# README FILE

**Flower Image Classification API**

A production-ready **Flask API** for predicting flower types using **Transfer Learning** with **TensorFlow** and **MobileNetV2**.

**Project Highlights**

**Transfer Learning:** Uses MobileNetV2 for accurate image classification  
 **Trained on Flowers Dataset:** 5 flower categories: Daisy, Dandelion, Rose, Sunflower, Tulip  
 **REST API:** Predict flower type by uploading an image  
 **Swagger UI:** Simple interface to test the API in your browser  
 **Ready for Deployment:** Can be hosted on any server

**Project Structure**

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├── flowers\_model.keras # Saved trained model

├── tensor\_Api.py # Flask API script

├── templates/ # Swagger UI templates (if any)

├── flowers/ # Flower dataset (not needed in production)

├── requirements.txt # Dependencies

├── README.md # Project documentation (this file!)

└── venv/ # Virtual environment (should be in .gitignore)

**Flower Classes**

* Daisy
* Dandelion
* Rose
* Sunflower
* Tulip

**How It Works**

1 **Train Model**

* The model is trained using **TensorFlow** with MobileNetV2 as the base.
* Transfer Learning improves accuracy with fewer resources.

2 **API Endpoint**

* **/predict** — Send an image file via POST request.
* The API returns the predicted flower type.

3 **Test with Swagger UI**

* Open the provided Swagger link in your browser.
* Upload an image.
* See instant prediction results in JSON format.

**Example Request**

**Request:**

POST /predict

Body: { image: flower.jpg }

**Response:**

{

"results": [

{

"filename": "example.jpg",

"predicted\_class": "daisy"

}

]

}

**How To Run Locally**

1 **Clone this repo**

git clone https://github.com/YOUR\_USERNAME/flower-classifier-api.git

cd flower-classifier-api

2 **Create virtual environment**

python -m venv venv

source venv/bin/activate # On Linux/macOS

# OR

venv\Scripts\activate # On Windows

3 **Install dependencies**

pip install -r requirements.txt

4 **Run the API**

python tensor\_Api.py

5 **Open Swagger UI**  
Visit http://127.0.0.1:5000/apidocs/

**Deployment**

You can easily deploy this API on:

* **Heroku**
* **Render**
* **Railway**
* **AWS / GCP**

**How To Use**

* Upload single or multiple flower images.
* Get JSON predictions instantly.
* Integrate into any web or mobile app.

**What’s Included**

✔ Clean, documented source code  
✔ Ready-to-use trained model  
✔ Swagger documentation for easy testing  
✔ Example images for testing predictions

**Contact**

**Built by:** Hassaan Ahmed  
**Email:** [hassaanahmed80400@gmail.com](mailto:hassaanahmed80400@gmail.com)

**GitHub:** <https://github.com/hassaan-ahmed825>

**This repo demonstrates ability to:**

* Build production-ready ML models
* Deploy them as REST APIs
* Provide clear documentation for clients & developers