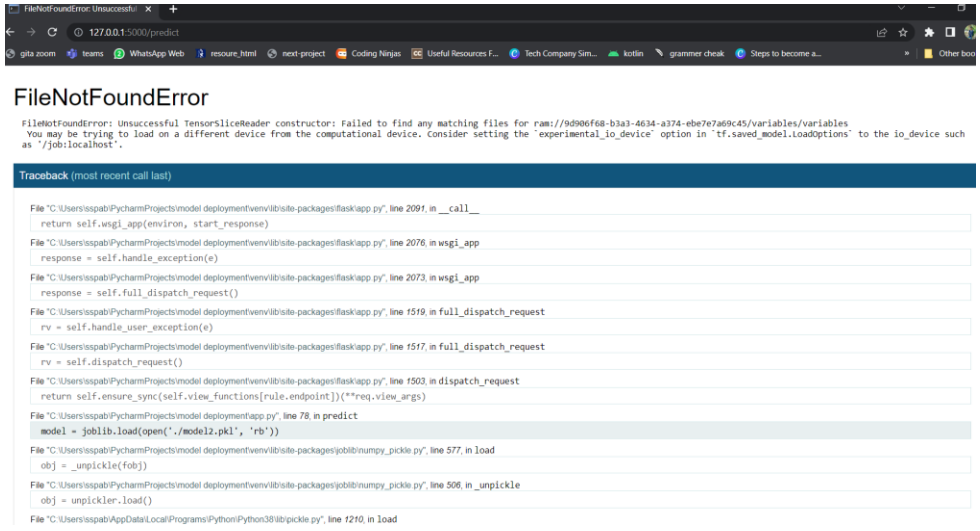
After that created two folders static and template in the static folder uploaded files will be stored and in the template function all the templates like index.html will be stored.

To take input from the user already created the HTML file from that page after clicking on submit button using post method that file is accessed.

Now the file taken from user is accessible now using this csv file prediction can be done.

To predict RUL on file given by user data from this file should be given to the trained model to do that saved model have to be loaded.

While loading the model below error is occurred.



I was using a *pickle* module to load a .pkl file in which model is saved.

I have gone through different articles on *stackoverflow* to solve this error, but I didn't get the solution.

When I didn't get the solution to this error, I used the *save_model* function from the *tensorflow.keras.models* library to save a model into a .h5 file.

Then, using the *load_model* function, I loaded the model successfully.

Now the model is predicting the RUL.