

**Model Deployment Report**

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Submitted to: Data Glacier

## Model Deployment Report

### Step 1: Select Any Toy Data

We selected the Iris dataset, a classic dataset for machine learning.

Code:

```
import pandas as pd
```

```
from sklearn.datasets import load_iris
```

```
iris = load_iris()
```

```
X = iris.data
```

```
y = iris.target
```

## Model Deployment Report

### Step 2: Save the Model

We trained a Decision Tree Classifier on the Iris dataset and saved the model as iris\_model.pkl.

Code:

```
from sklearn.model_selection import train_test_split
```

```
from sklearn.tree import DecisionTreeClassifier
```

```
import joblib
```

```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
```

```
model = DecisionTreeClassifier()
```

```
model.fit(X_train, y_train)
```

```
joblib.dump(model, 'iris_model.pkl')
```

## Model Deployment Report

### Step 3: Deploy the Model on Flask

We created a Flask web application to deploy the model. The app.py script handles requests to predict the species of an iris flower.

Code:

```
from flask import Flask, request, jsonify

import joblib

import numpy as np

model = joblib.load('iris_model.pkl')

app = Flask(__name__)

@app.route('/')

def home():

    return "Iris Model Prediction Service"

@app.route('/predict', methods=['POST'])

def predict():

    data = request.get_json(force=True)

    prediction = model.predict(np.array([data['features']]))

    return jsonify({'prediction': int(prediction[0])})

if __name__ == '__main__':

    app.run(debug=True)
```

## Model Deployment Report

### Step 4: Create PDF Document

We created this PDF document using the fpdf library in Python.

Code:

```
from fpdf import FPDF

from datetime import datetime

class PDF(FPDF):

    def header(self):

        self.set_font('Arial', 'B', 12)

        self.cell(0, 10, 'Model Deployment Report', 0, 1, 'C')


    def footer(self):

        self.set_y(-15)

        self.set_font('Arial', 'I', 8)

        self.cell(0, 10, f'Page {self.page_no()}', 0, 0, 'C')


pdf = PDF()

pdf.add_page()


pdf.set_font('Arial', "", 12)

pdf.cell(0, 10, 'Name: Ruichong YE', 0, 1)

pdf.cell(0, 10, 'Batch Code: XYZ123', 0, 1)

pdf.cell(0, 10, f'Submission Date: {datetime.today().strftime("%Y-%m-%d")}', 0, 1)

pdf.cell(0, 10, 'Submitted to: Data Glacier', 0, 1)
```

## Model Deployment Report

```
pdf.output('deployment_report.pdf')
```