

Group Assignment 3 (30% Mark)

You are required to create a GitHub repository and add all your group mates to it (make sure to keep it public, not private). You should do this before you start the assignment.

Note:

All the contributions of team members should be recorded on GitHub from beginning to end (till you submit the assignment).

Submission Guidelines:

- Include your GitHub Repository link in a text file "github_link.txt".
- Zip all the programming files and outputs and "github_link.txt" and upload them to Learnline.

Create a Tkinter GUI using the concepts of object-oriented programming, such as, multiple inheritance, multiple decorators, encapsulation, polymorphism, and method overriding.

The GUI should include the following, but not limited to: (Example below)

1. Integrate **two free Hugging Face models** from different categories (for example: text-to-image conversion, image classification, transcription/classification).
2. Allow users to select input data (text, image, audio, or other formats) from a drop-down menu, run it through the selected AI models, and display the output.
3. A section that displays your explanations (text) of where and why the OOP concepts mentioned above were used in your code. And other necessary explanations.
4. A section that displays brief information about the AI model you selected.
5. Necessary widgets (buttons, radio buttons, drop down list, etc) to navigate through the GUI.

Notes:

- You can find all the categories at <https://huggingface.co/models> (I have also included a reference image)
- Install the required libraries to use the selected AI model (instructions.pdf)
- Make sure the AI models are free-to-use, not larger in size.
- You don't need to download the AI model to use it.

HIT137

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- You can easily/directly import the AI models using libraries (research about it) and integrate to the GUI.
- The entire code should not be placed in a single file. Instead, it should be organized into multiple program files, each handling specific parts of the application. A main program file should then be used to bring everything together and run the application.

Example: GUI sample.

The screenshot shows a Tkinter window titled "Tkinter AI GUI" with a standard macOS-style title bar (close, maximize, zoom buttons). The window has a menu bar with "File", "Models", and "Help". Below the menu bar, there's a "Model Selection:" label followed by a dropdown menu currently set to "Text-to-Image" and a "Load Model" button. The main area is divided into two sections: "User Input Section" on the left and "Model Output Section" on the right. The "User Input Section" contains radio buttons for "Text" (selected) and "Image", a "Browse" button, a large text input field, and three buttons at the bottom: "Run Model 1", "Run Model 2", and "Cl". The "Model Output Section" contains a label "Output Display:" and a large empty rectangular box. At the bottom of the window, there's a section titled "Model Information & Explanation" which is divided into two columns. The left column is titled "Selected Model Info:" and lists three bullet points: "Model Name", "Category (Text, Vision, Audio)", and "Short Description". The right column is titled "OOP Concepts Explanation:" and lists four bullet points: "Where Multiple Inheritance is applied", "Why Encapsulation was applied", "How Polymorphism and Method Overriding are shown", and "Where Multiple Decorators are applied". Below this section, there's a "Notes" label followed by the text "Extra notes, instructions, or references."

Tkinter AI GUI

File Models Help

Model Selection: Text-to-Image Load Model

User Input Section

☒ Text ☐ Image Browse

Run Model 1 Run Model 2 Cl

Model Output Section

Output Display:

Model Information & Explanation

Selected Model Info:	OOP Concepts Explanation:
<ul style="list-style-type: none">• Model Name• Category (Text, Vision, Audio)• Short Description	<ul style="list-style-type: none">• Where Multiple Inheritance is applied• Why Encapsulation was applied• How Polymorphism and Method Overriding are shown• Where Multiple Decorators are applied

Notes Extra notes, instructions, or references.