

Task 1 – Homecoming

Welcome to Task 1 of Homecoming !

The objective of this task to learn and implement machine learning and deep learning models in PyTorch by taking help from very few libraries like Pandas, NumPy and Matplotlib for visualization, etc. Our focus here will be on learning Machine Learning (ML) basics, understanding the math behind it and programming the models from scratch wherever possible. The second sub-task (**Task 1B**) differs a little from this rationale.

Note: We assume you have gone through resources provided in earlier tasks (**Task 0**) cause some of it will occur as prerequisites here. If you think, you don't clearly understand some of the concepts you can go back and read it.

Important Instructions: If you aren't already using **Piazza**, please do. It is very important that you be active there since it is the only medium for us to share updates about the tasks, make announcements, solve your doubts and give you more resources.

This task is divided into **2 sub-tasks**, namely **1A** and **1B**.

Task 1A: In this task, you will build a *Fully Connected 2 - Layer Neural Network to Classify Digits*.

Task 1B: The goal of this task is *Image Classification* like in **Task 1B** but we will do it using *Convolutional Neural Networks* on “*Fruits*” dataset.

You will find separate folders, **Task 1A** and **Task 1B** for each sub-task. You will find **detailed information for each task** and what exactly you have to do in each of these tasks in **Task_1A_Read_Me.pdf** and **Task_1B_Read_Me.pdf** respectively. More instructions reside in the code. Resources and tutorials for the sub-tasks can be found in the respective task folders. The credits for each sub-task depend on the complexity in implementing it. Lastly, instructions on **what to submit** and **how to submit will also be present**.

You will find the following files/folders in **Task 1** folder besides this **Read Me** file.

- **Task 1A**
 - Please find the following files/folder in this folder:
 - Code
 - Resources
 - [Task_1A_Read_Me.pdf](#)

The dataset for this sub-task is auto-downloaded when you run the appropriate code. Follow the instructions in **Task_1A_Read_Me.pdf** get started with the task.

- **Task 1B**

- Please find the following files/folder in this folder:

- Code
 - Data
 - Resources
 - [Task_1B_Read_Me.pdf](#)

Some of the concepts you used in Task 1A will be required to do this sub-task. Follow the instructions in **Task_1B_Read_Me.pdf** get started with the task.

- [Task Submission Instructions.pdf](#) : This file contains the instructions on submitting Task 1.
- [Extra Code Instructions.pdf](#) : Instructions and extra resources to follow when writing code to gain more credits and have a competitive edge are provided here.

You can now check out individual sub-task folders for more details.

...Best Wishes ! ...