

Experiment Title

PREDICTING INSURANCE FRAUD USING IMAGES

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Branch: IIIrd yr CSE-BDA

Section/Group: C

Semester: 6th

Date of Performance: 03/03/2021

Subject Name: Predictive Modelling Analytics

Subject Code: CS 18.338

I. Aim/Overview of the practical: To Predict the **Insurance fraud** using Images.

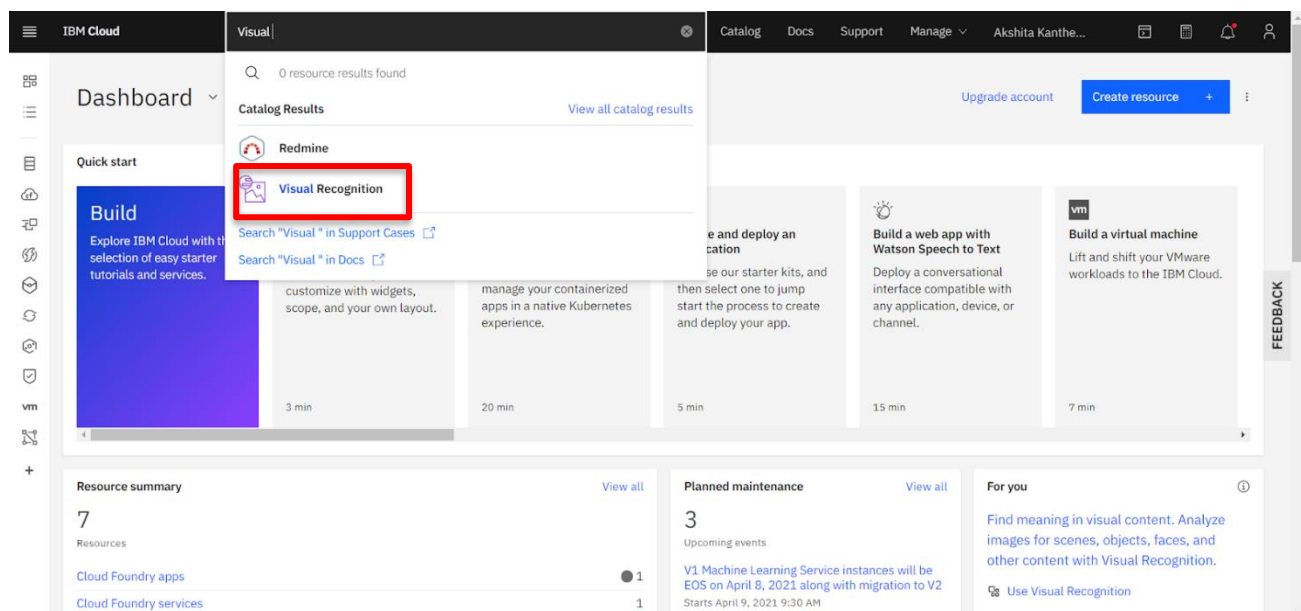
II. Task to be done: Discuss How **IBM Watson Studio** empowers us to scale analysis across your org to speed dev time and simplify collaboration with data scientists, risk analysts, investigators, and other subject matter experts while adhering to strong governance and security posture. In order to respond to new types of fraud, waste and abuse while minimizing false negatives and accelerating response, the platform continuously accommodates real-time data, monitors and detects fraudulent activities and adapts as the patterns change and spot anomalies.

III. Apparatus (For applied/experimental sciences/materials based labs): The following apparatus we need are:

- Internet connectivity
- IBM cloud account
- IBM Visual Recognition service
- IBM Watson Studio
- NIC Data Set

IV. Steps for experiment/practical: The following steps are:

1. Login to your IBM Cloud account.
2. Go to your Visual Recognition Service and start a new project or start recent project which is already created.



IBM Cloud

Search resources and offerings...

Catalog Docs Support Manage Akshita Kanthe...

Catalog / Services /

Visual Recognition

IBM • Date of last update: 03/03/2021 • Docs • API docs

Create About

Select a location

Select a location

Dallas (us-south)

Select a pricing plan

Displayed prices do not include tax. Monthly prices shown are for country or location: [United States](#)

Plan	Features	Pricing
Lite	1,000 Events per month towards: Pre-trained model classification (General, Food, Explicit) (images) Custom Model classification (images) Custom Model training (images) 2 Custom Models 1 Lite Plan instance per IBM Cloud Organization Free Exports to Core ML	Free

Create

Add to estimate

View terms

Summary

Visual Recognition Free

Location: Dallas
Plan: Lite
Service name: Visual Recognition-ou
Resource group: Default

FEEDBACK

3. Launch the Watson Studio through visual recognition service.

IBM Cloud

Search resources and offerings...

Catalog Docs Support Manage Akshita Kanthe...

Resource list /

Visual Recognition-jn

Active Add tags

Details Actions...

Manage

Service credentials

Plan

Connections

Start by viewing the tutorial

Launch Watson Studio Docs API reference

Credentials

Download Show credentials

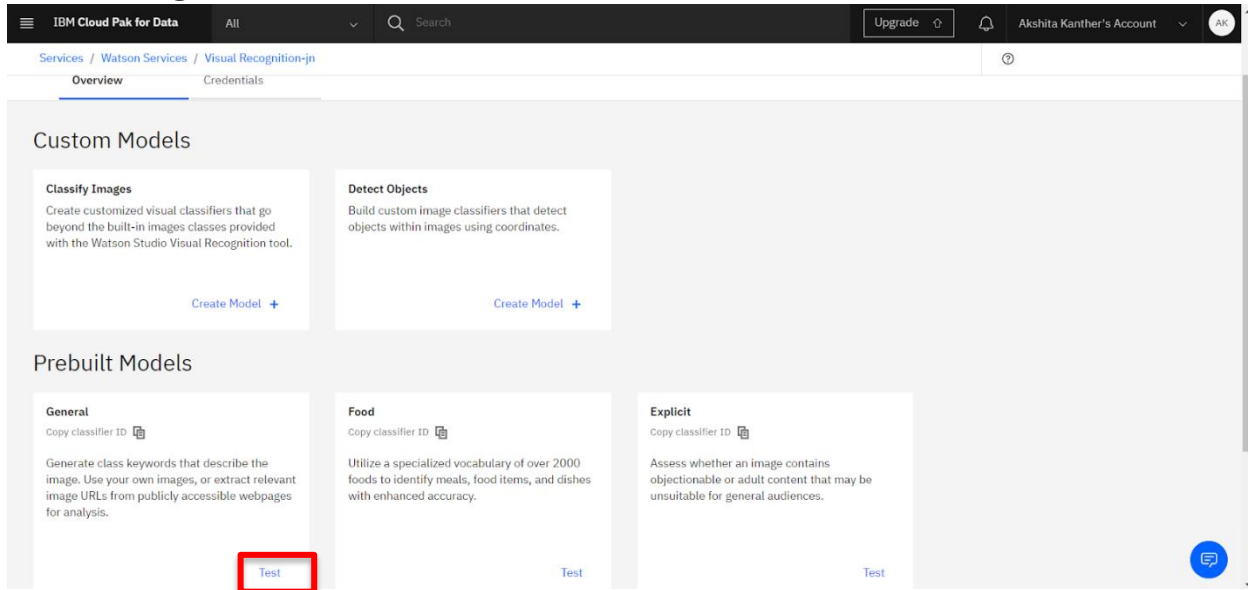
API key:

URL:

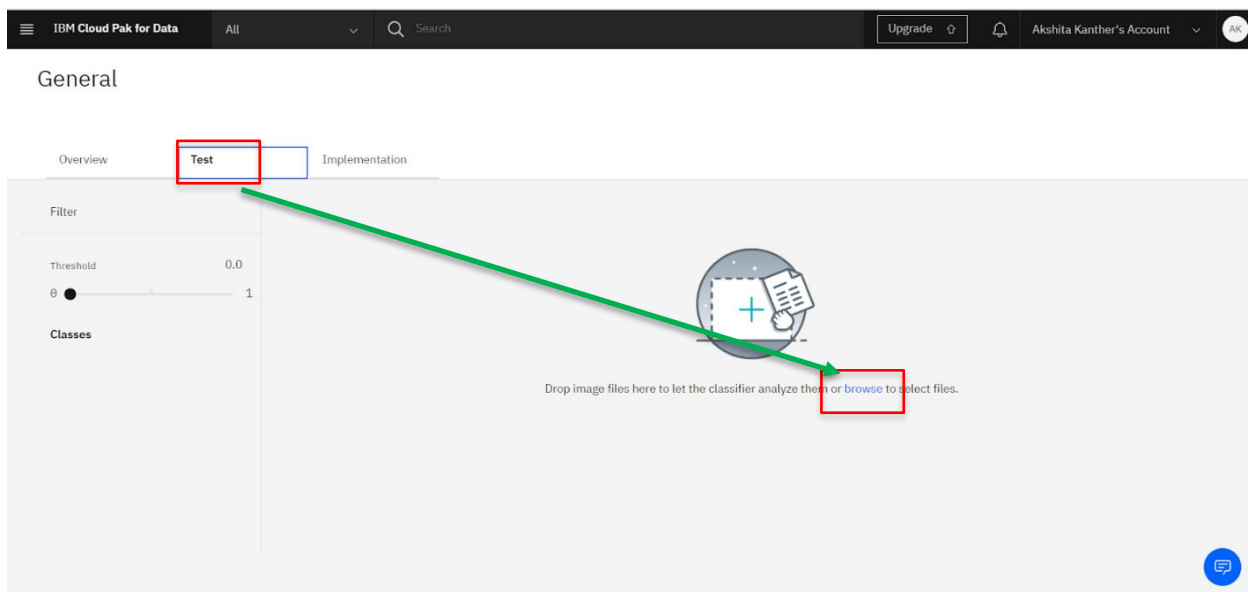
<https://api.us-south.visual-recognition.watson.cloud.ibm.com/insta>

FEEDBACK

4.1 Through Prebuilt models



- Through prebuilt models we will test the model by uploading the images by going on Browse and select the data or files to upload or data and on the basis of the described classes in that model , then it will analyze the image and provide the classes of that image which are present in that image.



- After Analyzing the image it has shown the classes which are already in-built and also it tells that how much percent it is there in that image and the results are shown.

The screenshot shows the IBM Cloud Pak for Data Visual Recognition interface. The 'Test' tab is active, displaying the results of an image analysis. On the left, a 'Classes' list is shown with checkboxes for various categories. On the right, the 'Test results' area displays two images: 'flattire.jpg' and 'vandalizedcar.jpg'. Each image has a list of detected classes and their corresponding confidence scores.

Classes List (Left):

- ☐ ash grey color
- ☐ car tire
- ☐ car wheel
- ☐ charcoal color
- ☐ fifth wheel (spare)
- ☐ gray color
- ☐ light source
- ☐ machine
- ☐ mechanical device
- ☐ mechanism
- ☐ mirror
- ☐ outside mirror

Test Results (Right):

Image	Class	Score
flattire.jpg	charcoal color	0.95
	wheel	0.93
	machine	0.93
	mechanical device	0.93
	mechanism	0.80
vandalizedcar.jpg	ash grey color	0.98
	windshield	0.94
	screen	0.94
	protective covering	0.94
	light source	0.80

4.2 Through Custom Models:-

- In this we will click on “create model” in custom models and then there we will create a new project and then name it and click on “Create”.

The screenshot shows the IBM Cloud Pak for Data Visual Recognition interface, specifically the 'Custom Models' section. The 'Classify Images' card is highlighted with a red box, and the 'Create Model' button is visible. The 'Detect Objects' card is also visible. Below the 'Custom Models' section, the 'Prebuilt Models' section is shown, including 'General', 'Food', and 'Explicit' models.

Custom Models:

- Classify Images:** Create customized visual classifiers that go beyond the built-in images classes provided with the Watson Studio Visual Recognition tool. [Create Model +](#)
- Detect Objects:** Build custom image classifiers that detect objects within images using coordinates. [Create Model +](#)

Prebuilt Models:

- General:** Generate class keywords that describe the image. Use your own images, or extract relevant image URLs from publicly accessible webpages for analysis. [Test](#)
- Food:** Utilize a specialized vocabulary of over 2000 foods to identify meals, food items, and dishes with enhanced accuracy. [Test](#)
- Explicit:** Assess whether an image contains objectionable or adult content that may be unsuitable for general audiences. [Test](#)

IBM Cloud Pak for Data All Search Upgrade Akshita Kanther's Account

New project

Create a project for your custom model. A project is how you organize your resources to work with data and share assets with collaborators.

Define project details

Name:

Description:

Storage

Cloud Object Storage-19

Watson Visual Recognition

Visual Recognition-jn

Choose project options

☐ Restrict who can be a collaborator ⓘ

Project includes integration with [Cloud Object Storage](#) for storing project assets and [Watson Visual Recognition](#) for model training and deployment.

Additional tools and services can be added in Project Settings after the project is created.

Cancel Create

5. After that we will change the name from Default to any name related to that project and then after that we will upload the dataset required for this model by going on to Browse in upload directly section. In that we will upload the dataset which are downloaded first and then we are uploading it as shown below

IBM Cloud Pak for Data All Search Upgrade Akshita Kanther's Account

Projects / accident_and_vandalism / Accident

Accident

Associated Service: Visual Recognition-jn

My classes (1) All images (0)

Drag and drop files from your project.

1 class | 0 incomplete classes | 0 unclassified images

New training data size: 0.0/250 MB

Train Model

Upload directly

To add files to your project and model, drop .jpeg, .png, or .zip files here or

Browse

Add from existing project files

Drag .jpeg, .png, or .zip files from your project to the training area to add them to your model.

0 selected

There are no .jpeg, .png, or .zip files in your project.

Create a class

Negative (0)

Use the negative class to train the model on images that do not depict the visual subject of any of the positive classes.

This class is recommended but not required.

Broken windshields	50 zipped images of broken windshields in auto accidents
Flat tires	50 zipped images of flat tires
Vandalism	50 zipped images of non-accident related damages
Negatives	50 zipped images of negatives (not related to auto accident claims)

IBM Cloud Pak for Data | All | Search | Upgrade | Akshita Kanther's Account

Projects / accident_and_vandalism / Accident

Accident

Associated Service: Visual Recognition-jn

My classes (1) | All images (0)

Drag and drop files from your project.

1 class | 0 incomplete classes | 0 unclassified images

New training data size: 0.0/250 MB

[Create a class](#)

Use the negative class to train the model on images that do not depict the visual subject of any of the positive classes.

Negative (0)
This class is recommended but not required.

Upload directly

To add files to your project and model, drop .jpeg, .png, or .zip files here or [Browse](#)

Add from existing project files

Drag .jpeg, .png, or .zip files from your project to the training area to add them to your model.

0 selected

- ☐ FlatTire.zip
Uploading file... 23 % [Cancel](#)
- ☐ Negatives.zip
Uploading file... 19 % [Cancel](#)
- ☐ Vandalism.zip
Uploading file... 19 % [Cancel](#)

Here it will show the status of the dataset which is uploading

- In this in “My Classes” section it will show the following classes or the dataset uploaded.

IBM Cloud Pak for Data | All | Search | Upgrade | Akshita Kanther's Account

Projects / accident_and_vandalism / Accident

Accident

Associated Service: Visual Recognition-jn

My classes (4) | All images (149)

Drag and drop files from your project.

4 classes | 0 incomplete classes | 0 unclassified images

New training data size: 6.9/250 MB

[Create a class](#)

Use the negative class to train the model on images

BrokenWindshiel...

Flat Tire (50)
40/50 images loaded

File BrokenWindshield.zip contain...
These images will be added to a class under the name of the .zip file.
Timestamp 9:14:05 PM

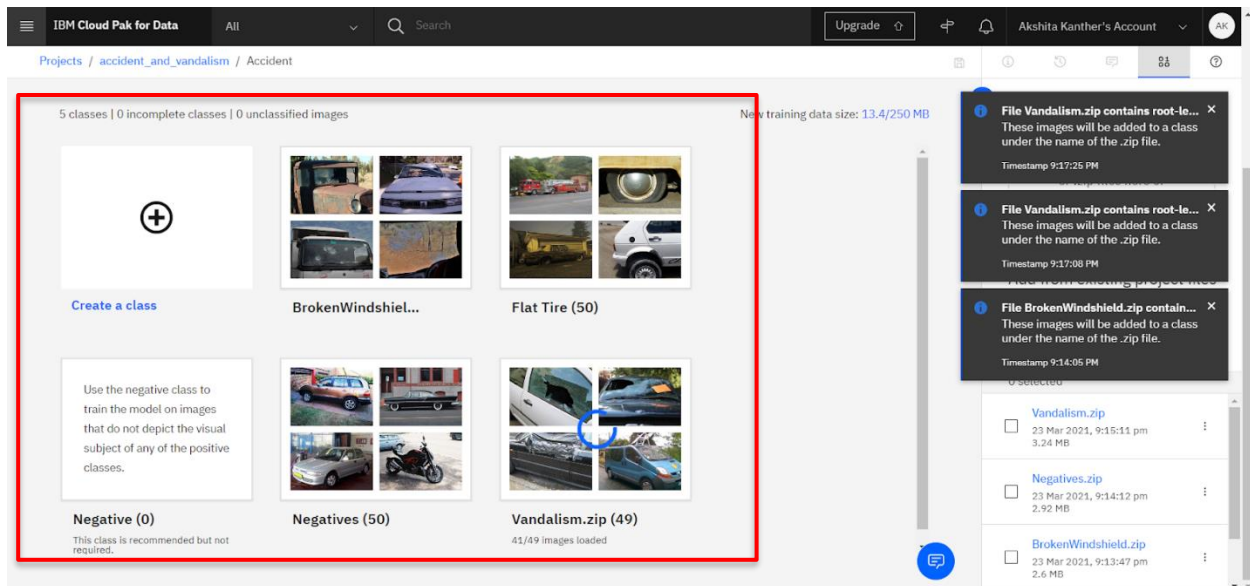
[Browse](#)

Add from existing project files

Drag .jpeg, .png, or .zip files from your project to the training area to add them to your model.

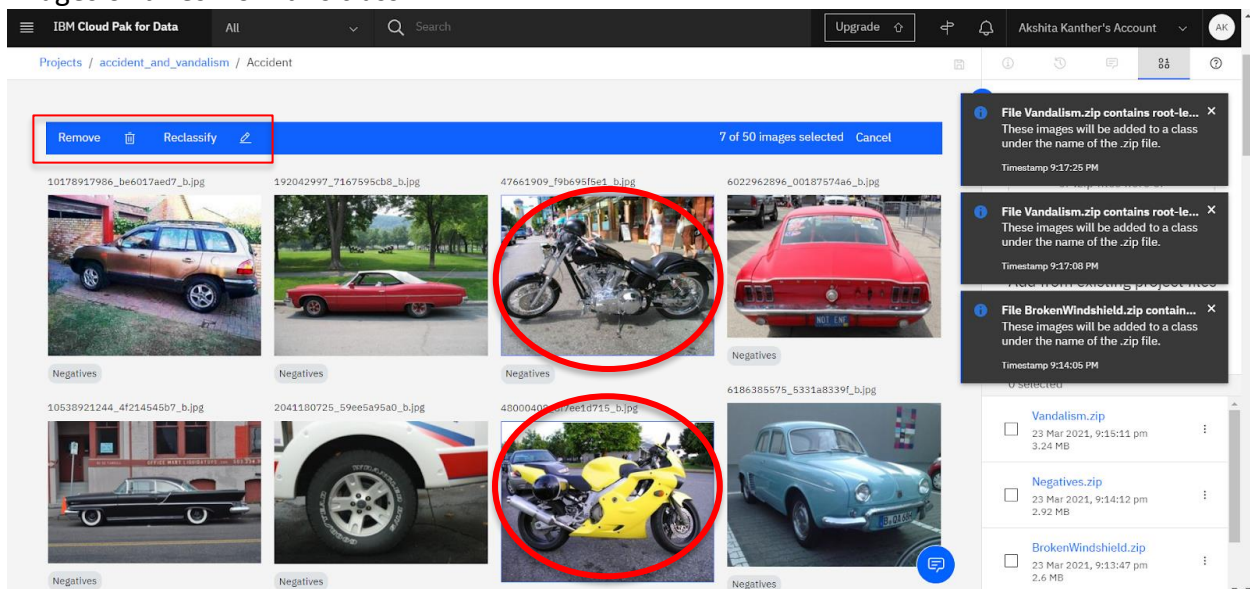
0 selected

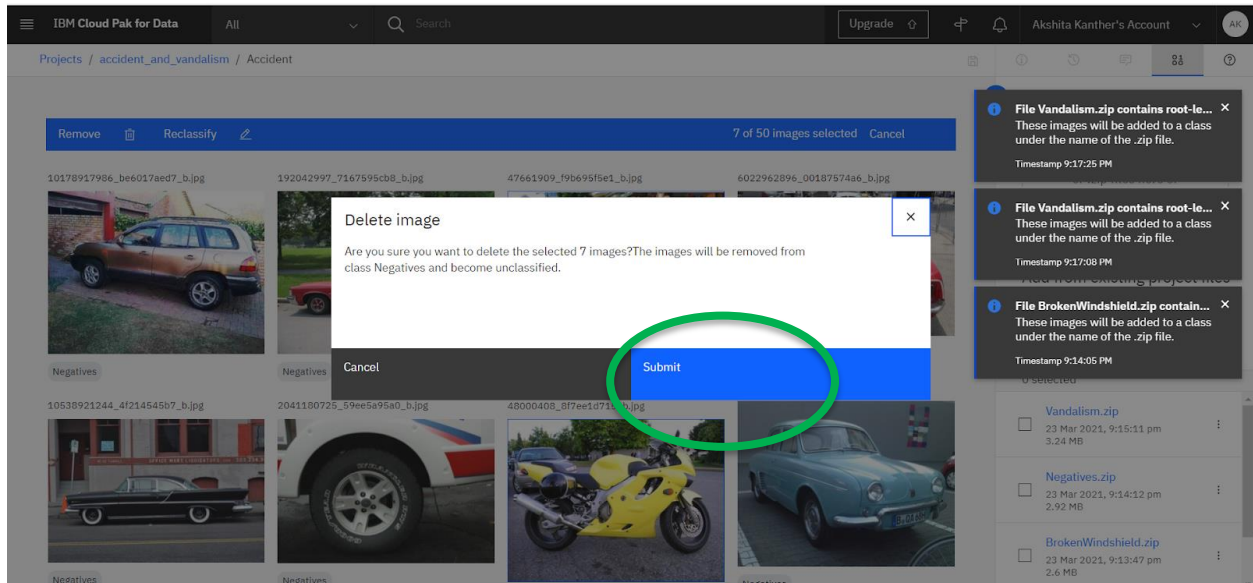
- ☐ Vandalism.zip
Creating data asset... [Dismiss](#)
- ☒ Negatives.zip
Loading file into model...
- ☐ BrokenWindshield.zip
23 Mar 2021, 9:13:47 pm
2.6 MB



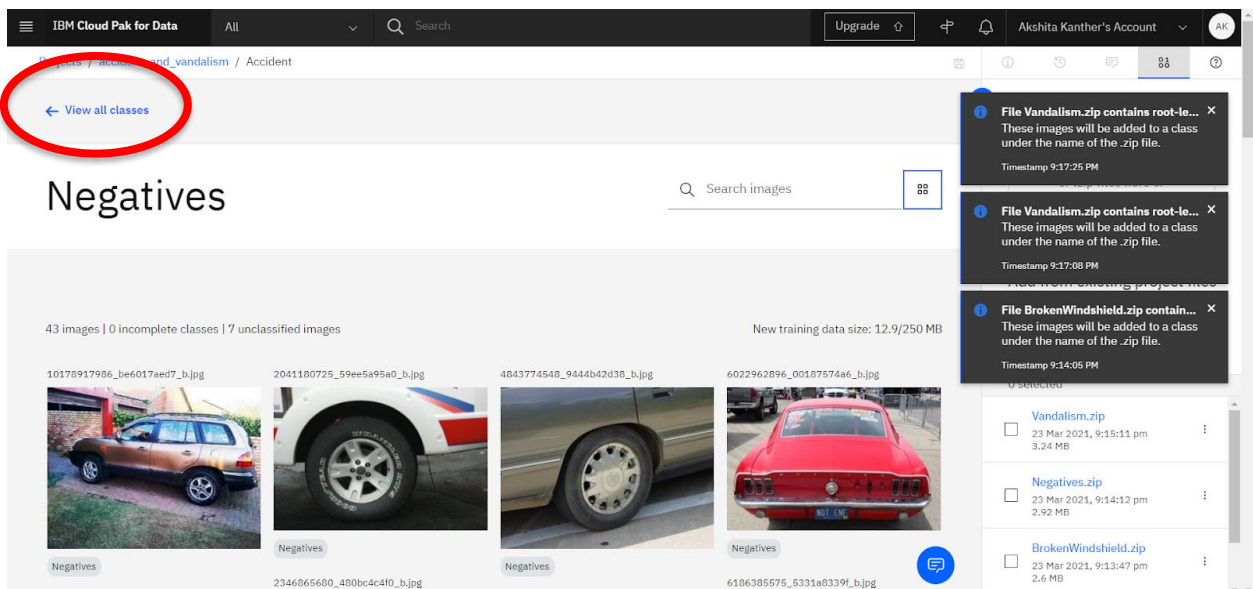
6. Then we will reclassify the images from the classes or remove the images which are not related to that dataset or that class. In negatives class by selecting the images we will remove the images which are not related and then click on submit.

For eg. the red circled image of bike is not related to vandalized cars so we will remove all the images of bikes from this class.





- And then we will check the class negatives that the images are removed are not by clicking on to “View all classes” in that it will show you all the classes and from their we will click on class negatives and then check .



7. After going to Multiple selection icon of that class we will select all the images by checking their checkboxes and click on Reclassify to classify the images and then we will select a class “Negative “ from the given dropdown in section2 of reclassify images and then click on submit.

The screenshot shows the IBM Cloud Pak for Data interface. At the top, there's a navigation bar with 'IBM Cloud Pak for Data', 'All', a search bar, and an 'Upgrade' button. Below this, the breadcrumb 'Projects / accident_and_vandalism / Accident' is visible. The main heading is 'Negatives'. A search bar for images is present. A blue bar at the top of the image list indicates '43 of 43 images selected'. The image list has columns: Image, Filename, Path, Size (MB), and Class. The 'Image' column header is highlighted with a red box. The 'Class' column shows 'Negatives' for all images. On the right, there's a sidebar with 'Upload directly' and 'Add from existing project files' options. The 'Add from existing project files' section shows three zip files: 'Vandalism.zip', 'Negatives.zip', and 'BrokenWindshield.zip'.

Image	Filename	Path	Size (MB)	Class
<input checked="" type="checkbox"/>	10178917986_be6017aed7_b.jpg	Negatives/10178917986_be6017aed7_b.jpg	0.081	Negatives
<input checked="" type="checkbox"/>	10538921244_4f214545b7_b.jpg	Negatives/10538921244_4f214545b7_b.jpg	0.054	Negatives
<input checked="" type="checkbox"/>	1265166_9f83a4f57d_b.jpg	Negatives/1265166_9f83a4f57d_b.jpg	0.057	Negatives
<input checked="" type="checkbox"/>	14316339702_bcccd9733d_b.jpg	Negatives/14316339702_bcccd9733d_b.jpg	0.080	Negatives
<input checked="" type="checkbox"/>	15200382305_9eea27f53b_b.jpg	Negatives/15200382305_9eea27f53b_b.jpg	0.059	Negatives

The screenshot shows the same IBM Cloud Pak for Data interface, but with a 'Reclassify images' dialog box open. The dialog box has a title 'Reclassify images' and a subtitle 'To reclassify the selected 43 images, choose a class or create a new one.' It contains a 'New class name' input field, a 'Select a class' dropdown menu, and 'Cancel' and 'Submit' buttons. The 'Select a class' dropdown is set to 'Negative', and the 'Submit' button is highlighted with a red circle. A red arrow points from the 'Submit' button back to the 'Image' column header in the background image list.

Image	Filename	Path	Size (MB)	Class
<input checked="" type="checkbox"/>	10178917986_be6017aed7_b.jpg	Negatives/10178917986_be6017aed7_b.jpg	0.081	Negatives
<input checked="" type="checkbox"/>	10538921244_4f214545b7_b.jpg	Negatives/10538921244_4f214545b7_b.jpg	0.054	Negatives
<input checked="" type="checkbox"/>	1265166_9f83a4f57d_b.jpg	Negatives/1265166_9f83a4f57d_b.jpg	0.057	Negatives
<input checked="" type="checkbox"/>	14316339702_bcccd9733d_b.jpg	Negatives/14316339702_bcccd9733d_b.jpg	0.080	Negatives
<input checked="" type="checkbox"/>	15200382305_9eea27f53b_b.jpg	Negatives/15200382305_9eea27f53b_b.jpg	0.059	Negatives

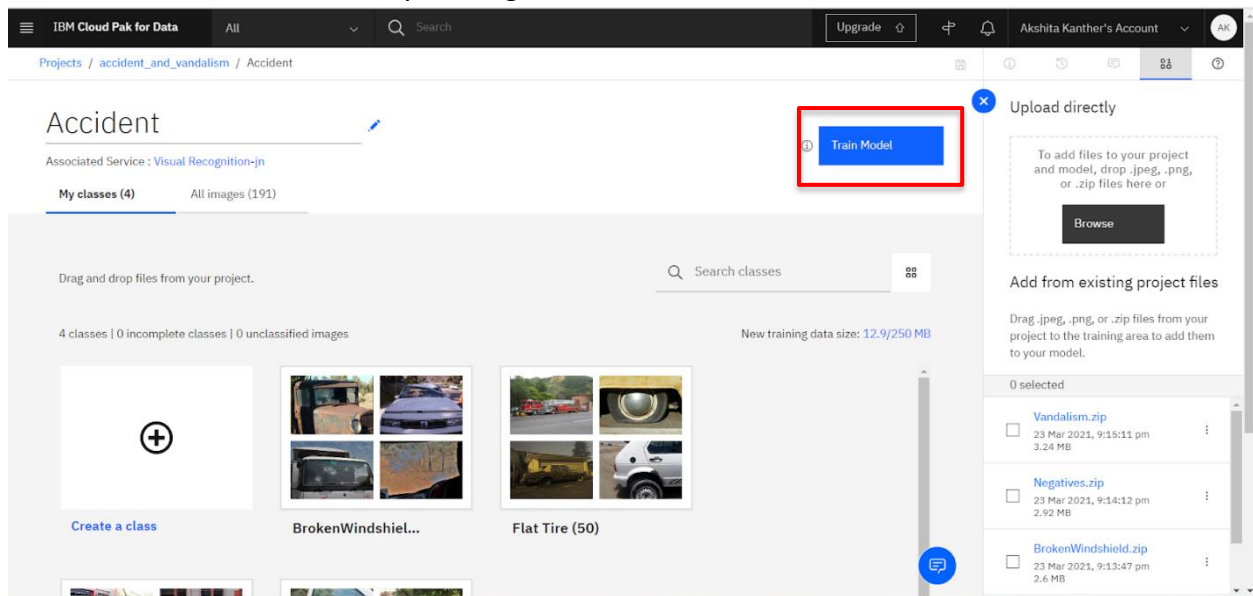
8. Then we will remove the classes which are not required like “Unclassified” and “Negatives”.

The first screenshot shows the main project view for 'accident_and_vandalism / Accident'. It displays 6 classes: 'Unclassified (7)', 'BrokenWindshiel...', 'Flat Tire (50)', 'Negative (43)', and 'Negatives (0)'. The 'Unclassified' and 'Negatives' classes are highlighted with red boxes. A 'Delete image' dialog box is shown, asking for confirmation to delete 7 images.

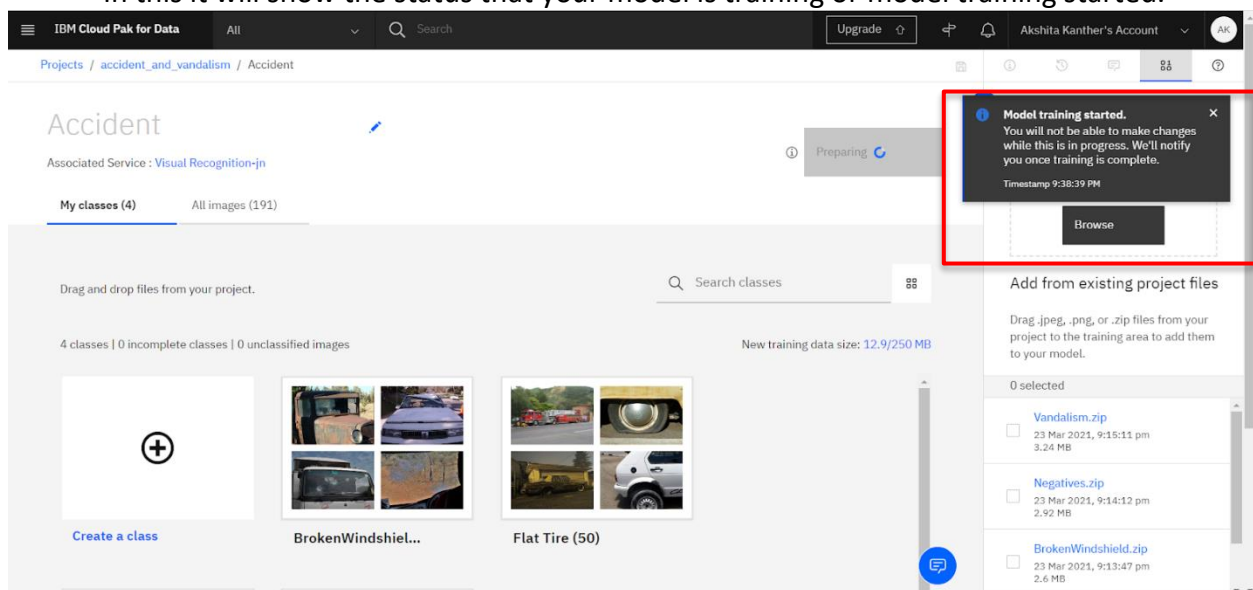
The second screenshot shows the 'Unclassified' class view. A 'Delete image' dialog box is shown, asking for confirmation to delete 7 images.

The third screenshot shows the 'BrokenWindshiel...' class view. A 'Delete Negatives' dialog box is shown, asking for confirmation to delete 1 class and its associated images. The dialog also includes a toggle for 'Also delete the images in this class' which is currently turned off.

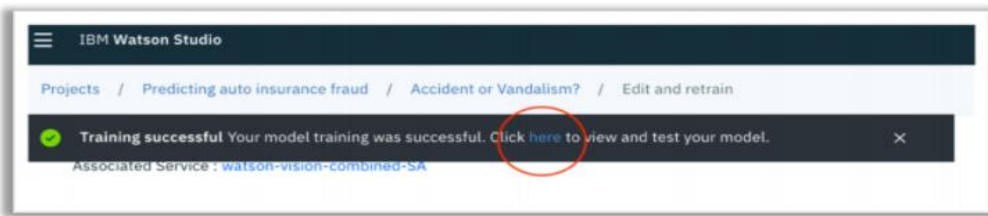
9. Then we will Train Model by clicking on “Train model”



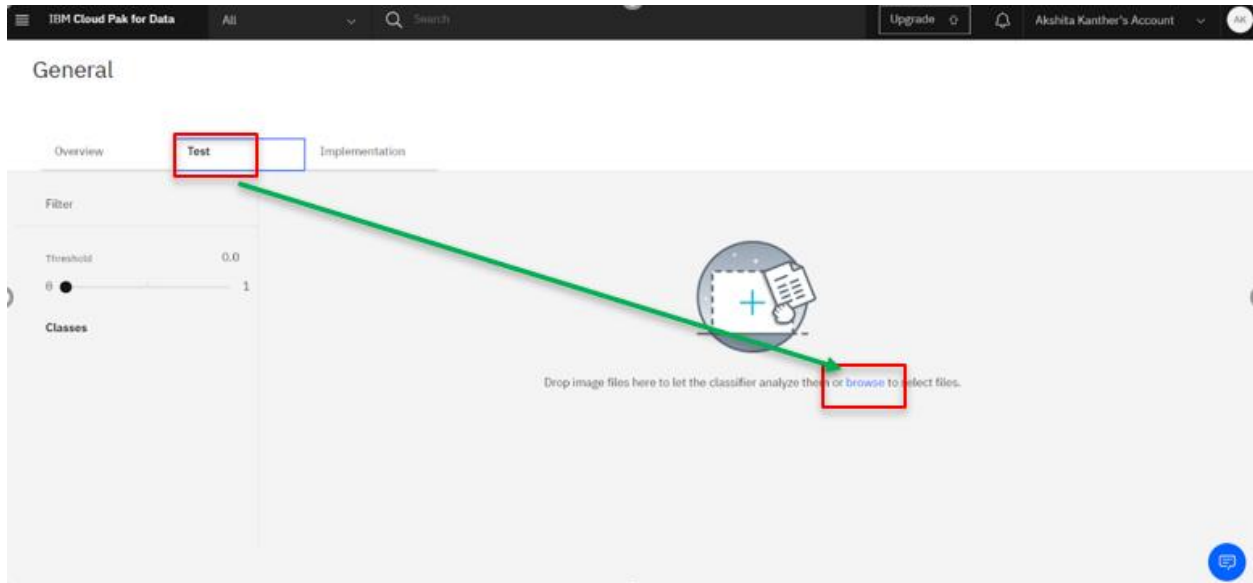
- In this it will show the status that your model is training or model training started.



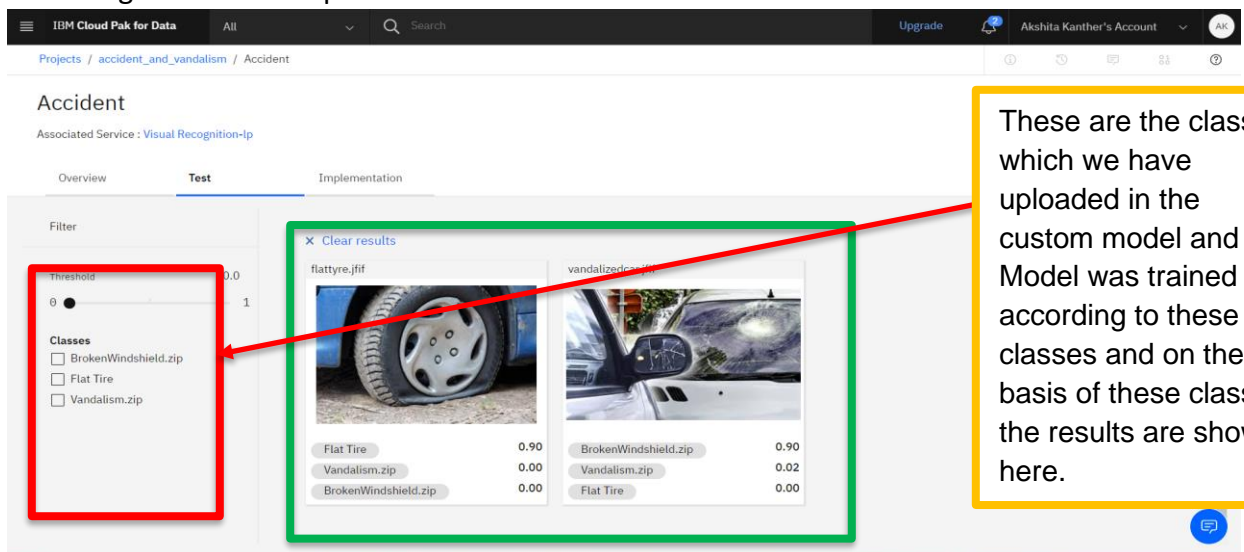
10. After the training of model is complete it , then in the message bar click here link to test the model.



11. Then go to Test Section in that upload the images of vandalized cars and broken windshield from google and then that model will test and classify the images uploaded and show the results according to the classes which are present or added in the model.



12. And this is the way the results are shown and if you want to try or test on other images then go on clear results and from browse again add new images and it will classify the images according to the classes present in that model.



These are the classes which we have uploaded in the custom model and Model was trained according to these classes and on the basis of these classes the results are shown here.

V.Observations/Discussions (For applied/experimental sciences/materials-based labs): After conducting the above practical, we came to know about the IBM Visual Recognition service. We were able to train the model for our dataset according to the requirement of the customer.

Learning outcomes (What I have learnt): After conducting the practical, we now know how to work on IBM Cloud and its Visual Recognition service. We came to know how to work on a data set, how to classify the images and train the model according to classes needed and show results according to that classes.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			