

```
from google.colab import drive
drive.mount('/content/drive')
```

↗ Mounted at /content/drive

```
from tensorflow.keras.models import load_model
```

```
model_path = '/content/drive/My Drive/modelos/Model_recomendacao.h5'
model = load_model(model_path)
```

↗ WARNING:absl:Compiled the loaded model, but the compiled metrics have yet to be built. `model.compile_metrics` will be empty until you t

```
from tensorflow.keras.preprocessing import image
from tensorflow.keras.applications.resnet50 import preprocess_input
import numpy as np
```

```
def extract_features(img_path, model):
    img = image.load_img(img_path, target_size=(224, 224))
    img_data = image.img_to_array(img)
    img_data = np.expand_dims(img_data, axis=0)
    img_data = preprocess_input(img_data)
    features = model.predict(img_data)
    return features
```

```
import os
```

```
image_folder = '/content/drive/My Drive/arquivos-sistema/relogios'
all_features = []
image_paths = []
```

```
for img_name in os.listdir(image_folder):
    img_path = os.path.join(image_folder, img_name)
    features = extract_features(img_path, model)
    all_features.append(features)
```

```
image_paths.append(img_path)
```

```
all_features = np.array(all_features).reshape(len(all_features), -1)
```

```
➡ 1/1 ————— 1s 1s/step  
1/1 ————— 0s 154ms/step  
1/1 ————— 0s 141ms/step  
1/1 ————— 0s 143ms/step
```

```
from sklearn.metrics.pairwise import cosine_similarity
```

```
def find_similar_images(query_features, all_features, top_n=5):  
    similarities = cosine_similarity(query_features, all_features)  
    similar_indices = similarities.argsort()[0][-top_n:]  
    return similar_indices
```

```
query_img_path = '/content/drive/My Drive/arquivos-sistema/relogios/1r.jfif'  
query_features = extract_features(query_img_path, model)  
similar_indices = find_similar_images(query_features, all_features)
```

```
for idx in similar_indices:  
    print(f"Similar image: {image_paths[idx]}")
```

```
➡ 1/1 ————— 0s 165ms/step  
Similar image: /content/drive/My Drive/arquivos-sistema/relogios/4r.jfif  
Similar image: /content/drive/My Drive/arquivos-sistema/relogios/3r.jfif  
Similar image: /content/drive/My Drive/arquivos-sistema/relogios/2r.jfif  
Similar image: /content/drive/My Drive/arquivos-sistema/relogios/1r.jfif
```

