

## Flask ML Model Deployment Guide — AWS EC2 (Ubuntu 22.04)

```
project/
|—— app.py
|—— vgg16_lumpy_model.h5
|—— templates/
|   |—— index.html
|—— requirements.txt
```

### STEP 1 — Launch EC2

- Go to AWS EC2 → Launch Instance
- Choose **Ubuntu 22.04**
- Instance type → **t2.medium** (TensorFlow needs 4GB RAM minimum)
- Add storage → **16 GB recommended**
- **Create new key(name.pem)**
- Security group:
  - Allow **22** (SSH)
  - Allow **80** (HTTP)
  - Allow

Click **Launch**.

### STEP 2 — SSH into EC2

From your terminal/cmd:

```
ssh -i "yourkey.pem" ubuntu@YOUR_PUBLIC_IP
```

### STEP 3 — Install Python + pip

```
sudo apt update
```

```
sudo apt install python3-pip -y
```

```
sudo apt install python3-venv -y
```

### STEP 4 — Create Virtual Environment

```
python3 -m venv venv
```

```
source venv/bin/activate
```

### STEP 5 — Upload Your Project to EC2

You can upload using:

- ✓ WinSCP (Windows GUI)

## STEP-BY-STEP: How to use WinSCP with a .pem key

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### ★ 1. Open WinSCP

Download if you don't have:

<https://winscp.net>

Open the software → click **New Site**

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### ★ 2. Fill EC2 Connection Details

In WinSCP:

👉 **File protocol:** SFTP

👉 **Host name:**

ec2-47-129-11-155.ap-southeast-1.compute.amazonaws.com

👉 **Port number:** 22

👉 **User name:** ubuntu

DO NOT click Login yet.

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### ★ 3. Load the .pem key (MOST IMPORTANT STEP)

Click the "Advanced..." button → A popup window opens.

Go to:

SSH → Authentication

You will see:

- ◆ **Private key file:** (browse here)

Now click **Browse** and select your .pem file:

animalmy.pem

⚠ WinSCP does NOT accept .pem directly.

It must convert it to .ppk.

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### ★ 4. WinSCP will ask to convert PEM → PPK

You will see a popup:

"The selected key file is in a format WinSCP does not support.  
Do you want to convert it to PuTTY format?"

Click **YES**.

A PuTTYgen window opens automatically.

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## ★ 5. Convert and Save the .ppk file

In PuTTYgen:

- Click **Save Private Key**
- Ignore warning → click **Yes**
- Save as:

animalmy.ppk

Now WinSCP will automatically use this .ppk key.

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## ★ 6. Connect to EC2

Now click **Login**.

If all info is correct → You will connect to EC2 successfully.

Also it can ask username like when create instance that time there is user name also present(like:-  
ubuntu)

Then login

## 7. Upload Your Project Folder

In WinSCP, left side = your PC

Right side = EC2 server

Upload your project to:

/home/ubuntu/project

Just drag your folder and drop it there.

## CHECKLIST — WinSCP Correct Setup

### 1. File Protocol

SFTP

### 2. Hostname

ec2-47-129-11-155.ap-southeast-1.compute.amazonaws.com

### 3. Port Number

**4. Username**

ubuntu

**5. Authentication Key**

Go to:

Advanced → SSH → Authentication

Set:

Private Key File: animalmy.ppk

**Again goto above cmd where you have already install(step 4 window ) STEP 6 — Install Requirements**

Go inside your project:

cd project

pip install -r requirements.txt

sudo ufw deny 5000

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**★ STEP 7 — TEST the Flask App (Very Important)**

Start the Flask app:

python3 app.py

Open in browser:

[http://YOUR\\_PUBLIC\\_IP:5000](http://YOUR_PUBLIC_IP:5000)