

Customized greeting card generator.

Abstract:- Our Customized Greeting Card project is a delightful fusion of creativity and technology aimed at revolutionizing the art of heartfelt expression. It can be used in any company or organization or other offices to greet or show gratitude towards their employee or worker on their special occasion.

Keywords:- Hugging Face, Background Remover, SDXL, Gradio,

Introduction:- Personalized Greeting Card Generator is a delightful fusion of creativity and technology .To generate personalize greeting card we have to first access the excel file from where the prompt will generate which will be used for background image generation, I have used a pre-trained model from hugging face for the background image generation. After the background image generation , the photo of the person and other customized text will be input in the background image and save it in a file . After the final output it will show on a Gradio interface.

Some important Libraries:-

- i. torch
- ii. diffusers
- iii. rembg
- iv. gradio

1:- Model Description:

- i. Developed by: Segmind
- ii. Developers: Yatharth Gupta and Vishnu Jaddipal.
- iii. Model type: Diffusion-based text-to-image generative model
- iv. License: Apache 2.0
- v. Distilled From: stabilityai/stable-diffusion-xl-base-1.0

The Segmind-Vega Model is a distilled version of the Stable Diffusion XL (SDXL), offering a remarkable 70% reduction in size and an impressive 100% speedup while retaining high-quality text-to-image generation capabilities. Trained on diverse datasets, including Grit and Midjourney scrape data, it excels at creating a wide range of visual content based on textual prompts.

2. If GPU memory have less than 4GB of GPU RAM available, please make sure to load the StableDiffusionXLPipeline in float16 precision instead of the default float32 precision as done above.

Limitation:-

- i. Dependency on Pretrained Model:
- ii. Fixed Template Structure:

- iii. Limited Customization Options:
- iv. Assumption of Existing Employee ID:
- v. Potential Image Quality Issues

Methodology:-

- i. User Input: Gather user information, such as recipient's name, occasion, preferences, and personal photo. Input can be collected through a user interface or retrieved from a database.
- ii. Data Extraction: Extract additional information from a database or external source. This may include details like favourite colour, favourite season, types of places like to visit (mountain, sea beach, etc) hobbies, or any other personalized data.
- iii. Model Initialization: Initialize a pre-trained model that generates personalized greeting card designs. In this case, it appears to be the Stable Diffusion XL model.
- iv. Image Generation: Use the model to generate a base image for the greeting card based on the user's preferences and occasion details.
- v. Image Customization: Overlay the user's personal photo onto the generated base image. Use background removal techniques (e.g., rembg) to ensure a clean integration of the personal photo.
- vi. Text Addition: Add personalized text to the image, including a greeting message, recipient's name, and any other relevant information.
- vii. Font and Style Selection: Utilize a specified font and style to ensure a visually appealing and cohesive design.
- viii. Image Saving: Save the personalized greeting card image to a designated directory, ensuring a unique filename (possibly with a timestamp).

Workflow:-

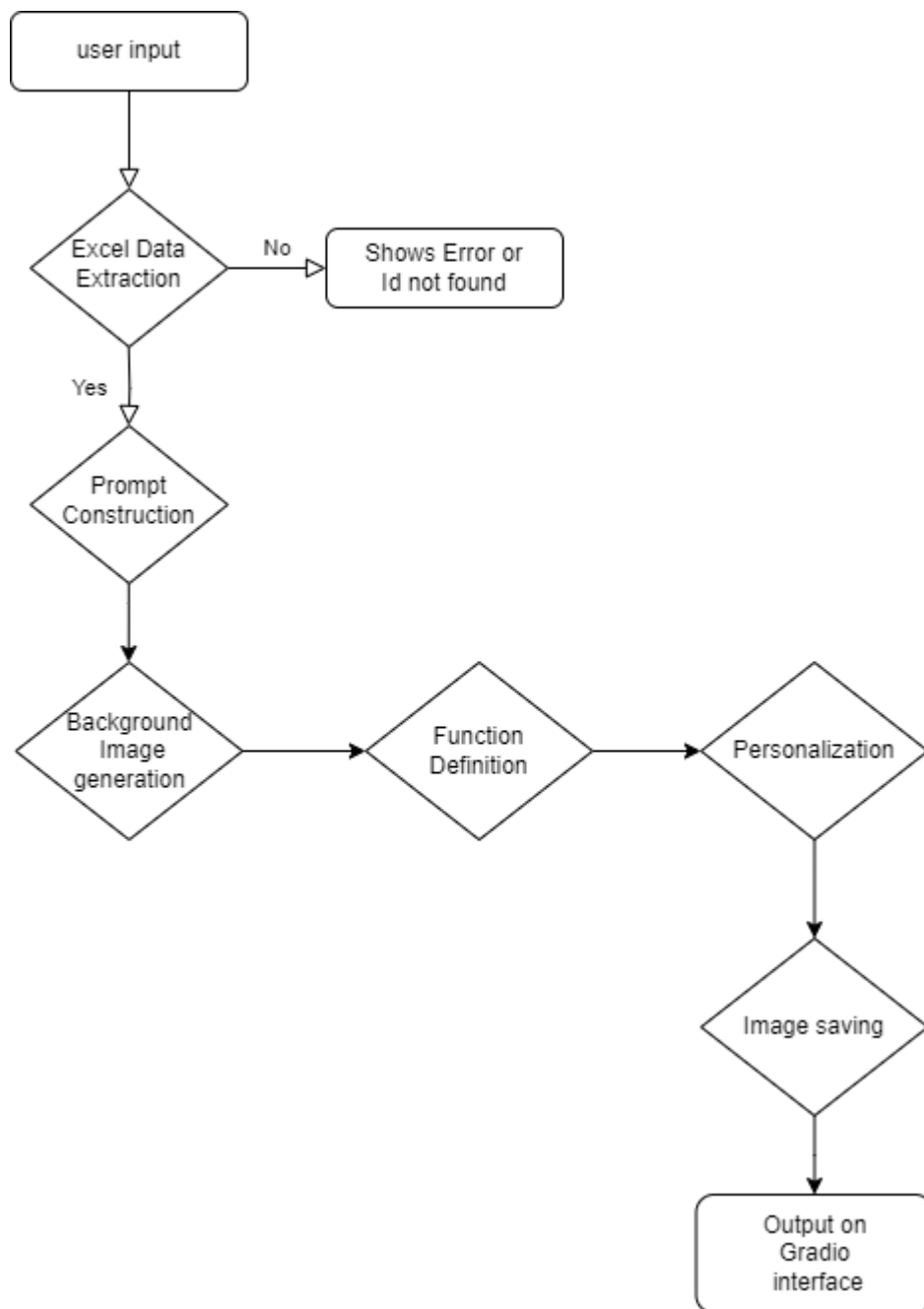
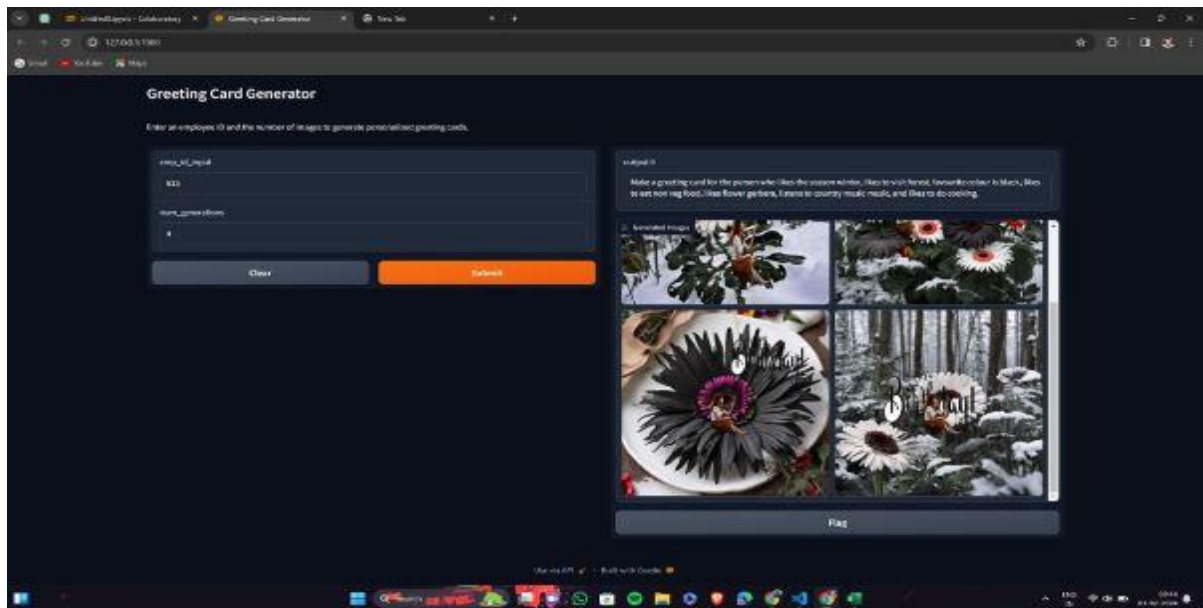


Figure1:- figure1 shows the workflow of generate a customized greeting card

Result:-



Conclusion:-

The project can make a customized greeting card for a person according to the special event of the person which will be taken as an input by the user. According to the input the background process will start and in the output section it will give an output which will be saved.

In future I will try to built a model by myself which can generate the background image .And will try to make it fully automated like it will not depend on the user. It will just take a reminder date and make the greeting card and will fetch the card to the person for whom the card is generated.

Reference:-

- **Gradio Documentation:**
 - <https://www.gradio.app/docs/interfaceStable>
- **Stable Diffusion XL Model:**
 - <https://huggingface.co/segmind/Segmind-Vega>
- **PIL (Pillow) Documentation:**
 - https://buildmedia.readthedocs.org/media/pdf/pillow-radarhere/open_files/pillow-radarhere.pdf
- **PyTorch Documentation:**
 - <https://pytorch.org/docs/stable/notes/cuda.html>
- **rembg-greenscreen documentation**
 - <https://github.com/danielgatis/rembg>
- **research paper on Role of Generative AI for Developing Personalized Content Based Websites**
 - https://www.researchgate.net/publication/374192283_Role_of_Generative_AI_for_Developing_Personalized_Content_Based_Websites