1337AI

The Entry-Level ML Engineer Boot-camp!

Your First Steps in AI

Summary: The goal of this week is to learn how to deploy machine learning models by building a complete training and deployment pipeline

Chapter I

Introduction

Welcome to the Entry-Level ML Engineer Bootcamp! This bootcamp is designed as an entry point for anyone looking to start their journey in AI and machine learning. You'll learn the fundamentals of ML through structured modules, hands-on exercises, and curated resources.

The bootcamp is divided into four modules, with each module lasting one week, allowing you to complete the program in a month. Every week, you'll find exercises and resources to help you grasp key concepts. Additionally, we've included exploration questions to encourage deeper learning and creative thinking.

Our goal is that by the end of the bootcamp, participants will be able to collect and clean data, train machine learning models, and deploy them. Each week, you will focus on one essential skill that builds towards this goal.

We strongly encourage peer-to-peer learning—you'll gain so much by discussing and collaborating with others!

If you have any questions, feel free to ask in the community. Let's learn and grow together!

Chapter II

Common Instructions

- The version of Python recommended to use is 3.12, you can check the version of Python with the following command: `python -V`

- The norm: during this Boot camp, it is recommended to follow the PEP 8 standards, though it is not mandatory. You can install pycodestyle which is a tool to check your Python code.

- The function `eval` is never allowed.

- The exercises are ordered from the easiest to the hardest.

- Your exercises are going to be evaluated by someone else, so make sure that your variable names and function names are appropriate and civil.

- Your manual is the internet.

- You can access our community on Whats App and ask your Questions for your peers in the dedicated Boot camp channel.

- If you find any issue or mistake in the subject please get in touch with us or create an issue on 1337-AI repository on Github.

- Submit your work to your git repository. Only the work in the git repository will be graded

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Chapter III

Exercise-00: All in one

![1337AI]	Exercise : 00
	Data Preprocessing
Turn-in directory : *ex00/*	
Files to turn in : `requirement.txt, main.py + all files that you need`	
Forbidden functions : `None`	

In this final week, we'll take our machine-learning models to the next level by building a complete pipeline for training and deploying them using Gradio! The goal is to create a project that allows you to train your model and then deploy it as an interactive demo.

III.1 Mandatory

You will use the **dataset and model** from last week. Your program should support **two commands**:

`train` Command

- Train your model using the selected features. As we see in the last week

- Display **two plots**:

    - **Loss curve** to show training progress.

    - **Accuracy plot** for test data performance.

```
$> python3 main.py train
# Trains the model and shows training loss & accuracy plots
$
```

`deploy` Command

- Launch a **Gradio** interface to allow users to test your model.

- The interface should include **all the features** you used in training.

- Users should be able to input new data and see the model's predictions instantly.

```
$> python3 main.py deploy
# Launches Gradio for interactive model testing
$
```

> There's no limit in `Gradio` or `Streamlit`, so feel free to design the UI however you like!

III.2   Bonus

For an extra challenge, implement a **third command**:

`deploy_streamlit` Command

- Deploy the model using **Streamlit** instead of Gradio.

- Create an intuitive UI where users can input features and get predictions.

```
$> python3 main.py deploy_streamlit
# Launches Streamlit for interactive model testing
$
```

> Resources to Help You
> Gradio Docs
> Streamlit Docs

By the end of this week, you'll have a fully functional model deployment, a key skill for ML engineers!

Contact

You can contact 1337AI organization by email: contact@1337ai.org

Find all the relevant and up-to-date information about 1337AI on our Website !

Join our Discord server to connect with peers, ask questions, and collaborate: Join here

Thank you for attending the Entry-Level ML Engineer Boot-camp!