Smart Bridge Internship

Project Report

on

AI Powered News Search App

Done by

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a. Source code

GIT HUB : https://github.com/vishzzl/smartbridgeinternship

INTRODUCTION

1. Overview

The idea is to make finding and consuming news easier than ever, whilst providing an experience that's customized to each reader and supportive of media publications. Artificial Intelligence (AI) is taking the world by storm. This exciting technology an enormous range of applications in many industries. The AI element is designed to learn from what you read to help serve you a better selection of content over time, while the app is presented with a clear and clean layout.Enriched news data can help your application make dynamic connections across current events faster.

2 .Purpose

The purpose of this project is to develop a web application that meets the needs of the user to find the most relevant and recent news articles worldwide and update them regularly.

Since the discovery service is integrated with Slack, a bot is created and this bot gives the search news with a keyword described in search.
In addition, the web application also has the sentiment analyzes of the searched news article and extracts key words and concepts to make it easier for the user to understand the main content of the news which is important .This keyword provides an over view of the news content to the user in short.

Literature Survey

a.Existing Problem:

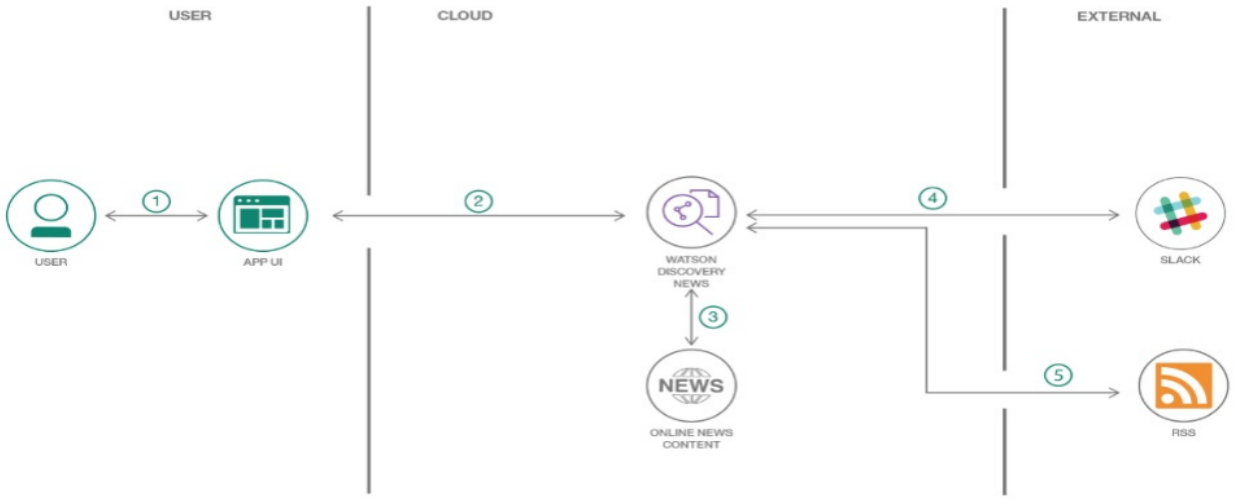
All current news applications does not provide sentimental analysis in most cases. These existing app can make the common man dazed as it contains immense news with multiple functions and inflate design layouts which is not needed here. These existing applications is not meeting the demands users for the latest news users why because they often get results of news from the past days, weeks and months which makes the users more confusing.Also, there is no way in these apps to know what the approximate feeling of the audience is regarding the article or news topic, which makes it less interactive and easy to use.

b.Proposed Solution:

In the proposed solution, we have included the sentimental anaysis. Sentiment analysis is a text analysis method that detects polarity (e.g. a *positive* or *negative* opinion) within text of the news which is helpful for the users .For this project, we have used the Discovery service available in the IBM cloud, creating a web app to get the latest news results is fast . When integrated with Red Node Flow, the IBM Discovery Service can create a simple, engaging, organized user interface that provides users with relevant news articles as Discovery Service continuously crawls the web for the latest news to provide.By adding this emotional analysis, we make the user interface more interactive and easier to understand.

Theoretical Analysis

a.Block Diagram:



The above block diagram demonstrates the user interactions with the user interface created through the red node application which produces the relevant topic about which user would like to get news.
The user interface integrated with the discovery service will use the service to present the most recent and relevant news articles, corresponding to what the user searched for.As our slack is also integrated with discovery, we can use our bot and ask it to search for news by typing in the keyword and the bot searches for news articles related to it.

b. **Software Designing**

The following Task are required to make the complete application with slack bot integration.

Project Tasks

1. Creating and deploying Watson discovery news app locally.
2. Integrating Slack-bot with Watson Discovery.
3. Creating node-red user Interface.
4. Integrating node-red UI with Watson Discovery.

Setting up the development Environtment

1. Installing Git

Install Git on Windows. The most official build is available for download on the Git website. Just go to https://git-scm.com/download/win and the download will start automatically. Note that this is a project called Git for Windows, which is separate from Git itself.

2. Installing Node.js

Introduction

Node.js is a run-time environment which includes everything you need to execute a program written in JavaScript. It's used for running scripts on the server to render content before it is delivered to a web browser.

2.1.1 Download Node.js Installer

In a web browser, navigate to https://nodejs.org/en/download/

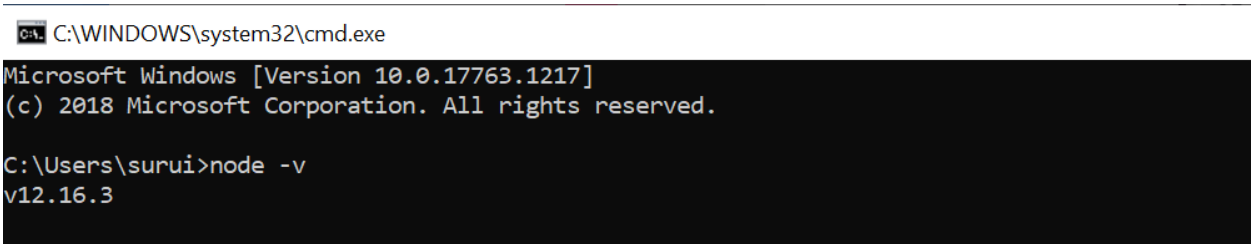
The installer will prompt you for the installation location. Leave the default location, unless you have a specific need to install it somewhere else – then click Next.

Verify Installation

Open a command prompt (or PowerShell), and enter the following:

```
1. node -v
```

The system should display the Node.js version installed on your system



3. Installing Node-RED

Introduction

Node-RED is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways.

It provides a browser-based editor that makes it easy to wire together flows using the wide range of nodes in the palette that can be deployed to its runtime in a single-click.

Installing Node-RED as a global module adds the command node-red to your system path. Execute the following at the command prompt:

```
1. npm install -g --unsafe-perm node-red
```

Adding A collection of Node-RED nodes for IBM Watson services:

```
1. npm install node-red-node-watson
```

fig 2 shows the nodes that will be added

Adding node-red-dashboard module:

This module provides a set of nodes in Node-RED to create a live data dashboard quickly.

```
1. npm install node-red-dashboard
```

fig 1 shows the nodes that will be added

fig 1
node-red
dashboard

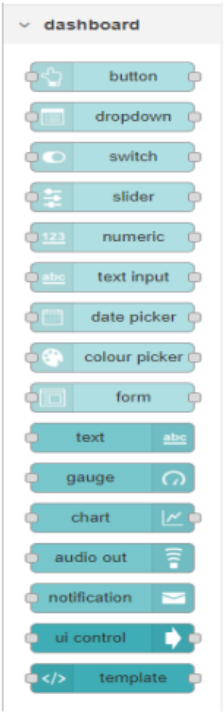
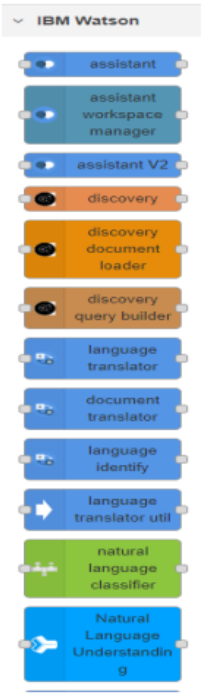


fig 2
watson
discovery
nodes



Task 1 Creating and deploying Watson discovery news app locally.

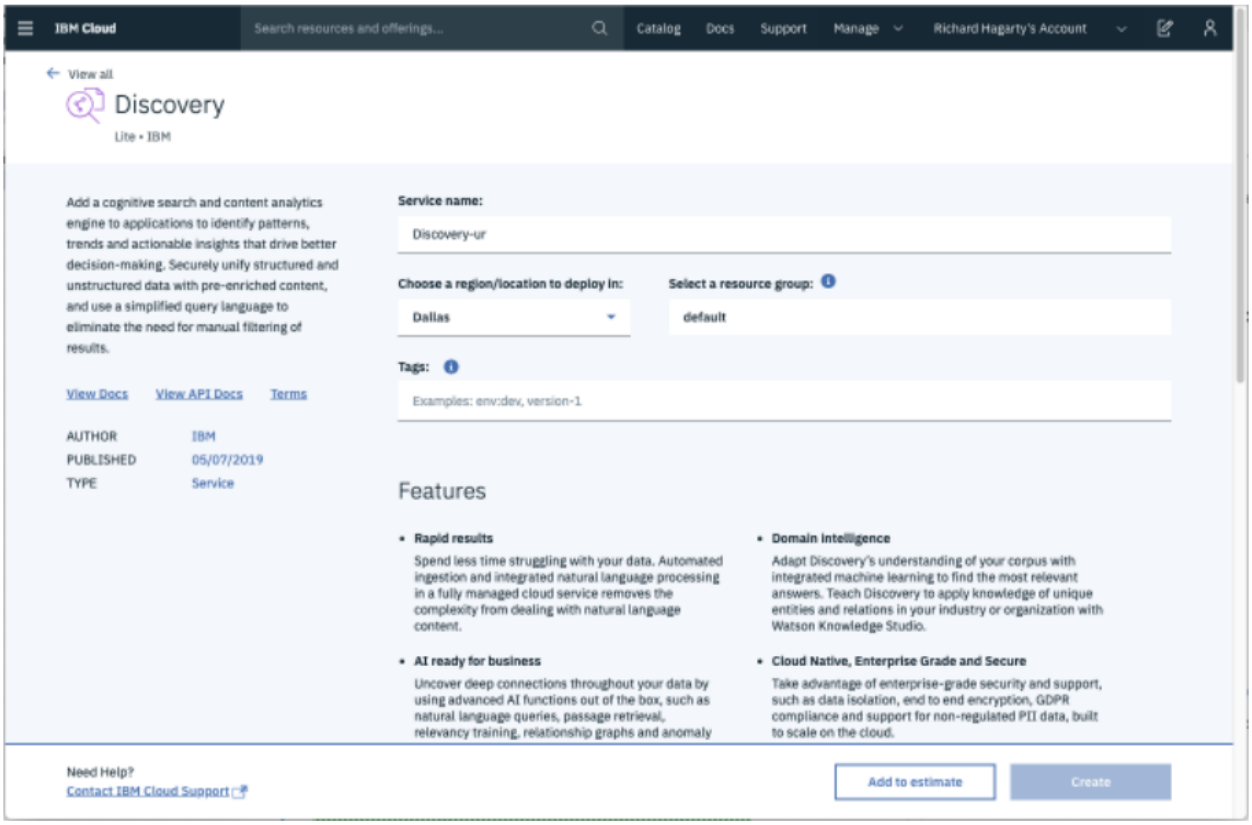
1.1 Creating Watson Discovery service on IBM cloud.

1. Pre-requisites : IBM cloud account.

1. About Watson Discovery: IBM Watson Discovery, we can ingest, normalize, enrich, and search your unstructured data (JSON, HTML, PDF, Word, and more) with speed and accuracy. It packages core Watson APIs such as Natural Language Understanding and Document Conversion along with UI tools that enable you to easily upload, enrich, and index large collections of private or public data.

Step 1: Login to IBM cloud account.
Step 2: Click 'Create resource' on your IBM Cloud dashboard.
Step 3: Search the catalog for Discovery.
Step 4: Click Discovery to launch the create panel.
Step 5: From the panel, enter a unique name, a region and resource group, and a plan type (select the default lite plan). Click Create to create and enable your service..

The next step is to configure your Watson Discovery service.

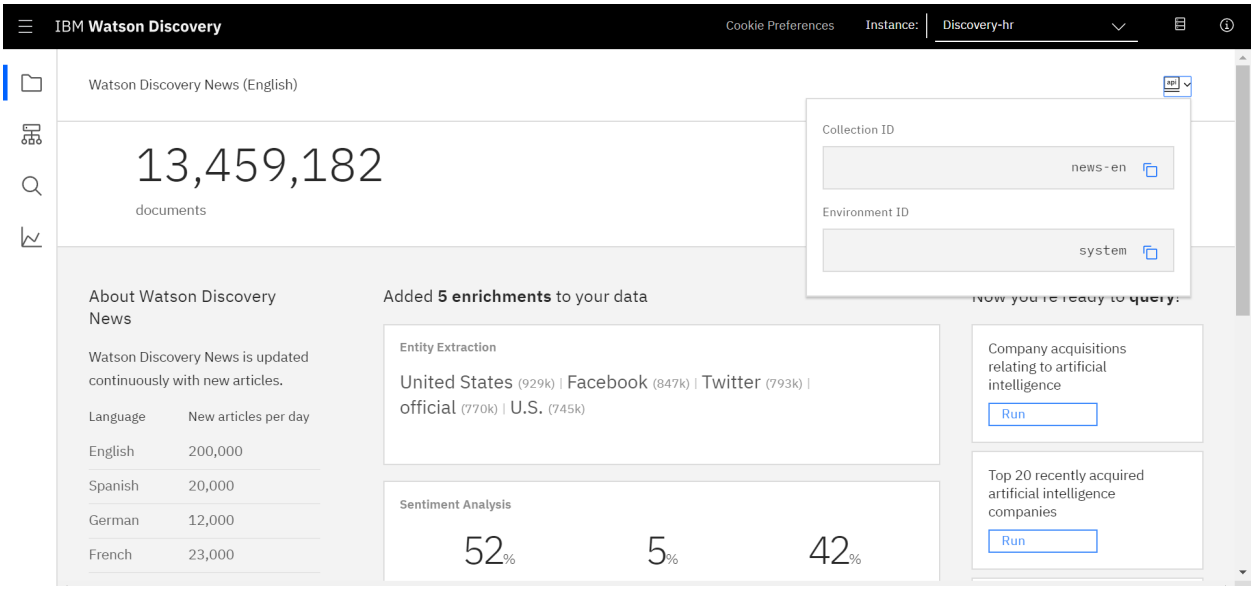


1.2 Configuring Watson Discovery service on IBM cloud.

Step 1: Find the Discovery service in your IBM Cloud Dashboard.
Step 2: Click on the service and then click Launch tool

The Watson Discovery News data collection is already associated with your service. You'll use this collection as the data source for your app. To access the collection, you must find the **COLLECTION_ID** and **ENVIRONMENT_ID.** To find these values:

Step 3: Click on the collection from the Manage Data panel. In this case, it is named Watson Discovery News.
Step 4: Click on the drop-down icon located in the top right corner of the panel.

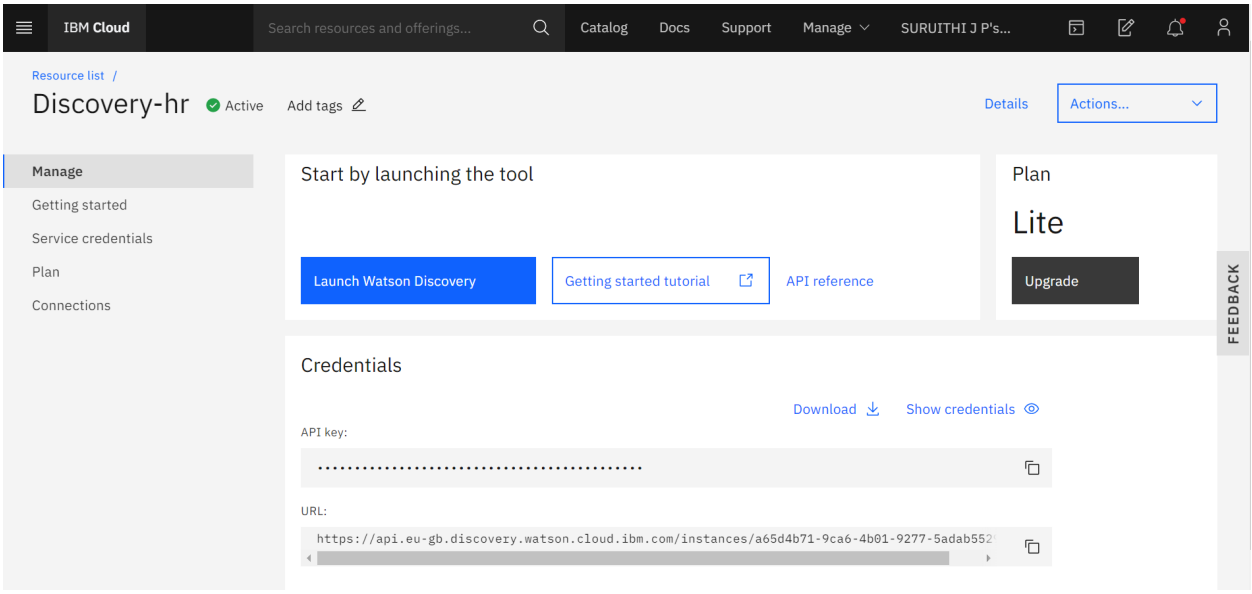


1.3 Saving Watson Discovery credentials.

you'll need to add the Watson Discovery credentials to the .env file Later.

Step 1: Locate the service credentials listed on the home page of your Discovery service.

Step 2: click on the download link and save the file.



1.4 Deploying Watson-discovery-news App locally.

Note: Since deploying App on IBM cloud is not possible with Lite account so we deploy locally on your machines.

Step 1: Use the following command to clone the Watson-discovery-news GitHub repository.

```
1. git clone https://github.com/ibm/watson-discovery-news
```

Step 2 : Use the following command to create .env file

```
1. copy env.sample .env
```

Step 3: Use the following command to Enter Watson discovery service credentials in .env file

step to download credentials here

Copy paste the credentials from downloaded file to .env.

```
1. Notepad .env
```

Step 4: Installing packages and dependencies

A package is a folder containing a program described by a package.json file

This command installs a package, and any packages that it depends on.

```
1. npm install
```

Step 5: Running the deployed app.

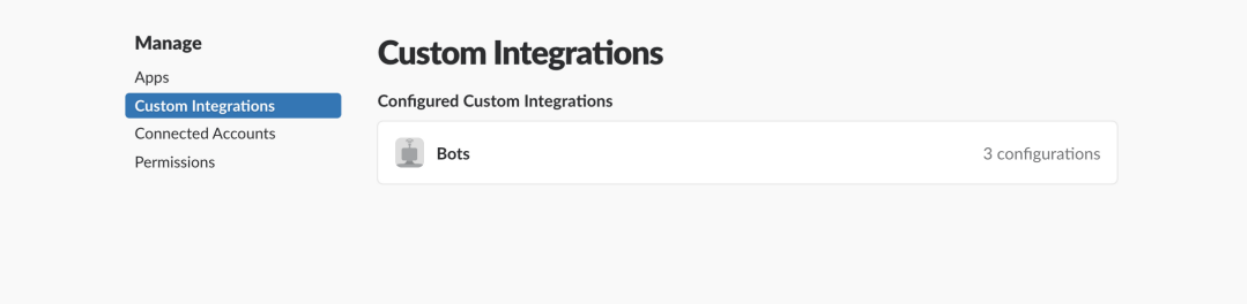
```
1. npm start
```

Task 2 Integrating Slack bot with Watson discovery news app.

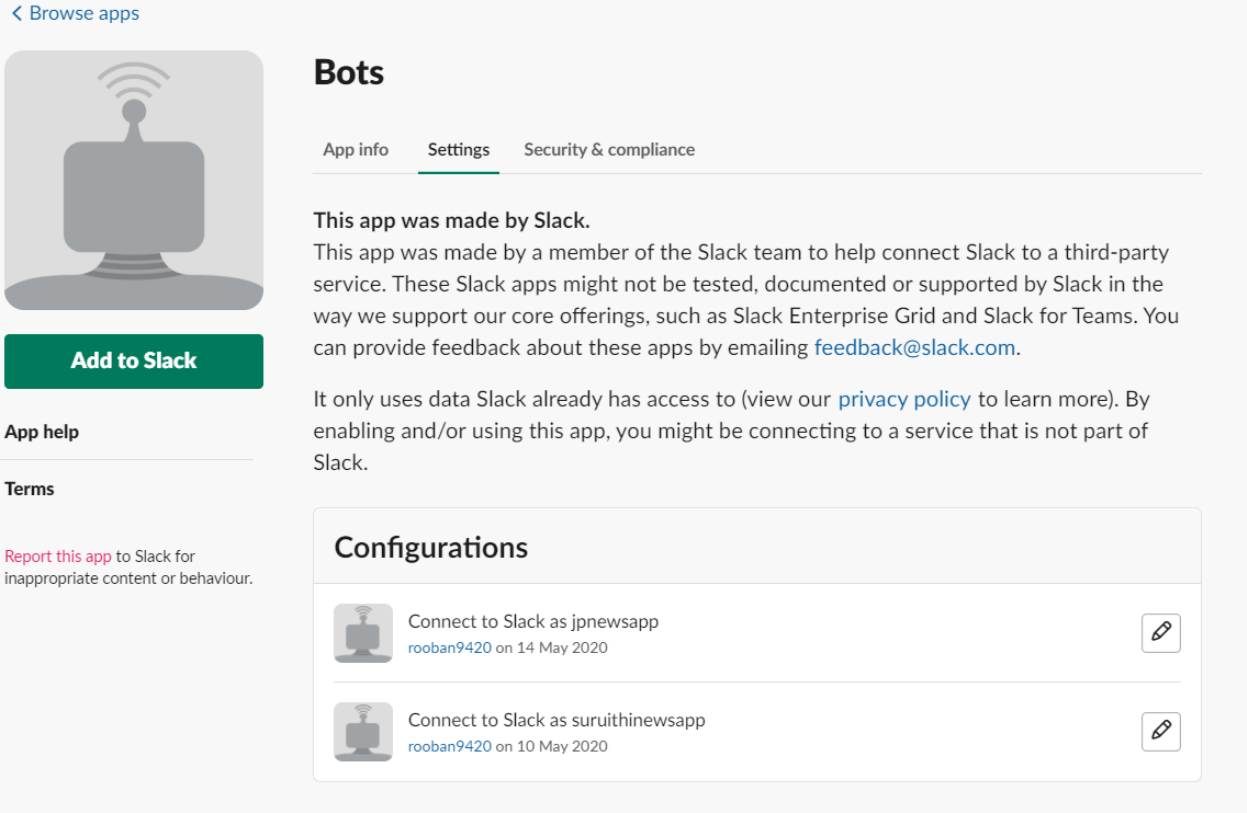
To integrate a new Slack Bot into your existing Slack team, navigate to https://<my.slack.com>/apps/manage/custom-integrations, where <my.slack.com> is the Slack workspace you want to customize.

2.1 Creating slack bot

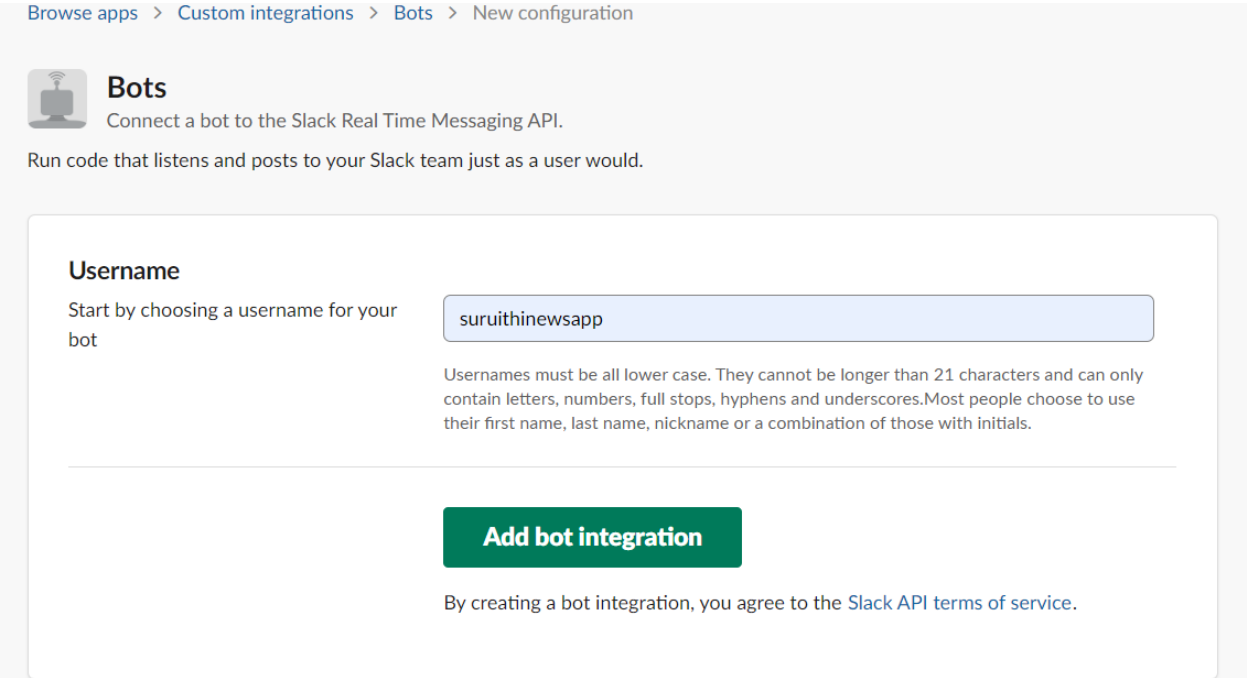
Step 1: From the Cutsom Integrations page, select the Bots option.



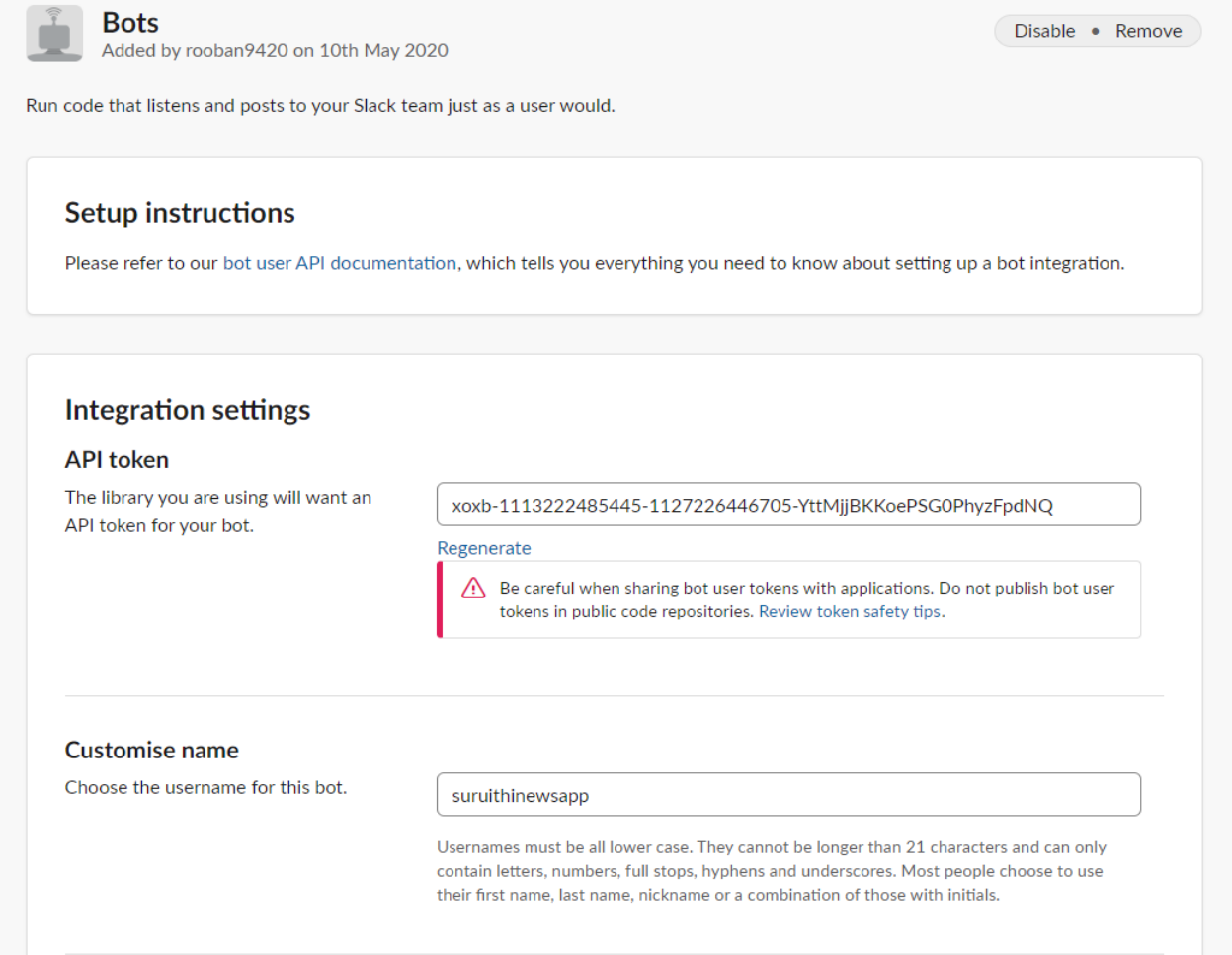
Step 2: To add a new bot, select the Add Configuration button.



Step 3: Enter a username for the bot and click Add bot integration.



Step 4: Once created, save the API Token that is generated.



2.2 Configuring slack bot

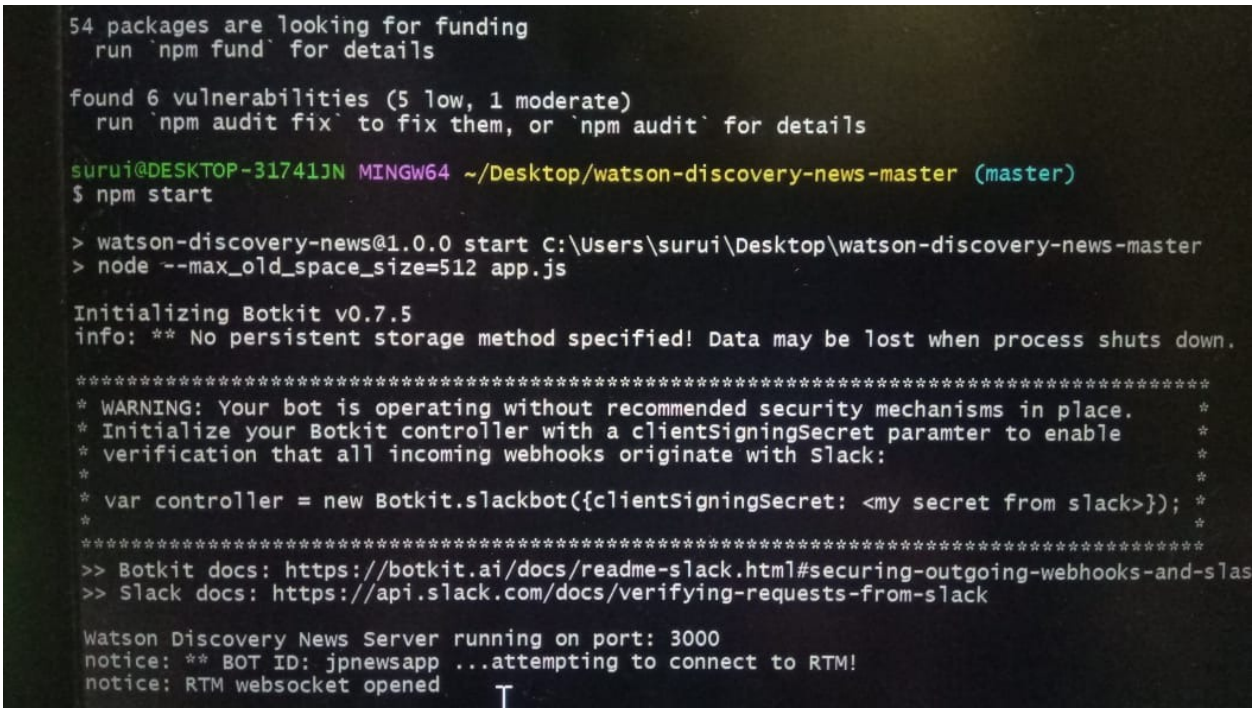
Step 1: Edit the .env file and enter the Slack Bot API Token saved in the previous step.

```
# Slack
SLACK_BOT_TOKEN=<slack_bot_token>
#note paste token without the brackets
```

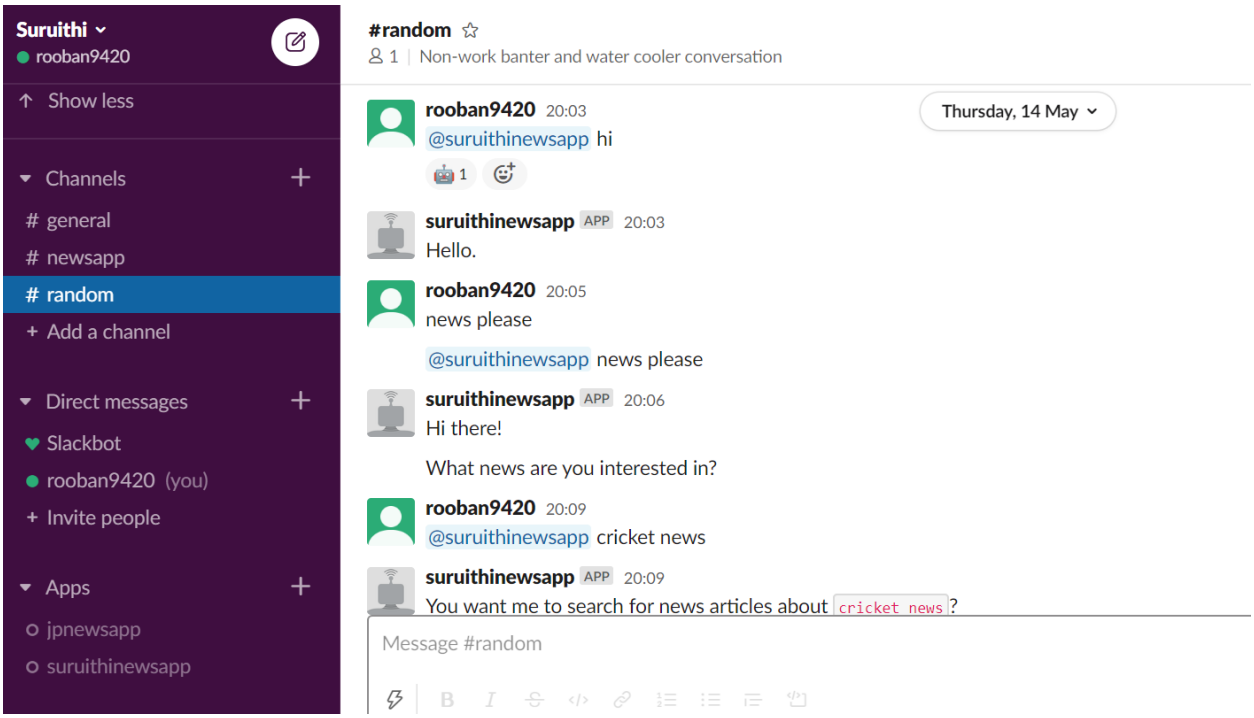
Step 2: Restart application

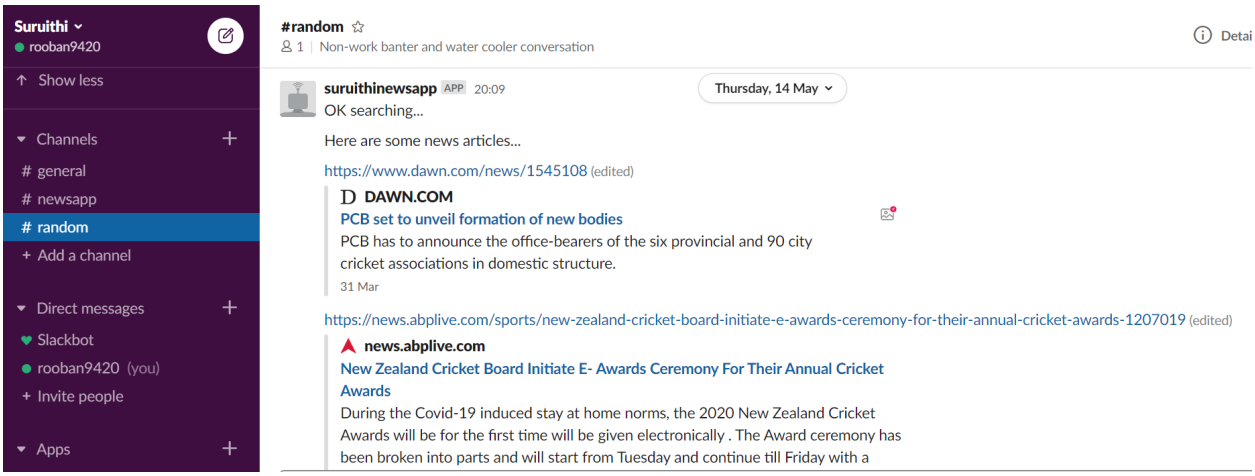
```
1. npm start
```

Sample output on cmd:



Bot on slack:





Task 3 Creating App user interface using node-red

Step 1. Find the Node-RED Starter in the IBM

steps to create a Node-RED Starter application in the IBM Cloud are:

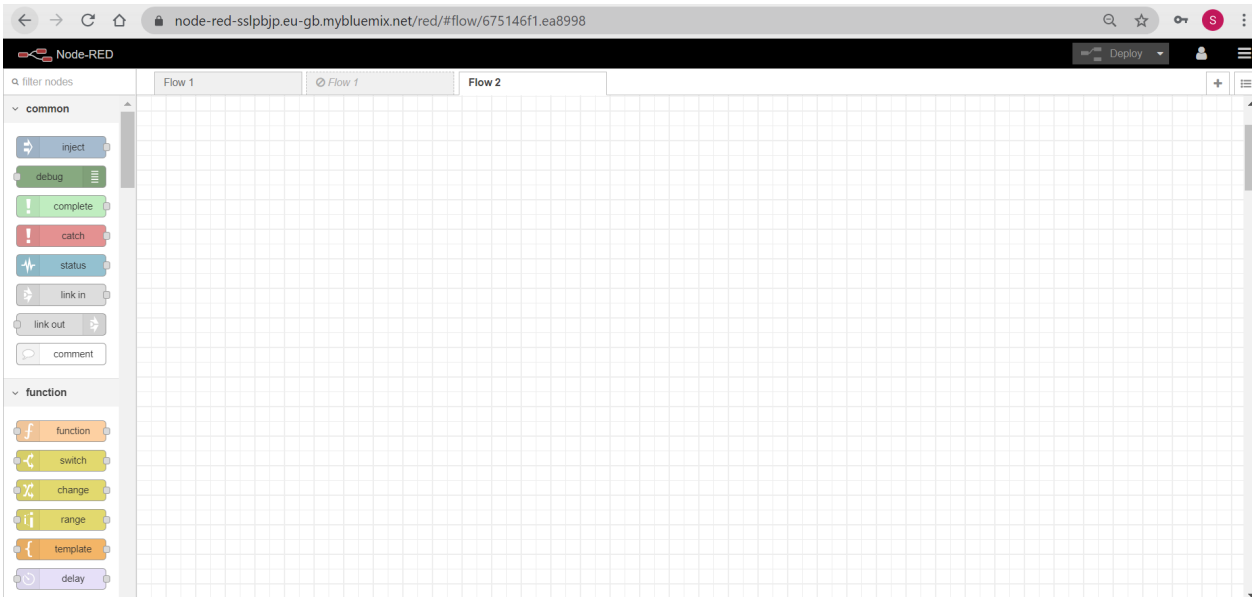
1. Log in to IBM Cloud.
2. Open the catalog and search for **node-red** .
3. Click on the **Software** tab .
4. Click on the **Node-RED App** tile .
5. Click on the **Create app** button .

Step 2. Configure your application

Step 3. Enable the Continuous Delivery feature

Step 4. Open the Node-RED application

Step 5. Configure your Node-RED application

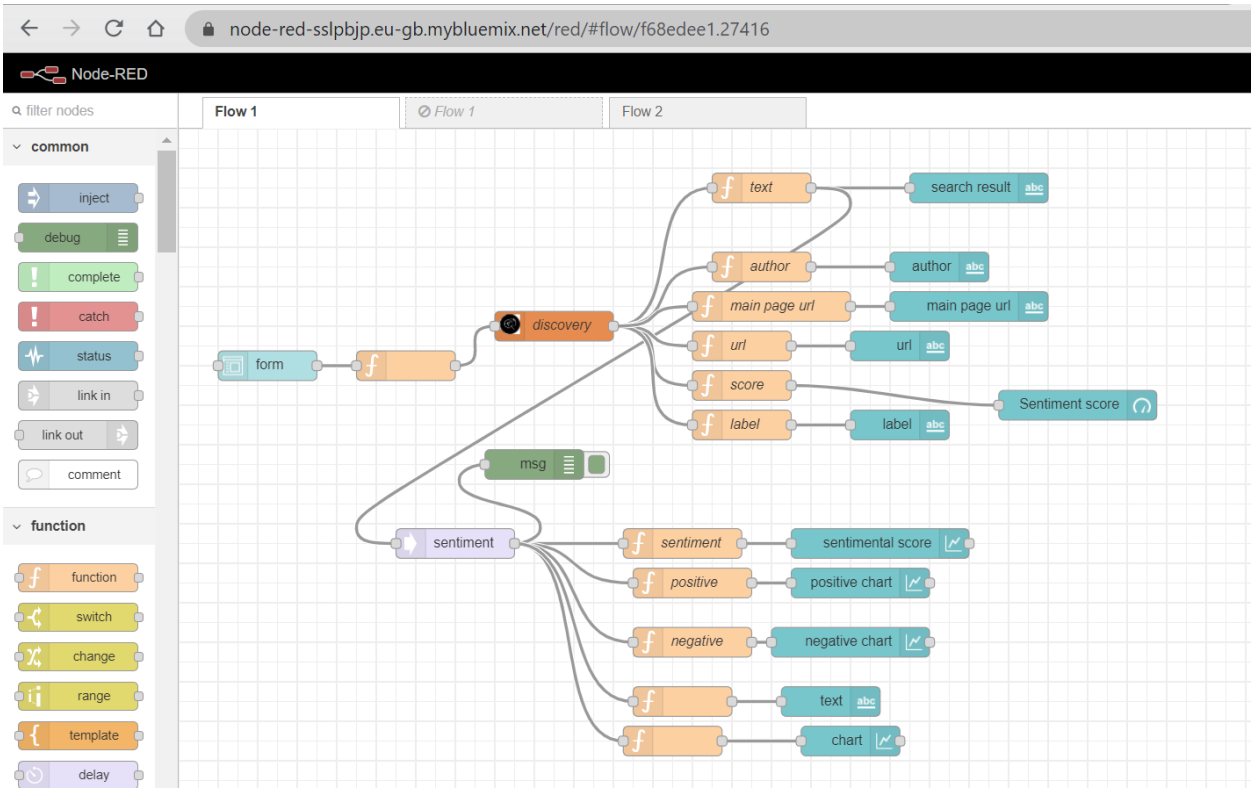


Step 6. Add extra nodes to your Node-RED palette

Step 2: Node-red flow for Watson discovery news

A **flow** is represented as a tab within the editor workspace and is the main way to

organize **nodes**. **Flow** tabs.
Drag and drop the nodes from the nodes from palette then connect using wire

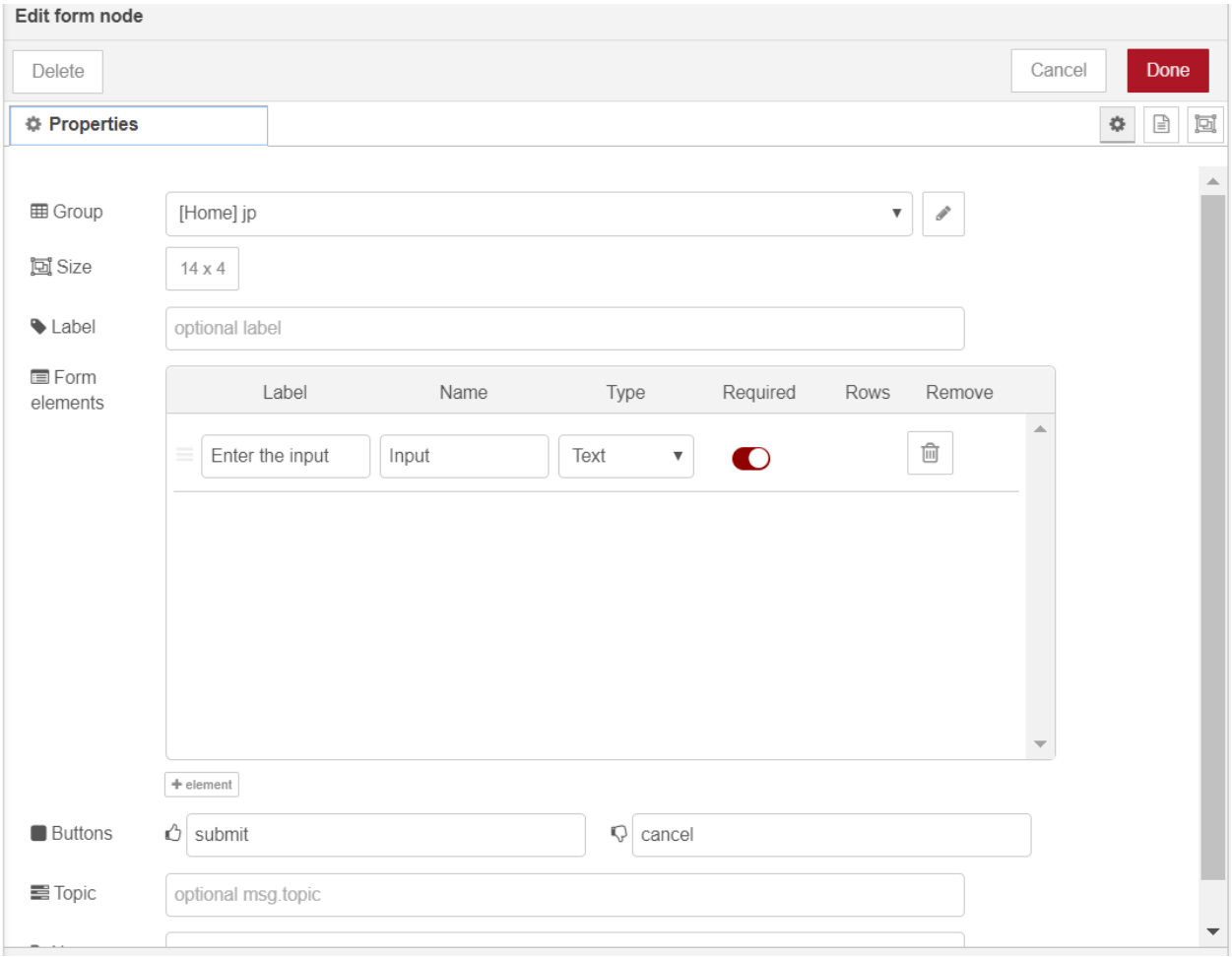


Nodes used:

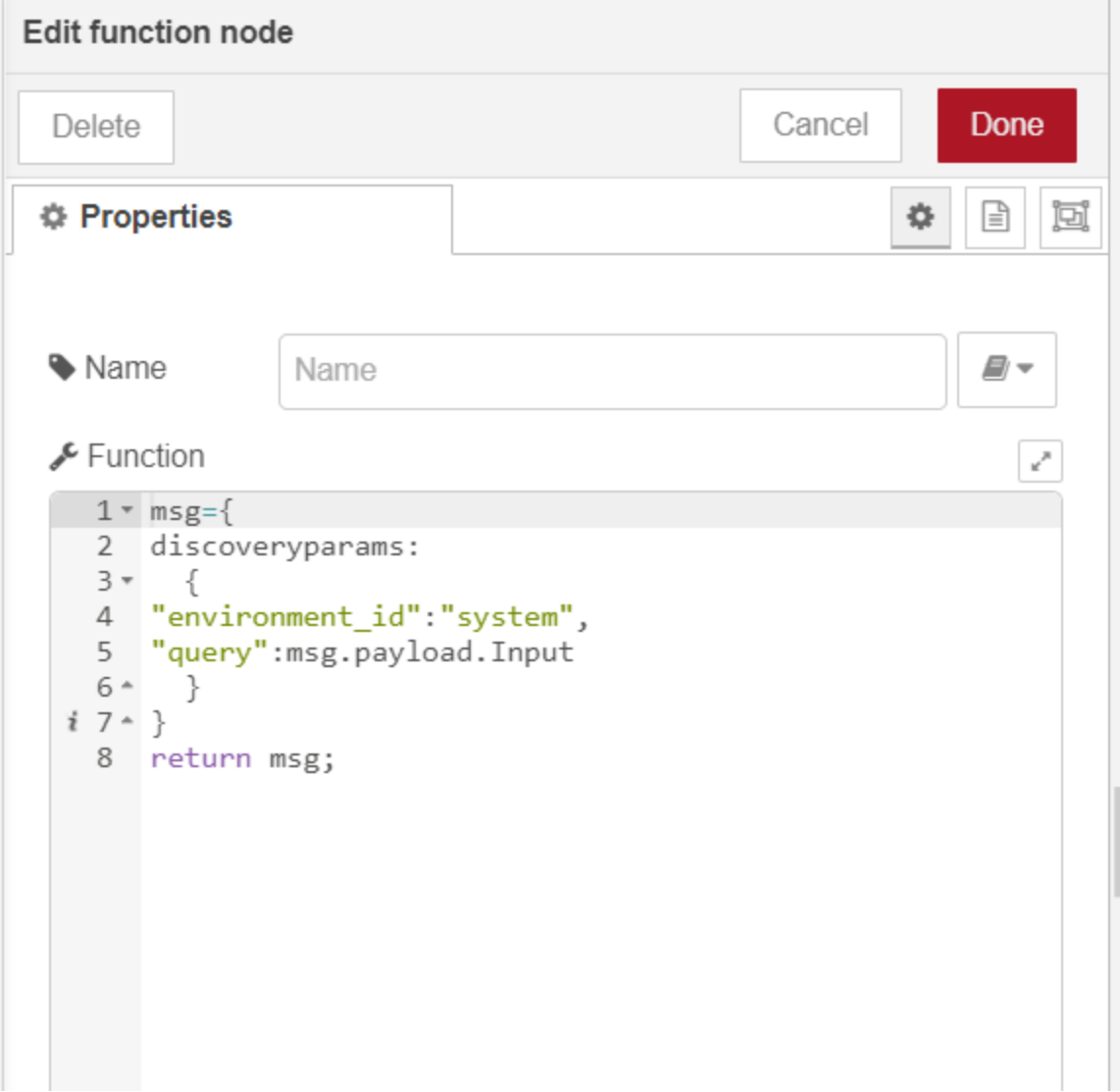
1. Form node
2. Function node
3. Query node
4. Template node
5. gauge node
6. chart node

Step 3: Configuring the nodes

1. Form node

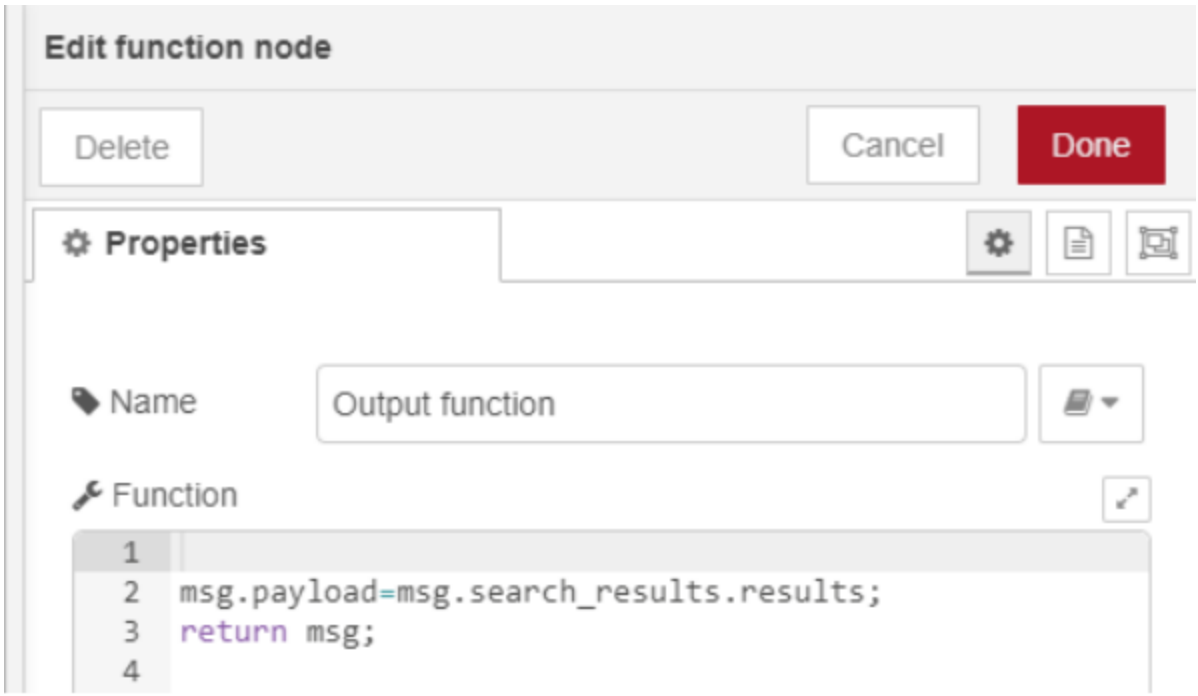


1. Input function node



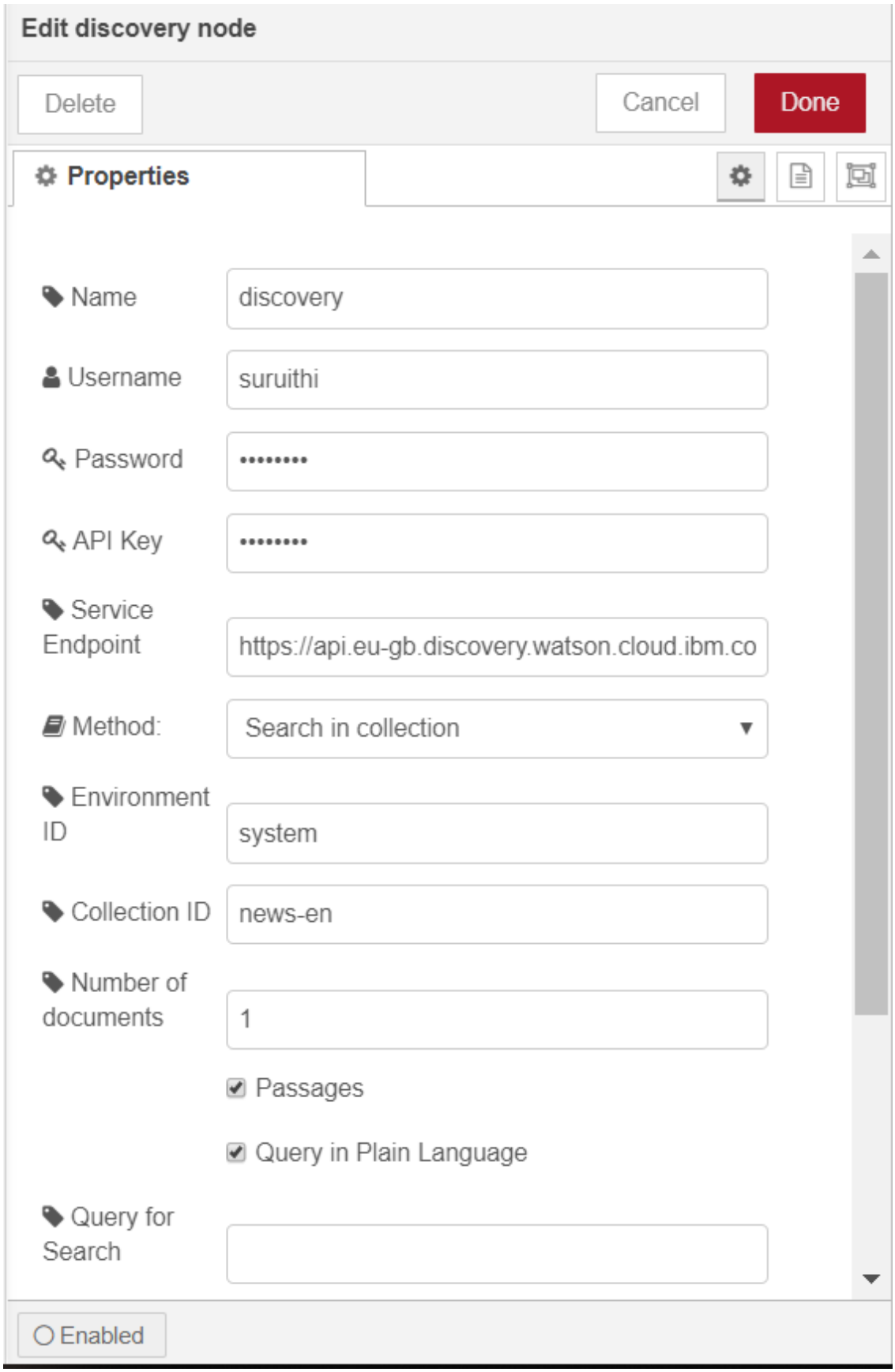
Query node configuration is shown in the next [Task]

1. Output function node:



Task 4 Integrating Watson discovery service with UI

1. Configuring discovery node:


Edit discovery node
Delete
Cancel
Done
Properties
Name
discovery
Username
suruithi
Password
••••••••
API Key
••••••••
Service Endpoint
https://api.eu-gb.discovery.watson.cloud.ibm.co
Method:
Search in collection
Environment ID
system
Collection ID
news-en
Number of documents
1
Passages
Query in Plain Language
Query for Search
Enabled

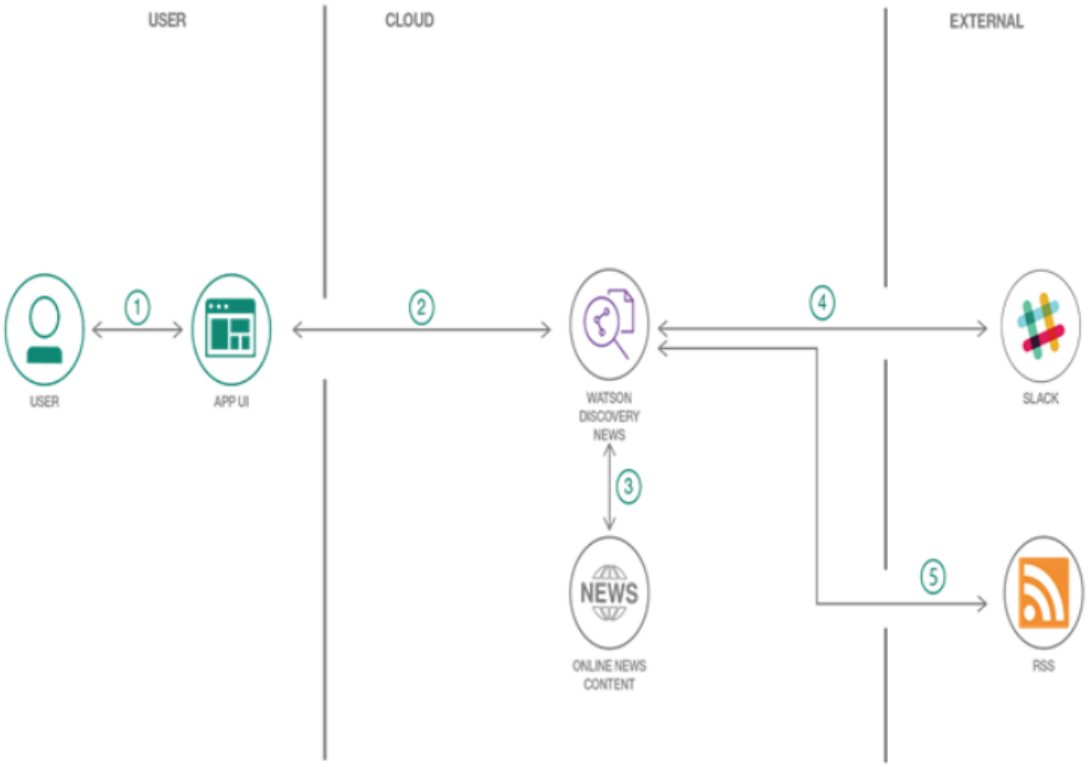
Passoword , API key , Service Endpoint can be found in the IBM credentials file downloaded here

Experimental Investigation

First we use the discovery service to configure and query adding our collection. A red node application is created in which the discovery is integrated and a simple flow of 5 nodes is created to enter the news topic and the results show related news.

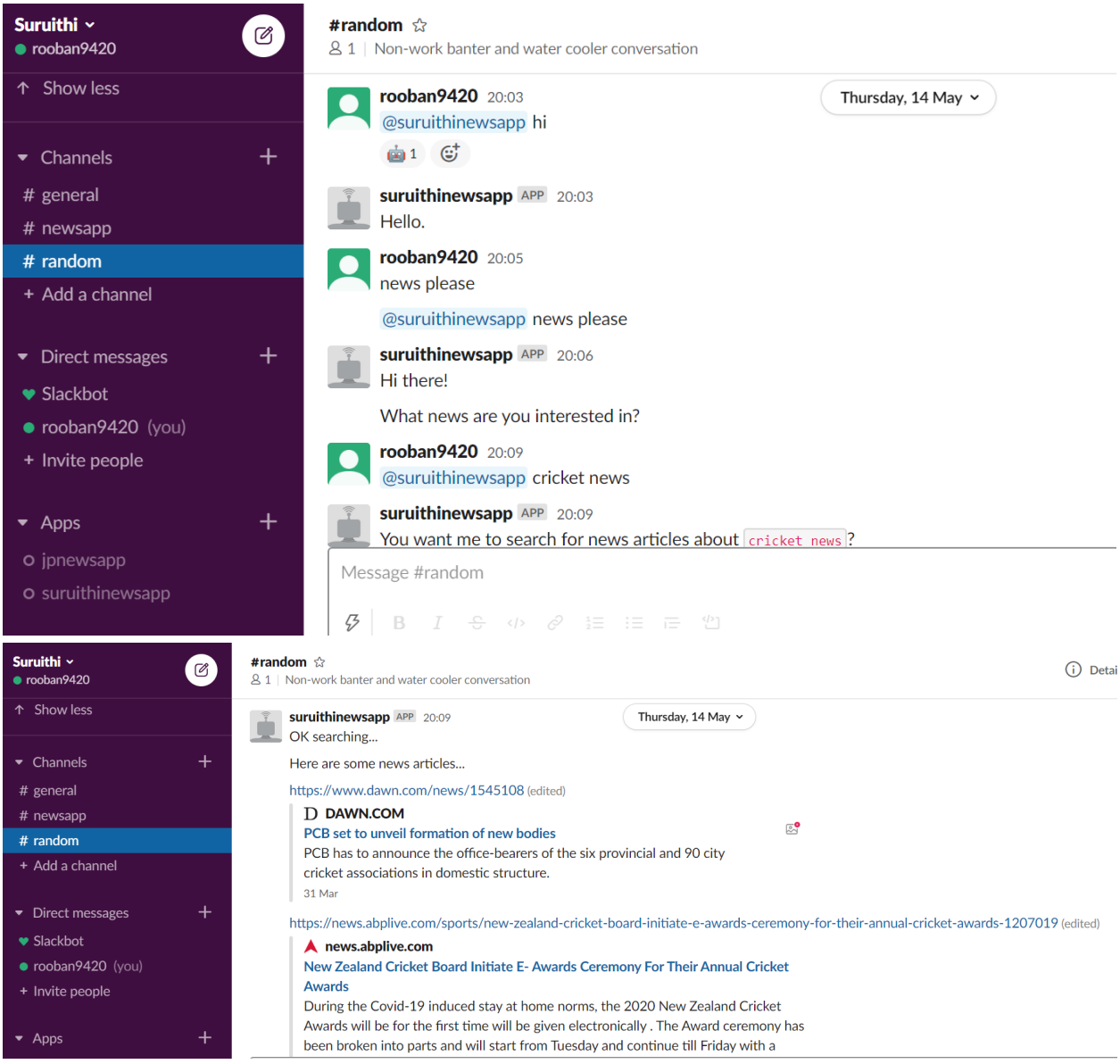
Slack then integrates with Watson's discovery service so that news articles can be searched on more than one platform, and finally sentiment analysis is performed on the data / news articles being searched.

Flowchart


USER
CLOUD
EXTERNAL
1
2
3
4
5
USER
APP UI
WATSON
DISCOVERY
NEWS
SLACK
NEWS
ONLINE NEWS
CONTENT
RSS

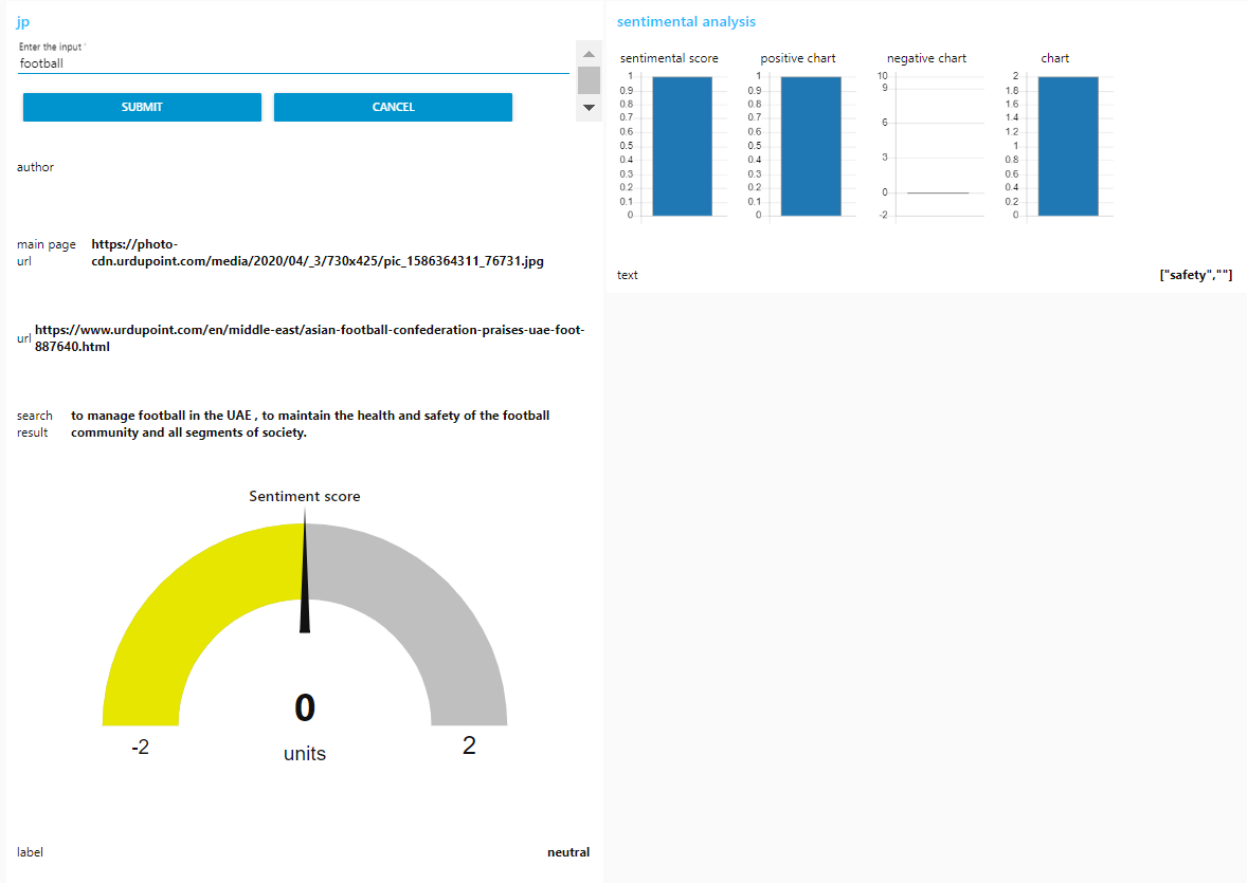
Result

Bot on slack:



> The Watson discovery application will be able to fetch relevant news articles within milliseconds, provide sentiment analysis on the fetched data, extract features, concepts, and keywords in the data all in the from of a simple UI.
> User Interface can be found at t http://localhost:1880/ui/

Output URL: https://node-red-sslpbjp.eu-gb.mybluemix.net/ui/#!/0?socketid=XvXeEX6V_SxE0FDrAAAB



Advantages and Disadvantages

1. The web application provides interactive sentiment analysis.
2. It can be accessed through more than one platform that is through slack.
3. It collects and delivers the most recent data.
4. It does not have additional features like storing news history.
5. It does not provide a stand-alone app rather uses a web application.

Applications

1. This web applications can be used by any user in need of accurate and fast results.
2. Can be used by firms and organizations.
3. Can be used in stock market to make predictions.

Conclusion

This project gives some basic working knowledge of the Watson Discovery Service and showed you how to use Discovery along with JavaScript and Node.js to build your own news mining web application. It also gives insight into real-world applications of AI and helps us understand Slack better.

Future Scope

1. The web application van be integrated with cloud and made into a mobile app to use it on-the-go.

2. Additional sentiments can be added in the UI.
3. Related and trending news topics can be shown to the user.

Bibliography

1. https://github.com/IBM/watson-discovery-news/
1. https://nodered.org/
1. https://slack.com/intl/en-in/help/articles/360002079527-A-guide-to-Slack%E2%80%99s-Discovery-APIs
2. https://www.w3schools.com/