

# **Image Recognition with IBM Cloud Visual Recognition**

## **Phase-3**

### **INTRODUCTION:**

Creating an image recognition system using IBM Cloud Visual Recognition is a powerful way to harness the capabilities of artificial intelligence. To get started, create an IBM Cloud account, set up the Visual Recognition service, and obtain the necessary API keys. Additionally, design a straightforward web interface that allows users to upload images and receive AI-generated captions, making the application more interactive and user-friendly.

### **IBM Cloud Account:**

Create an IBM Cloud Account, and creating login with the IBMid.

And click continue.

Enter your password, then click login.

The homepage of IBM Cloud will be

The screenshot shows the IBM Cloud dashboard. At the top, there's a navigation bar with links for Catalog, Manage, and a user profile. Below the navigation is a search bar and a 'Create resource' button. The main content area is divided into several sections:

- For you:** A 'Build' section with a large blue card and smaller cards for 'Get Started with Watson Studio', 'Use Watson Studio', 'Build with Watson', 'Use Watson Assistant', and 'Get started with machine learning + Watson Studio'.
- News:** A card with news items about data sovereignty, instant replication, and customer experience.
- Recent support cases:** A card with a link to view all.
- Planned maintenance:** A card with a link to view all.
- IBM Cloud status:** A world map showing regional status information.

## Set up the Visual Recognition service:

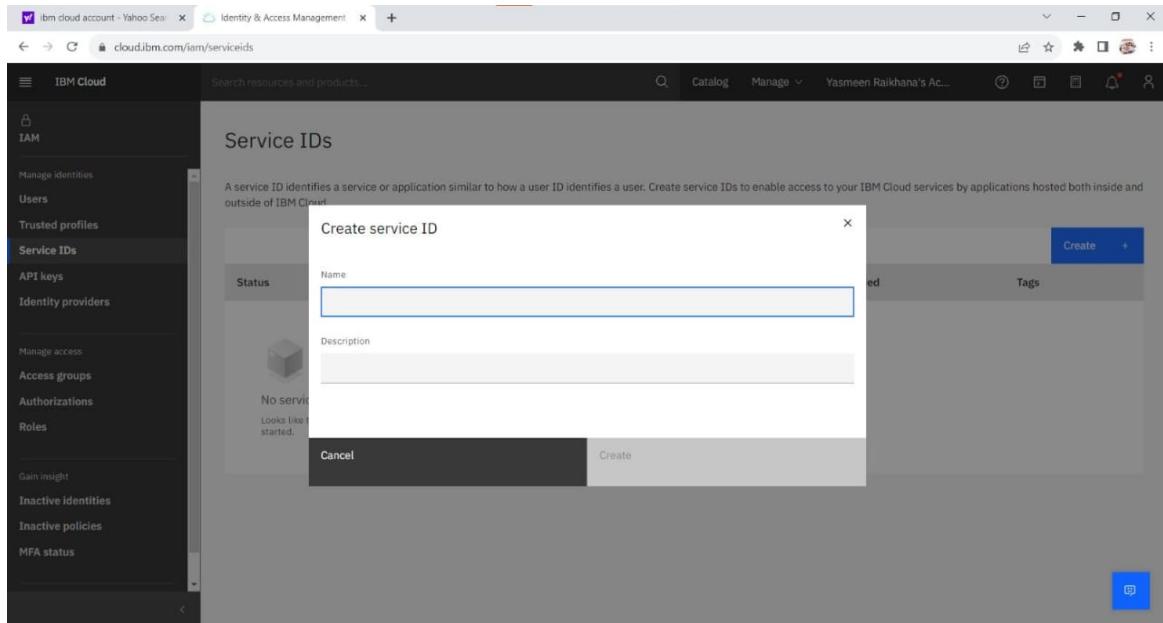
In the homepage of the IBM account, Click on the manage.

The screenshot shows the IBM Cloud dashboard with the 'Manage' dropdown menu open. The 'Access (IAM)' option is highlighted, indicating it is the current section being discussed.

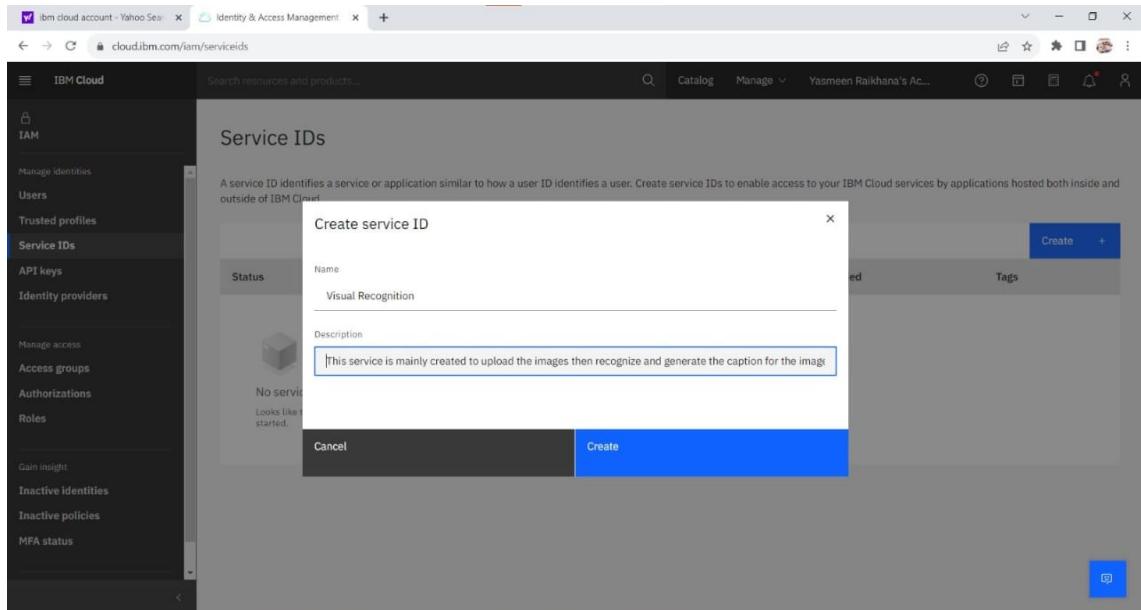
Click on the Access(IAM). Then click on the Service IDs.

The screenshot shows the 'Service IDs' page under the IAM section of the Identity & Access Management interface. A message indicates there are no service IDs listed, and a 'Create' button is available to start creating them.

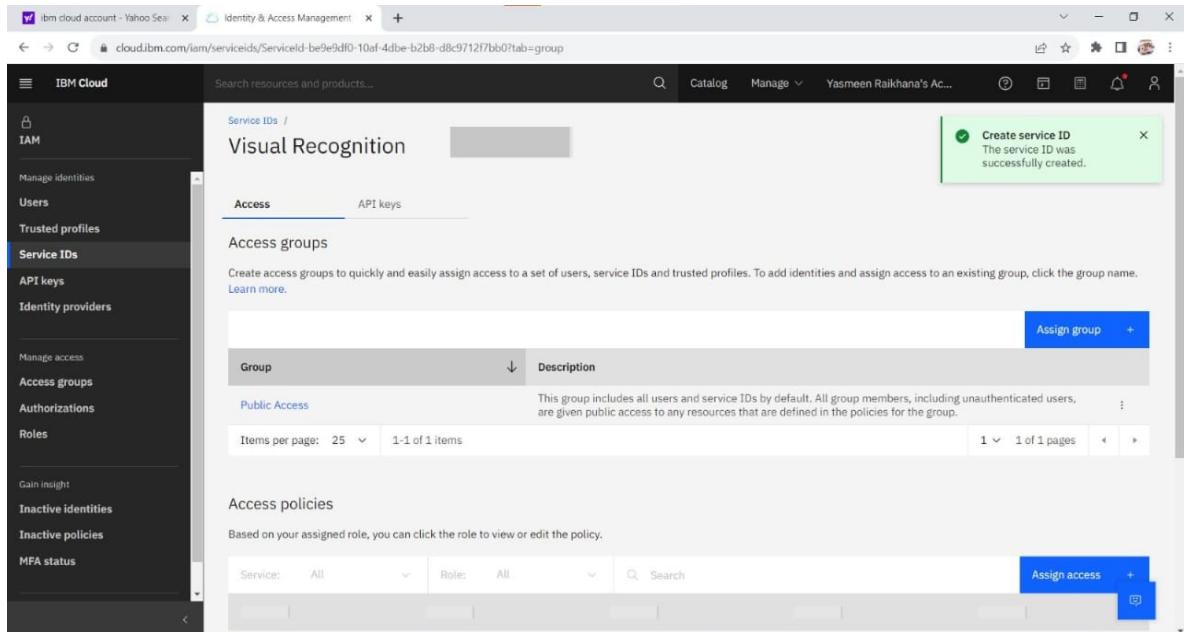
In this Click on Create button, for creation of service.



Enter the name as visual recognition and the description for the service, then click on Create button to create the service.

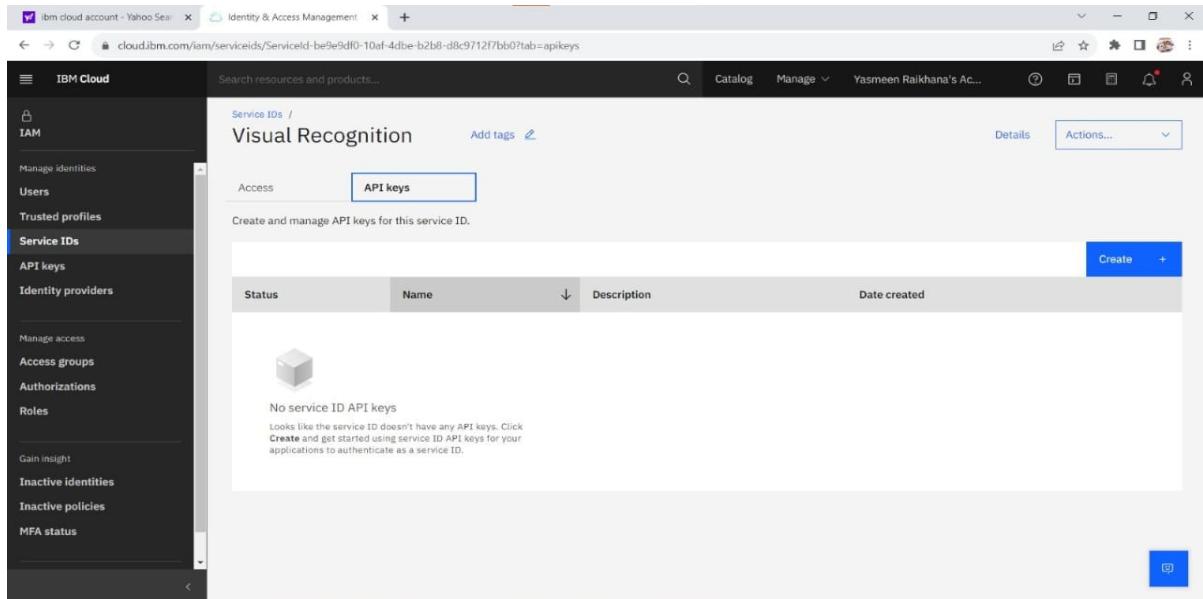


Click the create button and then Visual Recognition service has been created.



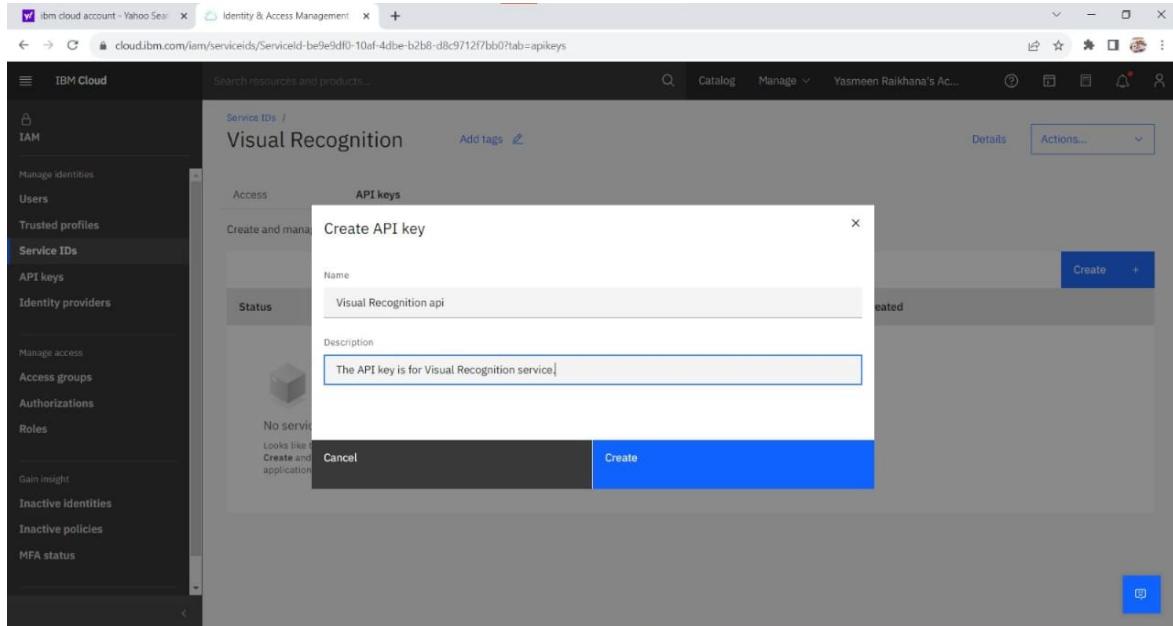
The screenshot shows the IBM Cloud Identity & Access Management interface. On the left, a sidebar lists various IAM management options like Manage identities, Users, Trusted profiles, Service IDs, API keys, and Identity providers. The 'Service IDs' option is selected. In the main panel, under 'Visual Recognition', the 'Access' tab is active. A green success message box at the top right says 'Create service ID' and 'The service ID was successfully created.' Below this, there's a table for 'Access groups' with one entry: 'Public Access'. At the bottom, there's a section for 'Access policies' with a search bar and an 'Assign access' button.

Click on the API keys, to obtain the API key for the Visual Recognition Service.

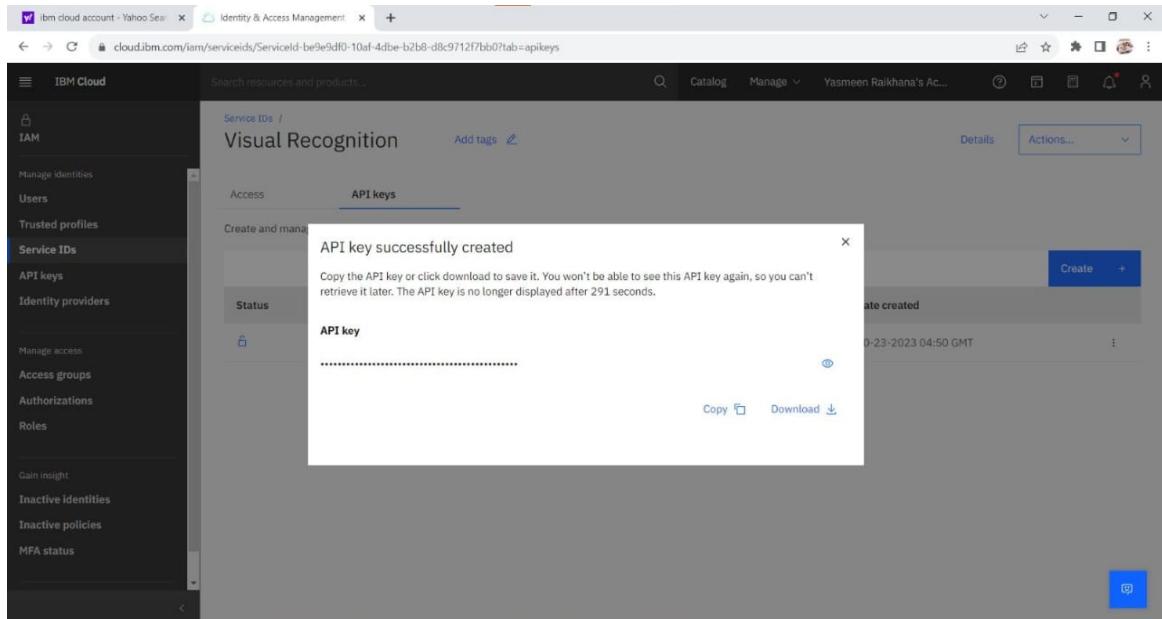


The screenshot shows the same IBM Cloud Identity & Access Management interface, but the 'API keys' tab is now active in the main panel under 'Visual Recognition'. A blue 'Create' button is visible at the top right of the table area. The table below shows no existing API keys, with a note: 'Looks like the service ID doesn't have any API keys. Click Create and get started using service ID API keys for your applications to authenticate as a service ID.'

Click the create button. Then enter the name and the description to create the API key and click on the Create button.



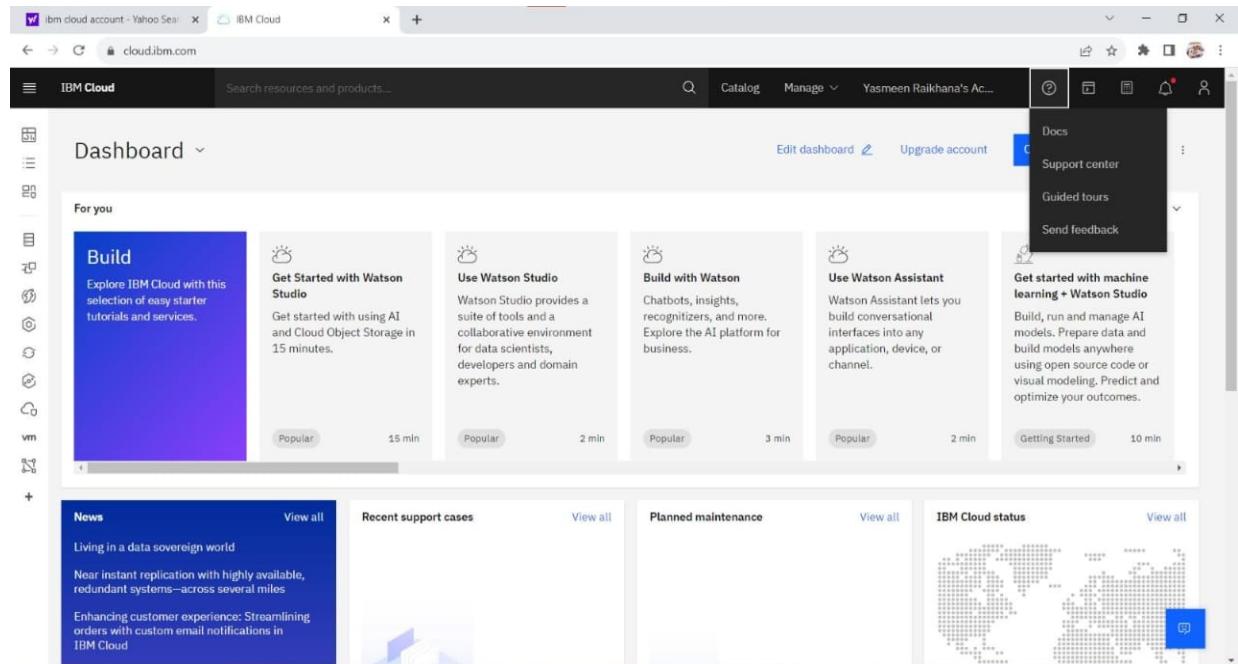
The API key has been successfully created for the Visual Recognition Service.



The API key has obtained.

## Visual Recognition Service document.

Open the home page of your IBM account, click on the help.



click on the docs then Click on the search button at the drop-down menu, near the user account.

The screenshot shows the IBM Cloud Docs homepage. At the top, there's a navigation bar with links for Cloud, Products, Solutions, Pricing, Docs (which is underlined), Support, and Explore more. Below the navigation is a search bar with the placeholder "Search IBM Cloud documentation" and a "Refine with search operators" link. To the right of the search bar is a large graphic featuring a blue cloud, a pink book with a magnifying glass, a lightbulb, and a server tower. The main content area has sections for "Solutions", "Product guides", "Tutorials", "API & SDK reference", and "FAQs".

Then search for the Visual Recognition.

The screenshot shows the IBM Cloud Docs homepage with a search query "visual recognition" entered into the search bar. The search results are displayed below the search bar, listing items such as "visual recognition", "visual recognition demo", "visual recognition project", "visual recognition api", "visual recognition case study", "visual recognition model", and "visual recognition software". The rest of the page layout is identical to the first screenshot, including the navigation bar, search bar, and main content sections.

Open the DocumentAnalytics.VisualRecognitionClassifier actions

The screenshot shows a web browser window with three tabs open: 'ibm cloud account - Yahoo Search', 'IBM Cloud', and 'IBM Search'. The 'IBM Search' tab is active, displaying search results for 'visual recognition'. The results include a main article titled 'Visual Recognition with IBM Watson' and several links to 'DocumentAnalytics.VisualRecognitionClassifier actions'. The page has a standard header with the IBM logo and navigation links for 'All', 'Products & services', 'Downloads', 'Learning', and 'Support & documentation'. A sidebar on the right contains a 'Site feedback' link.

**Visual Recognition with IBM Watson**  
community.ibm.com/community/user/watsonstudio/blogs/lommy-gerald1/2021/04/01/visual-recogni...  
Visual recognition with IBM Watson refers to a unique process for analyzing various kinds of images. It is worthwhile to note that the IBM Watson Visual Recognition service has been particularly developed for this purpose.

**DocumentAnalytics.VisualRecognitionClassifier actions**  
ibm.com/docs/en/datacap/9.1.5  
DocumentAnalytics.VisualRecognitionClassifier actions Visual Recognition Classifier is an IBM Watson service, which can be trained to classify image-based documents. You can use the default classifier to do the classification, or you can first create and train a custom classifier by using some representative set of training...

**DocumentAnalytics.VisualRecognitionClassifier actions**  
ibm.com/docs/en/datacap/9.1.4  
DocumentAnalytics.VisualRecognitionClassifier actions Visual Recognition Classifier is an IBM Watson service, which can be trained to classify image-based documents. You can use the default classifier to do the classification, or you can first create and train a custom classifier by using some representative set of training...

**DocumentAnalytics.VisualRecognitionClassifier actions**  
[https://www.ibm.com/docs/en/datacap/9.1.5?topic=actions-documentanalyticsvisualrecognitionclassifier&mhsrc=ibmsearch\\_a&mhq=visual%20recognition](https://www.ibm.com/docs/en/datacap/9.1.5?topic=actions-documentanalyticsvisualrecognitionclassifier&mhsrc=ibmsearch_a&mhq=visual%20recognition)

The main page will be as follows.

The screenshot shows a web browser window displaying the IBM Datacap documentation for 'DocumentAnalytics.VisualRecognitionClassifier actions'. The page is part of the 'Documentation' section for version 9.1.5. The left sidebar lists various actions such as 'VisualRecogClassify', 'VisualRecogSetCredentials', 'VisualRecogSetMinConfidence', 'VisualRecogSetURL', 'VisualRecogTrain', and 'DocumentAnalytics.NaturalLanguageClassifie...'. The main content area includes a brief description of the Visual Recognition Classifier, information about training classifiers, and a list of properties and methods. Each method is described with its purpose and parameters.

**DocumentAnalytics.VisualRecognitionClassifier actions**

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Visual Recognition Classifier is an IBM Watson service, which can be trained to classify image-based documents. You can use the default classifier to do the classification, or you can first create and train a custom classifier by using some representative set of training data. The uploaded training data must contain at least two compressed (.zip) files, each containing sample images of a particular classes. Once the classifier has been trained, you can give it other similar documents and classifier attempts to classify them according to its training. The Classifier returns a confidence score that is associated with the classification.

Properties and methods:

- **VisualRecogClassify**  
Classifies image by using IBM Watson Visual Recognition API.
- **VisualRecogSetCredentials**  
Sets the credentials to be used to do the classification.
- **VisualRecogSetMinConfidence**  
Sets the minimum confidence score for classification matching.
- **VisualRecogSetURL**  
Updates the new URL to be used to do the classification.

The screenshot shows a browser window displaying the IBM Documentation for the VisualRecogClassify action. The URL is [ibm.com/docs/en/datacap/9.1.5?topic=actions-documentanalyticsvisualrecognitionclassifier&mhsrc=ibmsearch\\_a&mhq=visual%20recognition](https://ibm.com/docs/en/datacap/9.1.5?topic=actions-documentanalyticsvisualrecognitionclassifier&mhsrc=ibmsearch_a&mhq=visual%20recognition). The page title is "DocumentAnalytics.VisualRecognitionClassifier actions". The left sidebar lists various actions under DocumentAnalytics, including VisualRecogClassify, VisualRecogSetCredentials, VisualRecogSetMinConfidence, VisualRecogSetURL, and VisualRecogTrain. The main content area describes the VisualRecogClassify action, which classifies images using the IBM Watson Visual Recognition API. It includes sections for parameters, syntax, and returns. A note at the bottom states: "While IBM values the use of inclusive language, terms that are outside of IBM's direct influence, for the sake of maintaining user understanding, are sometimes required. As other industry leaders join IBM in embracing the use of inclusive language, IBM will continue to update the documentation to reflect those changes." The footer contains links to Contact IBM, Privacy, Terms of use, Accessibility, Cookie Preferences, and IBM Documentation Help.

## This is VisualRecogClassify

The screenshot shows a browser window displaying the VisualRecogClassify action details. The URL is [ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogclassify](https://ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogclassify). The page title is "VisualRecogClassify". The left sidebar lists various actions under DocumentAnalytics, including VisualRecogClassify, VisualRecogSetCredentials, VisualRecogSetMinConfidence, VisualRecogSetURL, and VisualRecogTrain. The main content area describes the VisualRecogClassify action, which classifies images by using the IBM Watson Visual Recognition API. It includes sections for Syntax, Parameters, and Returns. The Syntax section shows the code: `bool VisualRecogClassify (string ClassifierName)`. The Parameters section lists `string ClassifierName` as the name of the Classifier to be used. The Returns section states that it returns `True`, if the action succeeds. Otherwise, `False`.

The screenshot shows a browser window with the URL [ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogclassify](https://ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogclassify). The page is titled "VisualRecogClassify - IBM Documentation". The left sidebar lists "IBM Datacap" and "Change version" (9.1.5). Under "DocumentAnalytics actions", the "VisualRecogClassify" section is selected. The main content area is titled "Level" and describes the action as identifying a page using Watson Recognition technology. It includes sections for "Details", "Example" (with code snippets), and "ClassifierName" as a smart parameter.

## This is VisualRecogSetCredentials

The screenshot shows a browser window with the URL [ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogsetcredentials](https://ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogsetcredentials). The page is titled "VisualRecogSetCredentials - IBM Documentation". The left sidebar lists "IBM Datacap" and "Change version" (9.1.5). Under "DocumentAnalytics actions", the "VisualRecogSetCredentials" section is selected. The main content area is titled "VisualRecogSetCredentials" and provides information about setting credentials for classification. It includes sections for "Syntax" (with code snippet), "Parameters" (describing APIKey as a Smart Parameter), and "Returns" (stating True if successful, False otherwise).

The screenshot shows a browser window with the URL [ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogsetcredentials](https://ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogsetcredentials). The page is titled "IBM Datacap" and "Documentation". The main content area displays the syntax for the `VisualRecogSetCredentials` action:

```
bool VisualRecogSetCredentials (string APIKey)
```

**Parameters**

string **APIKey** can be Smart Parameters.

**Returns**

**True**, if the action succeeds. Otherwise, **False**.

**Level**

Batch level.

**Details**

This action sets the credentials to be used to do the classification. The APIKey can be Smart Parameters.

**Example**

```
VisualRecogSetURL("@APPVAR(values/gen/url)")  
VisualRecogSetCredentials("@APPVAR(values/adv/VRAPICKey)")  
VisualRecogClassify("@APPVAR(values/gen/VRClassifierName)")
```

## This is VisualRecogSetMinConfidence

The screenshot shows a browser window with the URL [ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogsetminconfidence](https://ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogsetminconfidence). The page is titled "IBM Datacap" and "Documentation". The main content area displays the syntax for the `VisualRecogSetMinConfidence` action:

```
bool VisualRecogSetMinConfidence (string MinScore)
```

**Parameters**

string **MinScore** - Minimum score for classification matching. Valid values are fractional values between zero and one (for example: 0.0 and 1.0).

**Returns**

**True**, if the parameter value is between the valid range of zero to one (0.0 and 1.0) Otherwise, **False**.

The screenshot shows a browser window displaying the IBM Datacap documentation. The URL is [ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogsetminconfidence](https://ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogsetminconfidence). The page title is "VisualRecogSetMinConfidence". The left sidebar shows the navigation menu for "IBM Datacap" version 9.1.5, with "DocumentAnalytics actions" expanded. The "VisualRecogSetMinConfidence" action is selected. The main content area starts with a "Returns" section, followed by a note about the parameter value being between 0.0 and 1.0. It then has a "Level" section indicating "All level". Below that is a "Details" section with a note about Classify searching for a classification match. It also mentions setting up the parameter in the Taskmaster Application Manager. A "Example" section contains the following code:

```
VisualRecogSetCredentials("@APPVAR(values/adv/VRAPICKey)")  
VisualRecogSetMinConfidence(0.9)  
VisualRecogClassify("@APPVAR(values/gen/VRclassifierName")
```

## This is VisualRecogSetURL

The screenshot shows a browser window displaying the IBM Datacap documentation. The URL is [ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogseturl](https://ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogseturl). The page title is "VisualRecogSetURL". The left sidebar shows the navigation menu for "IBM Datacap" version 9.1.5, with "DocumentAnalytics actions" expanded. The "VisualRecogSetURL" action is selected. The main content area starts with a "Syntax" section containing the code "VisualRecogSetURL (string url)". Below that is a "Parameters" section noting that the url can be Smart Parameters. The "Returns" section states that the action succeeds if true, otherwise false. The "Level" section indicates "All level".

The screenshot shows a browser window with the URL [ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogseturl](https://ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogseturl). The page is titled "VisualRecogSetURL (string url)". On the left, there's a sidebar with navigation options like "Change version" (set to 9.1.5), "Show full table of contents" (checked), and "Filter on titles". The main content area starts with a section titled "Parameters" which states "The url can be Smart Parameters". Below it is a "Returns" section stating "True, if the action succeeds. Otherwise, False". A "Level" section indicates "Batch level". The "Details" section notes that this action updates the new URL to be used for classification. An "Example" section contains the following code snippet:

```
VisualRecogSetURL("@APPVAR(values/gen/url)")  
VisualRecogSetCredentials("@APPVAR(values/adv/VRAPIToken")  
VisualRecogClassify("@APPVAR(values/gen/VRClassifierName")
```

## This is VisualRecogTrain

The screenshot shows a browser window with the URL [ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogtrain](https://ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogtrain). The page is titled "VisualRecogTrain". The sidebar is identical to the previous screenshot, showing "Change version" (9.1.5), "Show full table of contents" (checked), and "Filter on titles". The main content area includes a "Syntax" section with the code `bool VisualRecogTrain (string ZIPDirectory, string Name, string deleteExisting)`. Below it is a "Parameters" section. The first parameter, `ZIPDirectory`, is described as a directory where the zip file with training data is stored. It supports Smart Parameters. The second parameter, `Name`, is the classifier name, used for later classification, and also supports Smart Parameters. The third parameter, `deleteExisting`, is a flag to delete an existing classifier with the same name.

The screenshot shows a web browser window with the URL [ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogtrain](http://ibm.com/docs/en/datacap/9.1.5?topic=actions-visualrecogtrain). The page is titled "VisualRecogTrain - IBM Documentation". The left sidebar shows the navigation tree for "IBM Datacap" version 9.1.5, with "VisualRecogTrain" selected. The main content area describes the "VisualRecogTrain" action, which creates or replaces a Visual Recognition Classifier. It mentions that pages in the batch are used as training data. A code example in a black box shows the API call:

```
VisualRecogSetURL("@APPVAR(values/gen/url)")  
VisualRecogSetCredentials("@APPVAR(values/adv/VRAPICKey)")  
VisualRecogTrain("@APPATH(runtime)+\+..\+ZIP","@APPVAR(values/gen/VRClassName)",1)
```

## CONCLUSION:

In conclusion, the process outlined involves starting the development of an image recognition system using IBM Cloud Visual Recognition. This includes creating an IBM Cloud account, setting up the Visual Recognition service, and obtaining the necessary API keys. Additionally, designing a user-friendly web interface for image uploads and AI-generated caption viewing is an essential part of this project. This systematic approach will enable the successful implementation of the image recognition system.