Image Recognition with IBM Cloud Visual Recognition

Final Submission:

PHASE 5:

Problem definition:

The problem is to create an image recognition system using IBM Cloud Visual Recognition that can accurately identify and classify objects, scenes, and concepts within images. This system should have the capability to be trained on custom categories and should be user-friendly, allowing individuals and organizations to integrate it into their applications and workflows.

Key Principles:

Accurate Image Recognition:

Develop a system that can recognize and classify objects, scenes, and concepts within images with a high degree of accuracy.

Customization:

Enable users to train the system to recognize specific categories or objects relevant to their needs, allowing for a personalized image recognition solution.

Integration:

Design the system to be easily integrated into various applications and platforms, such as mobile apps, websites, and IoT devices.

User-Friendly:

Ensure that the user interface for training and using the system is intuitive and user-friendly, catering to a wide range of users.

Scalability:

Build a solution that can handle a growing dataset of images and adapt to increasing recognition demands.

Design Principles:

Empathize:

Understand the needs and challenges of potential users, including developers, businesses, and individuals who might use the image recognition system.Gather insights by conducting interviews, surveys, and usability studies.

Define:

Clearly define the problem statement, as mentioned above, with a focus on user requirements and expectations.Identify specific use cases where image recognition can provide value, such as e-commerce, security, healthcare, or content moderation.

Ideate:

Brainstorm possible solutions and features that can address the defined problem.

Consider different technologies and tools, but in this case, IBM Cloud Visual Recognition is a key component.

Prototype:

Create a prototype of the user interface for training the system and using the recognition capabilities.

Develop a basic integration of IBM Cloud Visual Recognition into the prototype to demonstrate functionality.

Test:

Gather user feedback on the prototype to understand what works well and what needs improvement.

Ensure that the system's accuracy in recognizing common objects and concepts is tested extensively.

Develop:

Based on feedback and the prototype, start developing the complete image recognition system.

Customize the system to include training capabilities for users to add their own categories or improve recognition in specific areas.

Test Iteratively:

Continuously test the system during development to ensure it meets the accuracy and usability requirements.

Address issues and refine the system as needed.

Deploy:

Deploy the image recognition system on the IBM Cloud or the desired hosting platform.

Ensure scalability and reliability to handle real-world demands.

Feedback and Iterate:

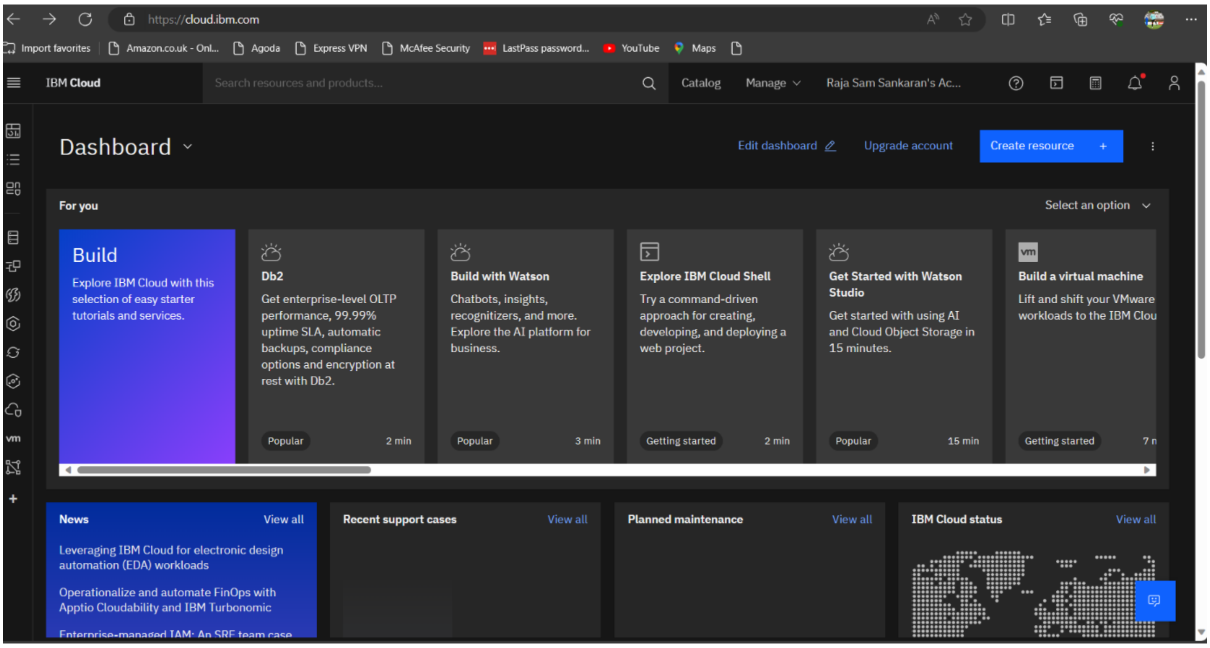
Continue to collect user feedback and iterate on the system to make improvements and add new features.

Scale and Support:

As the system gains users and recognition demands increase, scale the infrastructure and provide ongoing support and maintenance.

Sign up for IBM Cloud:

If you don't already have an IBM Cloud account, you'll need to sign up for one. You can do this at IBM Cloud's website.



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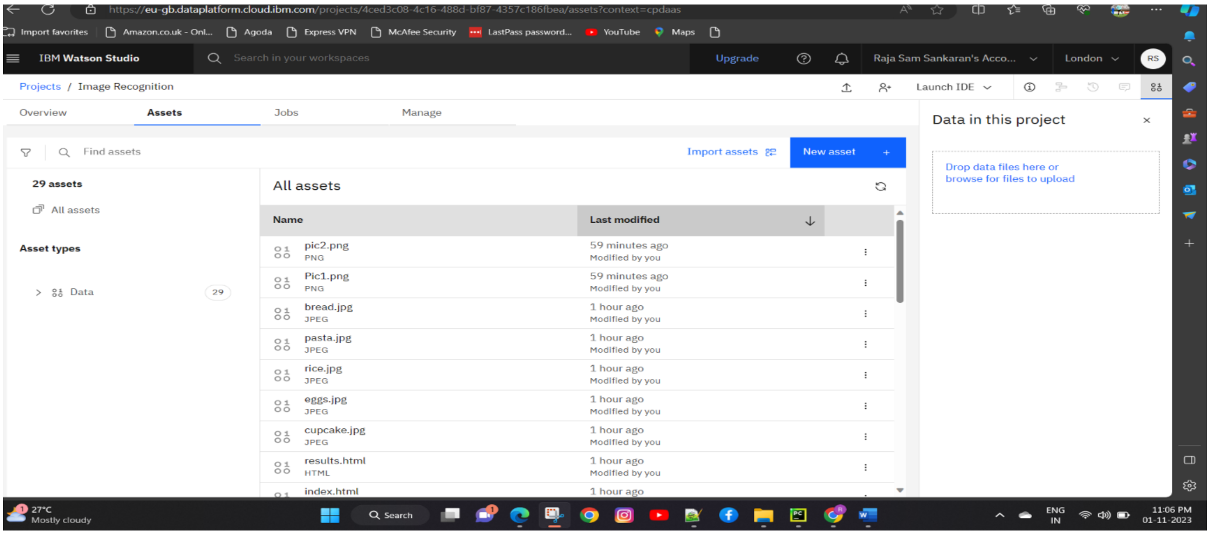
Create a Visual Recognition Service:

Once you have an IBM Cloud account, log in and create a Visual Recognition service instance. You can do this from the IBM Cloud dashboard by navigating to the "Create Resource" section and searching for "Visual Recognition."

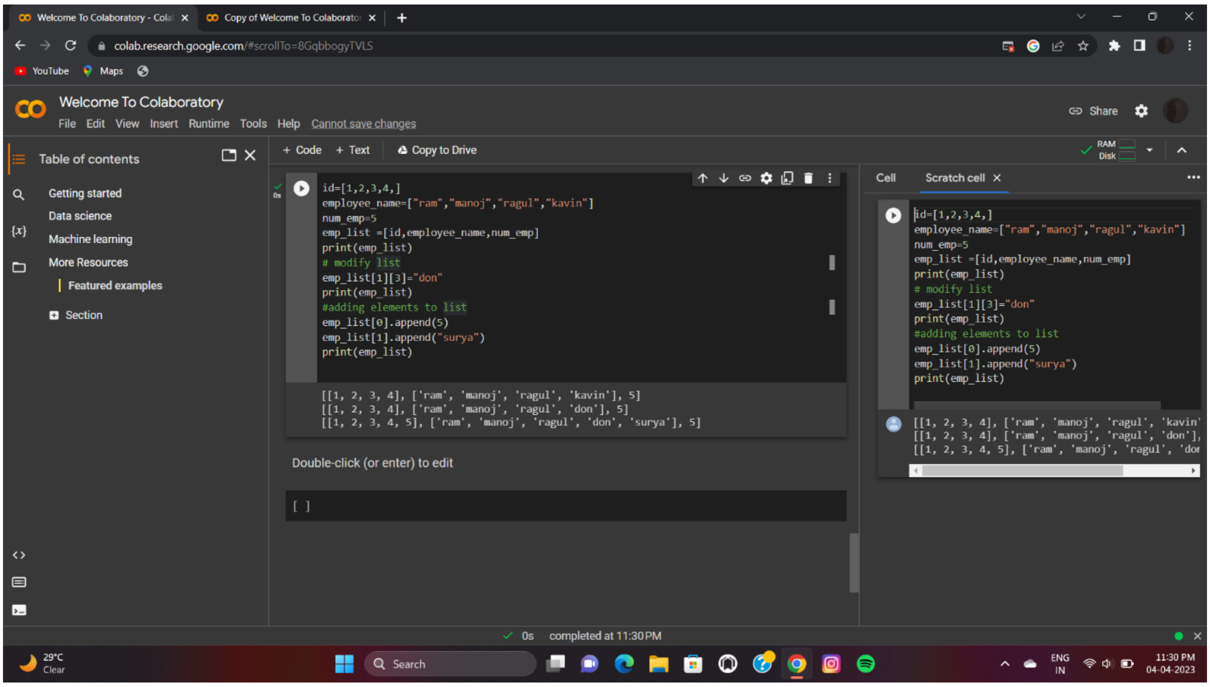


All assets

Name	Last modified
pic2.png PNG	59 minutes ago Modified by you
Pic1.png PNG	59 minutes ago Modified by you
bread.jpg JPEG	1 hour ago Modified by you
pasta.jpg JPEG	1 hour ago Modified by you
rice.jpg JPEG	1 hour ago Modified by you
eggs.jpg JPEG	1 hour ago Modified by you
cupcake.jpg JPEG	1 hour ago Modified by you
results.html HTML	1 hour ago Modified by you
index.html	1 hour ago

Get API Credentials:

After creating a Visual Recognition service instance, you'll receive API credentials (API Key and URL) that you'll use to authenticate and interact with the service.



```
id=[1,2,3,4,]
employee_name=["ram","manoj","ragul","kavin"]
num_emp=5
emp_list =[id,employee_name,num_emp]
print(emp_list)
# modify list
emp_list[1][3]="don"
print(emp_list)
#adding elements to list
emp_list[0].append(5)
emp_list[1].append("surya")
print(emp_list)
```

```
[[1, 2, 3, 4], ['ram', 'manoj', 'ragul', 'kavin'], 5]
[[1, 2, 3, 4], ['ram', 'manoj', 'ragul', 'don'], 5]
[[1, 2, 3, 4, 5], ['ram', 'manoj', 'ragul', 'don', 'surya'], 5]
```

Double-click (or enter) to edit

Collect and Organize Your Data:

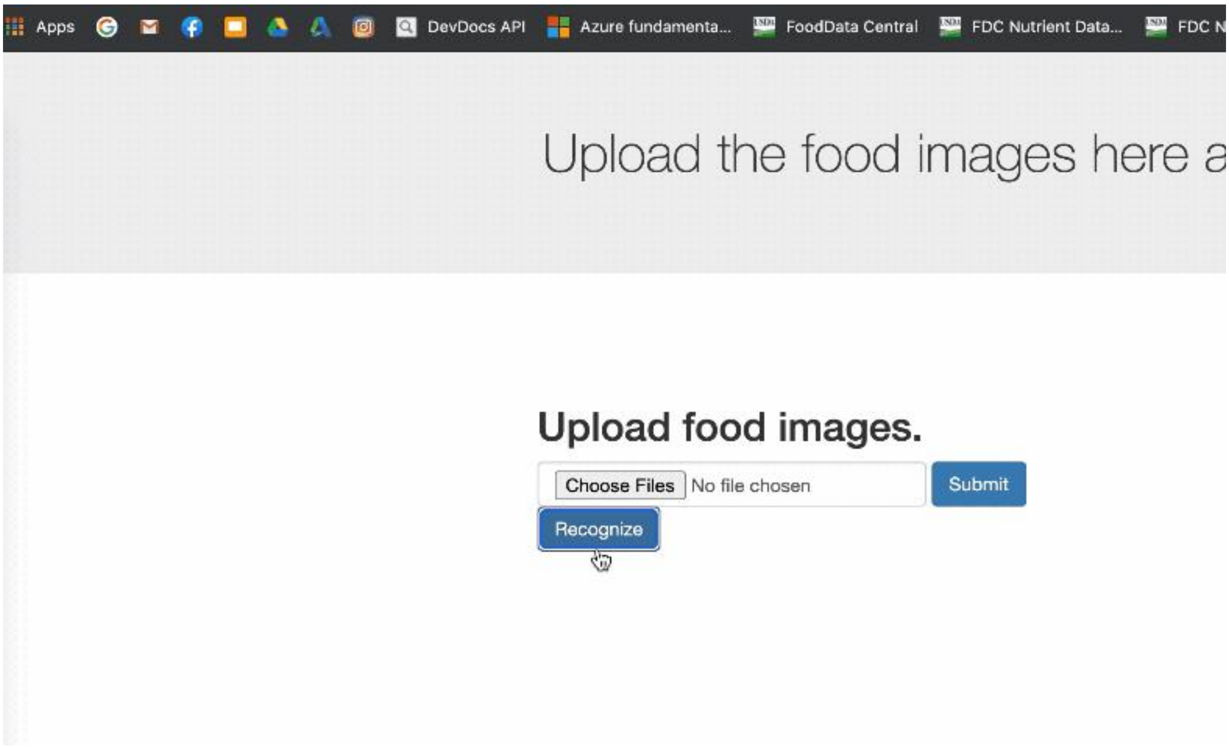
Gather a substantial amount of labeled image data that you want to use to train and test your image recognition model. The quality and diversity of your dataset are crucial for the success of your model.

Train Your Model:

Upload your image dataset to the Visual Recognition service and use it to train a custom model. The service allows you to create and fine-tune models for specific recognition tasks.

Test Your Model:

After training, evaluate your model's performance by testing it with images it has never seen before. This helps you understand its accuracy and identify areas where it may need improvement.



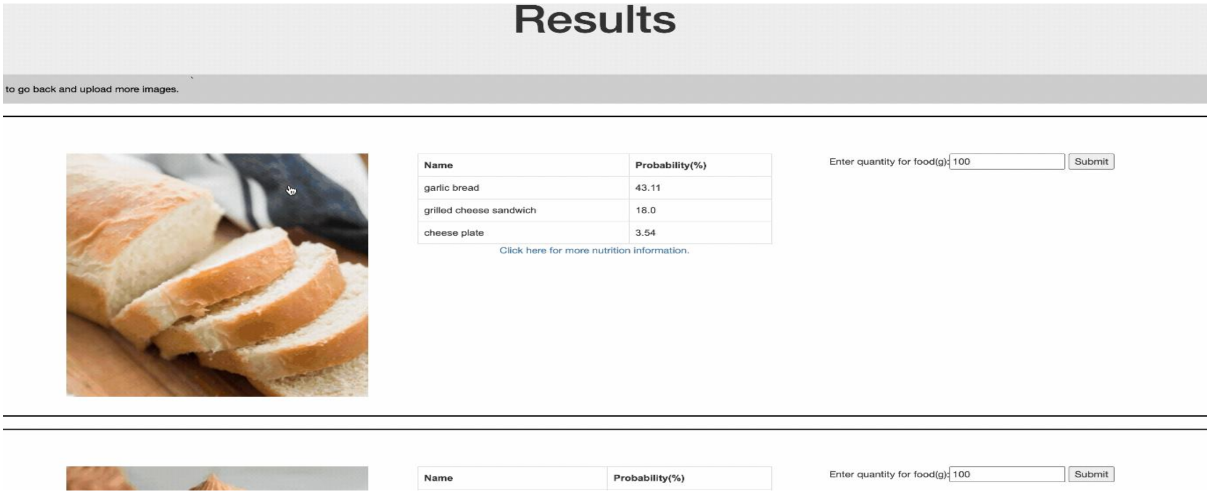
Upload the food images here a

Upload food images.

No file chosen

Integrate with Your Application:

Once you're satisfied with your model's performance, you can integrate it into your application using the API credentials. IBM provides SDKs and documentation to help you with the integration process.



Results

to go back and upload more images.

Name	Probability(%)
garlic bread	43.11
grilled cheese sandwich	18.0
cheese plate	3.54

Click here for more nutrition information.

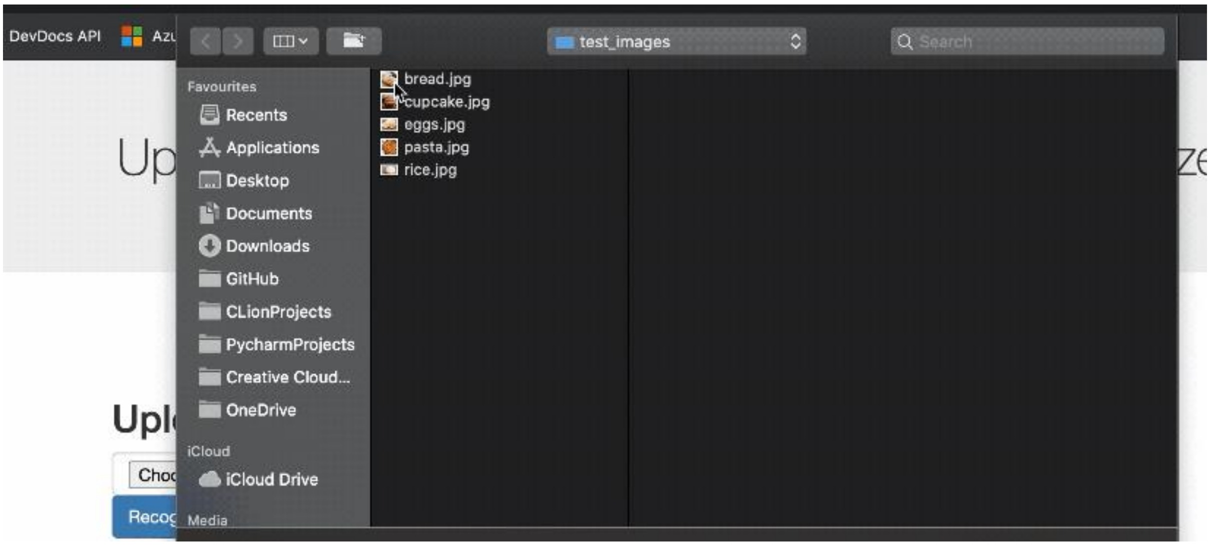
Enter quantity for food(g): 100

Name	Probability(%)

Enter quantity for food(g): 100

Continuous Improvement:

Image recognition models can benefit from ongoing training and refinement. Regularly update your model with new data to improve its accuracy over time.

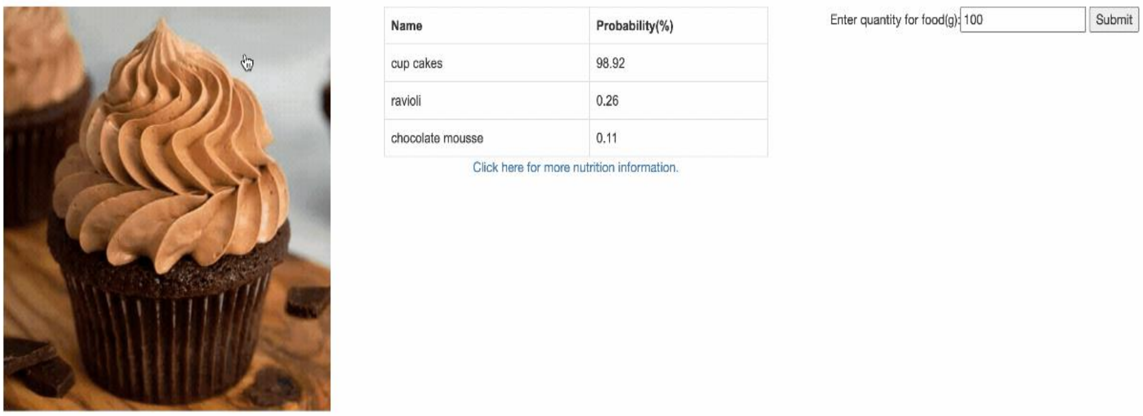


Implement Error Handling and Monitoring:

Be prepared to handle errors and exceptions that may occur when making API calls. Implement monitoring and logging to keep track of how your model is performing in your application.

Scaling and Deployment:

Depending on your application's requirements, you may need to scale your deployment to handle more users and images. IBM Cloud provides tools to help you scale your services as needed.



Name	Probability(%)
cup cakes	98.92
ravioli	0.26
chocolate mousse	0.11

Click here for more nutrition information.

Enter quantity for food(g): 100

Conclusion:

IBM Cloud Visual Recognition is a powerful tool for addressing image recognition challenges, and its flexibility, accuracy, and user-friendly features make it a valuable choice for organizations and individuals looking to leverage the power of machine learning and AI in image analysis and classification. As technology continues to advance, image recognition solutions like IBM's are expected to play an increasingly pivotal role in various industries, from healthcare and retail to security and entertainment.