

```
! pip install rembg
```

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Requirement already satisfied: rembg in /usr/local/lib/python3.11/dist-packages (2.0.65)
Requirement already satisfied: jsonschema in /usr/local/lib/python3.11/dist-packages (from rembg) (4.23.0)
Requirement already satisfied: numpy in /usr/local/lib/python3.11/dist-packages (from rembg) (2.0.2)
Requirement already satisfied: opencv-python-headless in /usr/local/lib/python3.11/dist-packages (from rembg) (4.11.0)
Requirement already satisfied: pillow in /usr/local/lib/python3.11/dist-packages (from rembg) (9.5.0)
Requirement already satisfied: pooch in /usr/local/lib/python3.11/dist-packages (from rembg) (1.8.2)
Requirement already satisfied: pymatting in /usr/local/lib/python3.11/dist-packages (from rembg) (1.1.13)
Requirement already satisfied: scikit-image in /usr/local/lib/python3.11/dist-packages (from rembg) (0.24.0)
Requirement already satisfied: scipy in /usr/local/lib/python3.11/dist-packages (from rembg) (1.14.1)
Requirement already satisfied: tqdm in /usr/local/lib/python3.11/dist-packages (from rembg) (4.67.1)
Requirement already satisfied: attrs>=22.2.0 in /usr/local/lib/python3.11/dist-packages (from jsonschema->rembg) (24.2.0)
Requirement already satisfied: jsonschema-specifications>=2023.03.6 in /usr/local/lib/python3.11/dist-packages (from jsonschema->rembg) (2023.12.1)
Requirement already satisfied: referencing>=0.28.4 in /usr/local/lib/python3.11/dist-packages (from jsonschema->rembg) (0.35.0)
Requirement already satisfied: rpds-py>=0.7.1 in /usr/local/lib/python3.11/dist-packages (from jsonschema->rembg) (0.20.1)
Requirement already satisfied: platformdirs>=2.5.0 in /usr/local/lib/python3.11/dist-packages (from pooch->rembg) (4.3.6)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.11/dist-packages (from pooch->rembg) (24.1)
Requirement already satisfied: requests>=2.19.0 in /usr/local/lib/python3.11/dist-packages (from pooch->rembg) (2.32.3)
Requirement already satisfied: numba!>=0.49.0 in /usr/local/lib/python3.11/dist-packages (from pymatting->rembg) (0.60.0)
Requirement already satisfied: networkx>=2.8 in /usr/local/lib/python3.11/dist-packages (from scikit-image->rembg) (3.4.2)
Requirement already satisfied: imageio>=2.33 in /usr/local/lib/python3.11/dist-packages (from scikit-image->rembg) (2.36.0)
Requirement already satisfied: tifffile>=2022.8.12 in /usr/local/lib/python3.11/dist-packages (from scikit-image->rembg) (2024.12.2)
Requirement already satisfied: lazy-loader>=0.4 in /usr/local/lib/python3.11/dist-packages (from scikit-image->rembg) (0.4.0)
Requirement already satisfied: llvmlite<0.44,>=0.43.0dev0 in /usr/local/lib/python3.11/dist-packages (from numba!>=0.49.0) (0.43.0)
Requirement already satisfied: typing-extensions>=4.4.0 in /usr/local/lib/python3.11/dist-packages (from referencing->rembg) (4.12.0)
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.11/dist-packages (from requests->rembg) (3.4.0)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.11/dist-packages (from requests->rembg) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.11/dist-packages (from requests->rembg) (2.2.3)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.11/dist-packages (from requests->rembg) (2025.1.1)
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```
! pip install backgroundremover
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Requirement already satisfied: backgroundremover in /usr/local/lib/python3.11/dist-packages (0.3.0)
Requirement already satisfied: certifi>=2021.5.30 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (2025.1.1)
Requirement already satisfied: charset-normalizer>=2.0.4 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (3.4.0)
Requirement already satisfied: filelock>=3.0.12 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (3.16.1)
Requirement already satisfied: idna>=3.2 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (3.10)
Requirement already satisfied: PySocks>=1.7.1 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (1.9.0)
Requirement already satisfied: six>=1.16.0 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (1.17.0)
Requirement already satisfied: urllib3>=1.26.6 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (2.2.3)
Requirement already satisfied: numpy>=1.19.4 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (2.0.2)
Requirement already satisfied: scikit-image>=0.17.2 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (0.21.0)
Requirement already satisfied: torch>=1.7.0 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (2.5.1)
Requirement already satisfied: torchvision>=0.8.1 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (0.20.2)
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Requirement already satisfied: tqdm>=4.51.0 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (4.67.1)
Requirement already satisfied: requests>=2.24.0 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (2.32.3)
Requirement already satisfied: scipy>=1.5.4 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (1.14.1)
Requirement already satisfied: pymatting>=1.1.1 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (1.1.13)
Requirement already satisfied: filetype>=1.0.7 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (1.2.0)
Requirement already satisfied: hsh>=1.1.0 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (1.1.0)
Requirement already satisfied: more_itertools>=8.7.0 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (10.3.0)
Requirement already satisfied: moviepy>=1.0.3 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (1.0.3)
Requirement already satisfied: Pillow<10.0.0,>=8.1.1 in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (9.5.0)
Requirement already satisfied: ffmpeg-python in /usr/local/lib/python3.11/dist-packages (from backgroundremover) (0.4.0)
Requirement already satisfied: decorator<5.0,>=4.0.2 in /usr/local/lib/python3.11/dist-packages (from moviepy==1.0.3) (4.0.2)
Requirement already satisfied: proglog<1.0.0 in /usr/local/lib/python3.11/dist-packages (from moviepy==1.0.3) (0.1.10)
Requirement already satisfied: imageio<3.0,>=2.5 in /usr/local/lib/python3.11/dist-packages (from moviepy==1.0.3) (2.36.0)
Requirement already satisfied: imageio-ffmpeg>=0.2.0 in /usr/local/lib/python3.11/dist-packages (from moviepy==1.0.3) (0.2.0)
Requirement already satisfied: commandlines in /usr/local/lib/python3.11/dist-packages (from hsh==1.1.0) (1.1.0)
Requirement already satisfied: numba!>=0.49.0 in /usr/local/lib/python3.11/dist-packages (from pymatting==1.1.1) (0.60.0)
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Requirement already satisfied: tifffile>=2022.8.12 in /usr/local/lib/python3.11/dist-packages (from scikit-image==0.17.2) (2024.12.2)
Requirement already satisfied: packaging>=21 in /usr/local/lib/python3.11/dist-packages (from scikit-image==0.17.2) (24.1)
Requirement already satisfied: lazy-loader>=0.4 in /usr/local/lib/python3.11/dist-packages (from scikit-image==0.17.2) (0.4.0)
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Requirement already satisfied: jinja2 in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0) (3.1.4)
Requirement already satisfied: fsspec in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0) (2024.12.2)
Requirement already satisfied: nvidia-cuda-nvrtc-cu12==12.4.127 in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0) (12.4.127)
Requirement already satisfied: nvidia-cuda-runtime-cu12==12.4.127 in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0) (12.4.127)
Requirement already satisfied: nvidia-cuda-cupti-cu12==12.4.127 in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0) (12.4.127)
Requirement already satisfied: nvidia-cudnn-cu12==9.1.0.70 in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0) (9.1.0.70)
Requirement already satisfied: nvidia-cublas-cu12==12.4.5.8 in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0) (12.4.5.8)
Requirement already satisfied: nvidia-cufft-cu12==11.2.1.3 in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0) (11.2.1.3)
Requirement already satisfied: nvidia-curand-cu12==10.3.5.147 in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0) (10.3.5.147)
Requirement already satisfied: nvidia-cusolver-cu12==11.6.1.9 in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0) (11.6.1.9)
Requirement already satisfied: nvidia-cusparse-cu12==12.3.1.170 in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0) (12.3.1.170)
Requirement already satisfied: nvidia-cusparselt-cu12==0.6.2 in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0) (0.6.2)
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Requirement already satisfied: nvidia-nccl-cu12==2.21.5 in /usr/local/lib/python3.11/dist-packages (from torch>=1.13.0)
Requirement already satisfied: nvidia-nvtx-cu12==12.4.127 in /usr/local/lib/python3.11/dist-packages (from torch>=1.13.0)
Requirement already satisfied: nvidia-nvjitlink-cu12==12.4.127 in /usr/local/lib/python3.11/dist-packages (from torch>=1.13.0)
Requirement already satisfied: triton==3.2.0 in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0->backgroundremover)
Requirement already satisfied: sympy==1.13.1 in /usr/local/lib/python3.11/dist-packages (from torch>=1.7.0->backgroundremover)
Requirement already satisfied: mpmath<1.4, >=1.1.0 in /usr/local/lib/python3.11/dist-packages (from sympy==1.13.1->backgroundremover)
Requirement already satisfied: future in /usr/local/lib/python3.11/dist-packages (from ffmpeg-python->backgroundremover)
Requirement already satisfied: llvmlite<0.44, >=0.43.0dev0 in /usr/local/lib/python3.11/dist-packages (from numba!=0.58.0->backgroundremover)
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.11/dist-packages (from jinja2->torch>=1.7.0)
```

! pip install transformers

```
Requirement already satisfied: transformers in /usr/local/lib/python3.11/dist-packages (4.50.3)
Requirement already satisfied: filelock in /usr/local/lib/python3.11/dist-packages (from transformers) (3.18.0)
Requirement already satisfied: huggingface-hub<1.0, >=0.26.0 in /usr/local/lib/python3.11/dist-packages (from transformers) (0.26.0)
Requirement already satisfied: numpy>=1.17 in /usr/local/lib/python3.11/dist-packages (from transformers) (2.0.2)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.11/dist-packages (from transformers) (24.1)
Requirement already satisfied: pyyaml>=5.1 in /usr/local/lib/python3.11/dist-packages (from transformers) (6.0.2)
Requirement already satisfied: regex!=2019.12.17 in /usr/local/lib/python3.11/dist-packages (from transformers) (2024.9.11)
Requirement already satisfied: requests in /usr/local/lib/python3.11/dist-packages (from transformers) (2.32.3)
Requirement already satisfied: tokenizers<0.22, >=0.21 in /usr/local/lib/python3.11/dist-packages (from transformers) (0.20.1)
Requirement already satisfied: safetensors>=0.4.3 in /usr/local/lib/python3.11/dist-packages (from transformers) (0.5.1)
Requirement already satisfied: tqdm>=4.27 in /usr/local/lib/python3.11/dist-packages (from transformers) (4.67.1)
Requirement already satisfied: fsspec>=2023.5.0 in /usr/local/lib/python3.11/dist-packages (from huggingface-hub<1.0, >=0.26.0->transformers) (2024.10.1)
Requirement already satisfied: typing-extensions>=3.7.4.3 in /usr/local/lib/python3.11/dist-packages (from huggingface-hub<1.0, >=0.26.0->transformers) (4.12.2)
Requirement already satisfied: charset-normalizer<4, >=2 in /usr/local/lib/python3.11/dist-packages (from requests) (3.4.0)
Requirement already satisfied: idna<4, >=2.5 in /usr/local/lib/python3.11/dist-packages (from requests->transformers) (3.10)
Requirement already satisfied: urllib3<3, >=1.21.1 in /usr/local/lib/python3.11/dist-packages (from requests->transformers) (2.3.1)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.11/dist-packages (from requests->transformers) (2025.1.1)
```

! pip install --upgrade --force-reinstall pillow

```
Collecting pillow
  Using cached pillow-11.1.0-cp311-cp311-manylinux_2_28_x86_64.whl.metadata (9.1 kB)
Using cached pillow-11.1.0-cp311-cp311-manylinux_2_28_x86_64.whl (4.5 MB)
Installing collected packages: pillow
  Attempting uninstall: pillow
    Found existing installation: pillow 11.1.0
    Uninstalling pillow-11.1.0:
      Successfully uninstalled pillow-11.1.0
  ERROR: pip's dependency resolver does not currently take into account all the packages that are installed. This is
  backgroundremover 0.3.0 requires Pillow<10.0.0, >=8.1.1, but you have pillow 11.1.0 which is incompatible.
  Successfully installed pillow-11.1.0
  WARNING: The following packages were previously imported in this runtime:
  [PIL]
  You must restart the runtime in order to use newly installed versions.
```

RESTART SESSION

```
from PIL import Image
import requests
```

```
from transformers import CLIPProcessor, CLIPModel
```

```
model = CLIPModel.from_pretrained("openai/clip-vit-base-patch32")
processor = CLIPProcessor.from_pretrained("openai/clip-vit-base-patch32")
```

```

/usr/local/lib/python3.11/dist-packages/huggingface_hub/utils/_auth.py:94: UserWarning:
The secret `HF_TOKEN` does not exist in your Colab secrets.
To authenticate with the Hugging Face Hub, create a token in your settings tab (https://huggingface.co/settings/tokens)
You will be able to reuse this secret in all of your notebooks.
Please note that authentication is recommended but still optional to access public models or datasets.
  warnings.warn(

config.json: 100% 4.19k/4.19k [00:00<00:00, 181kB/s]

pytorch_model.bin: 100% 605M/605M [00:02<00:00, 242MB/s]
Using a slow image processor as `use_fast` is unset and a slow processor was saved with this model. `use_fast=True`

model.safetensors: 100% 605M/605M [00:03<00:00, 227MB/s]

preprocessor_config.json: 100% 316/316 [00:00<00:00, 17.7kB/s]

tokenizer_config.json: 100% 592/592 [00:00<00:00, 8.83kB/s]

vocab.json: 100% 862k/862k [00:00<00:00, 2.55MB/s]

merges.txt: 100% 525k/525k [00:00<00:00, 7.82MB/s]

tokenizer.json: 100% 2.22M/2.22M [00:00<00:00, 7.20MB/s]

special_tokens_map.json: 100% 389/389 [00:00<00:00, 18.3kB/s]

```

```

from PIL import Image
import torch

device = "cuda" if torch.cuda.is_available() else "cpu"

def get_image_features(image_paths):
    images = [Image.open(path).convert("RGB") for path in image_paths]
    inputs = processor(images=images, return_tensors="pt").to(device)
    with torch.no_grad():
        image_features = model.get_image_features(**inputs)
        image_features = image_features / image_features.norm(dim=-1, keepdim=True)
    return image_features

mcafee_logos = get_image_features(["/content/mcafee-removebg-preview.png", "/content/mcafee_ver-removebg-preview.png"])
mcafee_shield_logos = get_image_features(["/content/Screenshot_2025-04-05_212545-removebg-preview.png"])

```

```

from PIL import Image

# Load and process the image
user_image = Image.open("/content/user_input_1_nobg.png").convert("RGB")
inputs = processor(images=user_image, return_tensors="pt").to(device)

# Encode using the model
with torch.no_grad():
    user_feature = model.get_image_features(**inputs)
    user_feature = user_feature / user_feature.norm(dim=-1, keepdim=True)

def average_cosine_similarity(user_feat, logo_feats):
    sims = torch.nn.functional.cosine_similarity(user_feat, logo_feats.squeeze(1), dim=-1)
    return sims.mean().item()

scores = {
    "McAfee": average_cosine_similarity(user_feature, mcafee_logos),
    "Shield": average_cosine_similarity(user_feature, mcafee_shield_logos),
}

for company, sim in scores.items():
    print(f"{company} similarity: {sim:.4f}")

predicted_class = max(scores, key=scores.get)
print("Predicted class:", predicted_class)

```

#Got Correct Output

```

McAfee similarity: 0.8420
Shield similarity: 0.7631
Predicted class: McAfee

```

```
import cv2
import numpy as np

def remove_background(image_path, output_path="output_no_bg.png"):
    # Load image
    image = cv2.imread(image_path)
    mask = np.zeros(image.shape[:2], np.uint8)

    # Background and foreground models (used internally by grabCut)
    bgModel = np.zeros((1, 65), np.float64)
    fgModel = np.zeros((1, 65), np.float64)

    # Define a rectangle around the subject (you can tweak this)
    height, width = image.shape[:2]
    rect = (10, 10, width - 20, height - 20)

    # Apply grabCut
    cv2.grabCut(image, mask, rect, bgModel, fgModel, 5, cv2.GC_INIT_WITH_RECT)

    # Convert mask to binary: 0 or 1
    mask2 = np.where((mask == 2) | (mask == 0), 0, 1).astype('uint8')

    # Remove background
    result = image * mask2[:, :, np.newaxis]

    # Convert to BGRA (add alpha channel)
    result_with_alpha = cv2.cvtColor(result, cv2.COLOR_BGR2BGRA)
    result_with_alpha[:, :, 3] = mask2 * 255 # Set alpha channel

    # Save result
    cv2.imwrite(output_path, result_with_alpha)

    return output_path

remove_background("/content/user_input_1.png", "/content/user_input_1_nobg.png")
```

