

Project Title : Predicting Life Expectancy using Machine Learning - SB20922

Project ID : SPS_PRO_215

Project Scope, Schedule, Team & Deliverables

Project Summary

Life expectancy is a statistical measure of the average time a human being is expected to live. This problem statement provides a way to predict average life expectancy of people living in a country when various factors such as year, GDP, education, alcohol intake of people in the country, expenditure on healthcare system and some specific disease related deaths that happened in the country. The dataset containing the features mentioned above will help to predict the life expectancy of a human being. A typical regression machine learning algorithm will predict the life expectancy of a human being from the different factors given.

Project Requirements

Cloud for deploying projects
Watson studio for building AI projects

Functional Requirements

high performance, accurate result, efficiency, platform independent

Technical Requirements

knowledge of python, IBM watson, IBM cloud

Software Requirements

Watson studio, IBM cloud, Slack, Zoho

Project Deliverable

By this Project, it will be easier for a country to determine the predicting factor which is contributing to lower value of life expectancy. This will help in suggesting a country which area should be given importance in order to efficiently improve the life expectancy of its population.

Project Team

Individual project

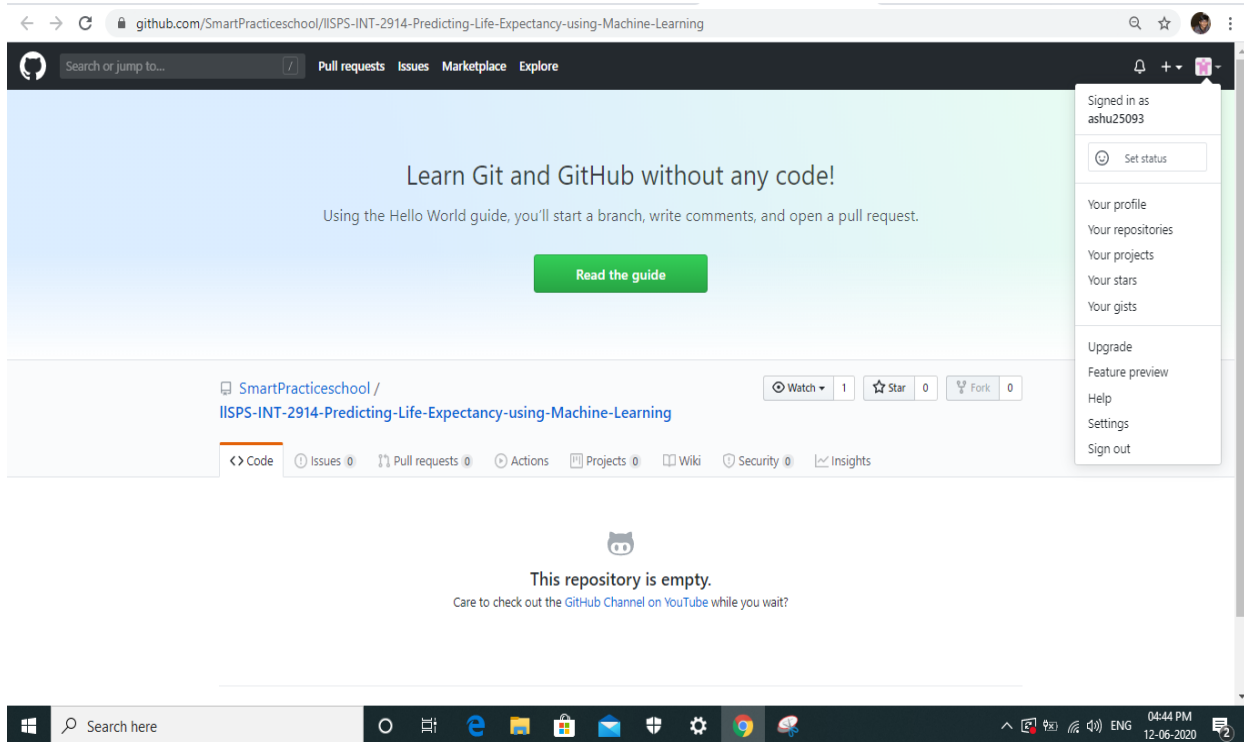
Project Schedule

- > 1 day for Project Scope, Schedule, Team & Deliverables
- > 1 day for Setup The Development Environment
- > 0.5 Days for Create IBM Cloud Account
- > 1 days for Create A Node-RED Starter Application
- > 0.5 Days for Explore IBM Watson Usecases
- > 3 Days for Explore IBM Watson Machine Learning
- > 2 Days for Build Your Own ML Model In IBM Watson Studio
- > 1 Days for Automate ML model
- > 1 Days for Collect The Dataset For The Project
- > 2 Days for Create Necessary IBM Cloud Services
- > 2 Days for Create A Watson Studio Project
- > 1 Days for configuring Watson stud

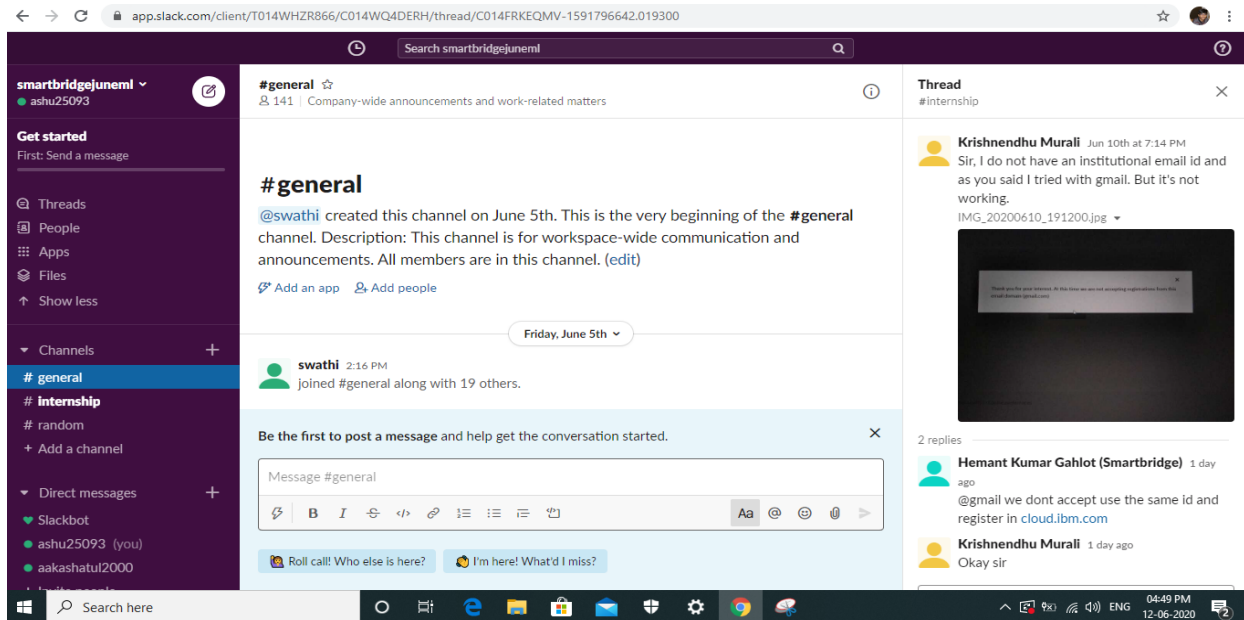
- > 1 Days for Create Machine Learning Service
- > 0.5 Days for Create A Jupyter Notebook In IBM Watson And Import Data
- > 2 Days for Build A Machine Learning Model And Create Endpoints For Node-RED Integration
- > 2 Days for Build Node-RED Flow To Integrate ML Services
- > 1 Days for Import Dataset And Create AUTO AI Experiment
- > 1 Days for Build Node-RED Flow To Integrate AutoAI

Setup The Development Environment

Git Hub



Slack



Sign Up for IBM Cloud

The screenshot displays the IBM Cloud dashboard in a web browser. The browser's address bar shows 'cloud.ibm.com'. The dashboard's top navigation bar includes the 'IBM Cloud' logo, a search bar, and links for 'Catalog', 'Docs', 'Support', 'Manage', and a user profile for 'Aashay Shah's ...'. On the left, a sidebar contains icons for various services like VM, Storage, and Networking. The main content area is titled 'Dashboard' and features several key sections: a 'Resource summary' with a 'Welcome!' message and a 'Create a resource' button; a 'Planned maintenance' section with a 'View all' link; a 'For you' section with a link to learn about IBM Cloud features; a 'News' section with a 'View all' link and a headline about security in the cloud; and a 'Recent support cases' section with a 'View all' link. The bottom of the image shows a Windows taskbar with various application icons and a system clock indicating 04:51 PM on 12-06-2020.

cloud.ibm.com

IBM Cloud Search resources and offerings... Catalog Docs Support Manage Aashay Shah's ...

Dashboard

Upgrade Customize Create resource +

Resource summary View all

Welcome!
Get started with IBM Cloud by creating services and other resources.
[Create a resource →](#)

Try spinning up an app using [starter kits](#)

Planned maintenance View all

Clear skies!
[You can view your scheduled maintenance events here.](#)

For you ⓘ

[Learn about the features of IBM Cloud and explore the console capabilities.](#)

News View all

IBM: Security in the Cloud Remains Challenged by Complexity and Shadow IT
[Winco and IBM Collaborate to Help Clients Accelerate](#)

Recent support cases View all

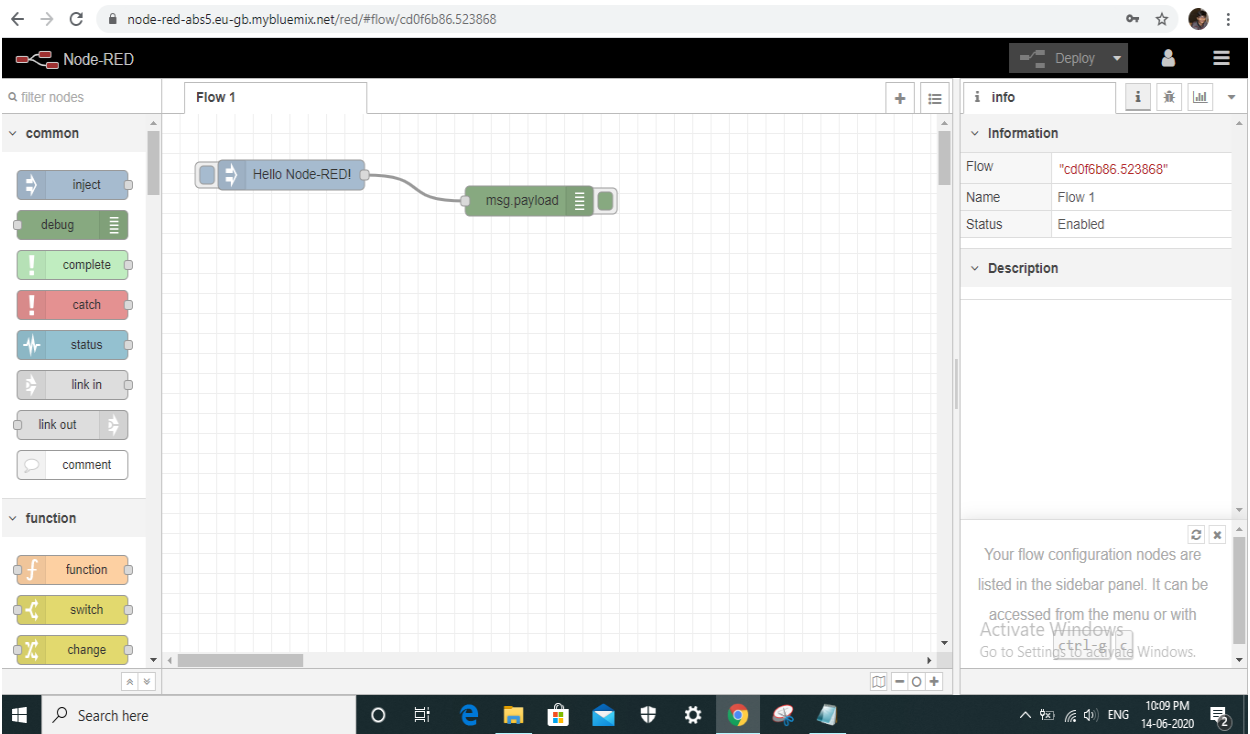
FEEDBACK

Search here

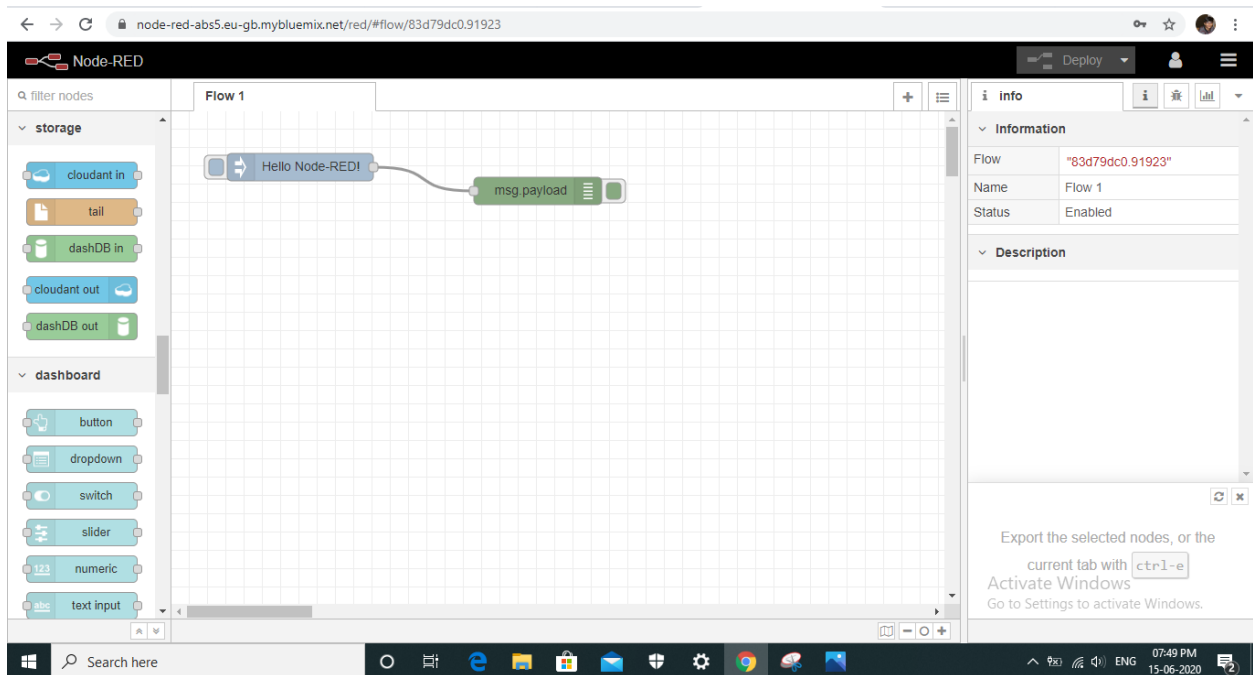
04:51 PM 12-06-2020

A Node - RED Starter Application

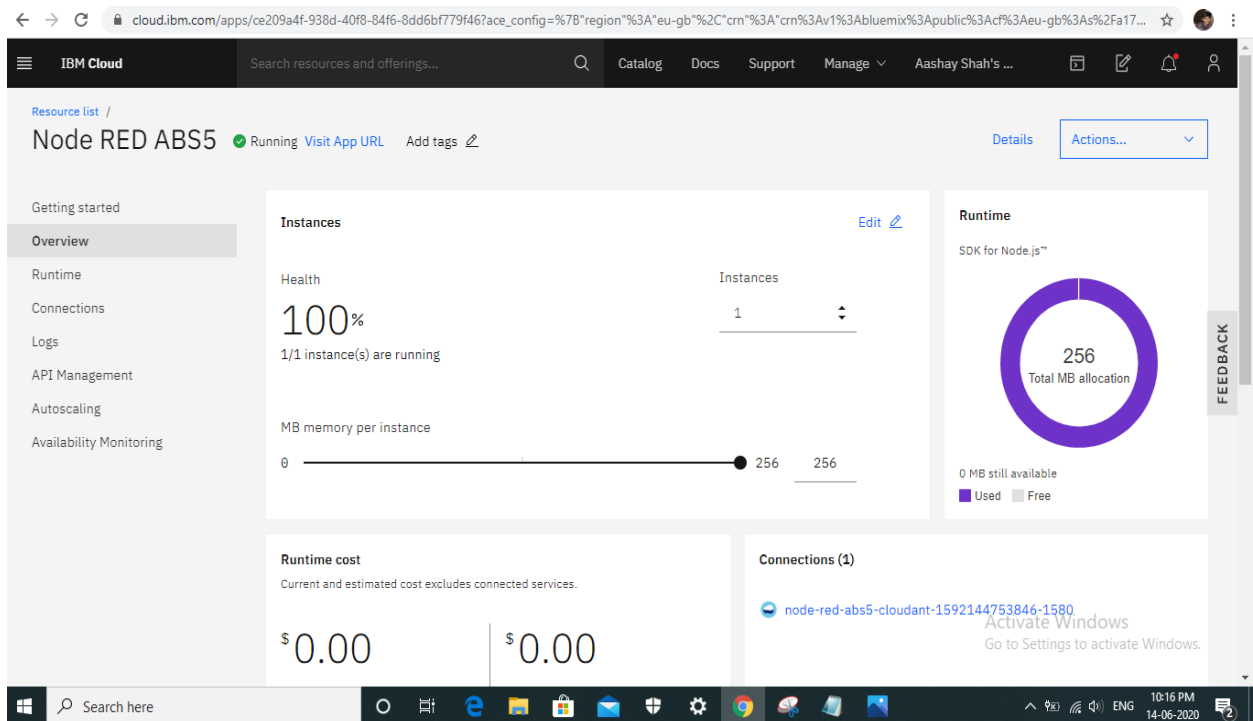
Node RED Starter



Node RED Starter with Dashboard



Node RED ABS5 Overview



Build Your Own ML Model In IBM Watson Studio

eu-gb.dataplatform.cloud.ibm.com/projects/ac53484e-b393-498b-a678-c02c1e1c96d6/deployments?context=wdp

IBM Watson Studio Upgrade Aashay Shah's Account AS

My projects / Life Expectancy 2 Launch IDE Add to project

Overview Assets Environments Jobs Deployments Access Control Settings

Deployments

Name	Type	Status	Actions
AutoAI - 1	Web Service	Ready	⋮
Salary Prediction	Web Service	Ready	⋮

Activate Windows
Go to Settings to activate Windows

Search here

11:00 AM 18-06-2020

Build Your Own ML Model In IBM Watson Studio Using Machine Learning Service

The screenshot shows the IBM Watson Studio interface for testing a 'Salary Prediction' model. The browser address bar displays the URL: `eu-gb.dataplatform.cloud.ibm.com/ml/deployments/2461584b-02cb-4d30-ae3a-5c16129b756f/test?projectId=ac53484e-b393-498b-a678-c02c1e1c96d6&mlInstanceGuid=...`. The page header includes the IBM Watson Studio logo, an 'Upgrade' button, and the user's account name 'Aashay Shah's Account'. The breadcrumb navigation shows 'My projects / Life Expectancy 2 / Salary Prediction / Salary Prediction'. The main content area has three tabs: 'Overview', 'Implementation', and 'Test', with 'Test' being the active tab. Under the 'Test' tab, there is a section titled 'Enter input data' with a text area containing the JSON input: `{ "fields": ["YearsExperience"], "values": [[12]] }`. Below the text area is a blue 'Predict' button. To the right of the input area, the JSON output is displayed:

```
{
  "fields": [
    "prediction"
  ],
  "values": [
    [
      138531.00067137845
    ]
  ]
}
```

. At the bottom of the interface, there is a Windows taskbar with various application icons and a system tray showing the time as 11:05 AM on 18-06-2020.

The screenshot shows the IBM Watson Studio interface displaying the deployment details of the 'Salary Prediction' model. The browser address bar displays the URL: `eu-gb.dataplatform.cloud.ibm.com/ml/deployments/2461584b-02cb-4d30-ae3a-5c16129b756f?projectId=ac53484e-b393-498b-a678-c02c1e1c96d6&mlInstanceGuid=bc25...`. The page header is identical to the previous screenshot. The breadcrumb navigation shows 'My projects / Life Expectancy 2 / Salary Prediction / Salary Prediction'. The main content area displays a table with deployment details:

Status	Deploy success
Asset type	Model
Asset name	Salary Prediction
Machine learning service	WatsonMachineLearning
Created	Jun 17, 2020 10:17 PM
Last modified	Jun 17, 2020 10:17 PM

Below the table, there is a section titled 'Model' with a table showing model details:

Name	Salary Prediction
ID	69c32d52-938b-4a6f-aa23-ce13e09abca4
Version ID	d48b725b-eea2-4926-91fa-5cbaf38a5b7d

At the bottom of the interface, there is a Windows taskbar with various application icons and a system tray showing the time as 11:03 AM on 18-06-2020.

Automate Your ML Model

eu-gb.dataplatform.cloud.ibm.com/ml/deployments/e2f5a49e-7fba-4256-a92d-ce69f49be5db/test?projectId=ac53484e-b393-498b-a678-c02c1e1c96d6&mlInstanceGuid=b...

IBM Watson Studio Upgrade Aashay Shah's Account AS

My projects / Life Expectancy 2 / AutoAI 1 - P8 GradientBoostingC... / AutoAI - 1

AutoAI - 1

Overview Implementation **Test**

Enter input data

```
{
  "input_data": {
    "fields": [
      "state", "account length", "area code", "phone number", "international plan", "voice mail plan", "number vmail messages", "total day minutes", "total day calls", "total day charge", "total eve minutes", "total eve calls", "total eve charge", "total night minutes", "total night calls", "total night charge", "total intl minutes", "total intl calls", "total intl charge"
    ]
  }
}
```

Predict

```
{
  "predictions": [
    {
      "fields": [
        "prediction", "probability"
      ],
      "values": [
        true,
        [
          0.005269096430720599,
          0.9947309035692794
        ]
      ]
    }
  ]
}
```

Activate Windows
Go to Settings to activate Windows

Search here

eu-gb.dataplatform.cloud.ibm.com/ml/deployments/e2f5a49e-7fba-4256-a92d-ce69f49be5db/overview?projectId=ac53484e-b393-498b-a678-c02c1e1c96d6&mlInstanceGuid=...

IBM Watson Studio Upgrade Aashay Shah's Account AS

My projects / Life Expectancy 2 / AutoAI 1 - P8 GradientBoostingC... / AutoAI - 1

Status	Ready
Asset type	Model
Asset name	AutoAI 1 - P8 GradientBoostingClassifierEstimator
Machine learning service	WatsonMachineLearning
Created	Jun 17, 2020 10:52 PM
Last modified	Jun 17, 2020 10:52 PM

Model

Name	AutoAI 1 - P8 GradientBoostingClassifierEstimator
ID	74a0373a-a016-40f3-b221-a2e91d1e3c96
Version ID	6f565f9d-594a-4809-8d7a-5f3d4d6b81af

Activate Windows
Go to Settings to activate Windows

Search here

Model List

eu-gb.dataplatform.cloud.ibm.com/projects/ac53484e-b393-498b-a678-c02c1e1c96d6/deployments?context=wdp

IBM Watson Studio Upgrade Aashay Shah's Account AS

My projects / Life Expectancy 2

Overview Assets Environments Jobs Deployments Access Control Settings

Deployments

Name	Type	Status	Actions
AutoAI - 1	Web Service	Ready	:
Salary Prediction	Web Service	Ready	:
Life_Expectancy	Web Service	Ready	:

Activate Windows
Go to Settings to activate Windows

Type here to search

Life Expectancy Model Details

eu-gb.dataplatform.cloud.ibm.com/ml/deployments/027a2b1b-2b48-414b-a1f2-d62265908c0d?projectId=ac53484e-b393-498b-a678-c02c1e1c96d6&mlInstanceGuid=bc25ad35...

IBM Watson Studio Upgrade Aashay Shah's Account AS

My projects / Life Expectancy 2 / Life_Expectancy / Life_Expectancy

Overview Implementation Test

Deployment

Name	Life_Expectancy
Type	Web Service
Deployment ID	027a2b1b-2b48-414b-a1f2-d62265908c0d
Status	Deploy success
Asset type	Model
Asset name	Life_Expectancy
Machine learning service	WatsonMachineLearning
Created	Jul 5, 2020 10:42 PM
Last modified	Jul 5, 2020 10:42 PM

Activate Windows
Go to Settings to activate Windows

Type here to search

Life Expectancy Model Prediction

The screenshot shows the IBM Watson Studio interface. The top navigation bar includes the IBM Watson Studio logo, an 'Upgrade' button, and the user's account information 'Aashay Shah's Account'. The breadcrumb trail indicates the current location: 'My projects / Life Expectancy 2 / Life_Expectancy / Life_Expectancy'. The main content area is titled 'Life_Expectancy' and has three tabs: 'Overview', 'Implementation', and 'Test'. The 'Test' tab is active, showing an 'Enter input data' section with a text area containing a JSON payload and a 'Predict' button. The JSON payload is:

```
{
  "fields": [
    "prediction"
  ],
  "values": [
    [
      81.97
    ]
  ]
}
```

Below the 'Predict' button, there is a 'temp.ipynb' file icon. An 'Activate Windows' watermark is visible in the bottom right corner.

Node RED Flow

The screenshot shows the Node-RED interface. The top navigation bar includes the Node-RED logo, a 'Deploy' button, and the user's account information. The breadcrumb trail indicates the current location: 'node-red-abs5.eu-gb.mybluemix.net/red/#flow/2227635a.b24a4c'. The main content area is titled 'Flow 1' and shows a flow diagram with the following nodes:

- form** (input node)
- Set Variables** (function node)
- http request** (http node)
- msg.payload** (message node)
- Prepare Message** (function node)
- http request** (http node)
- msg.payload** (message node)
- Retrieve Prediction** (function node)
- Life Expectancy abc** (output node)

The flow starts with a 'form' node, followed by a 'Set Variables' function node, then an 'http request' node. The flow then branches into two parallel paths, each consisting of a 'Prepare Message' function node, an 'http request' node, and a 'msg.payload' node. These paths converge at a 'Retrieve Prediction' function node, which then connects to a 'Life Expectancy abc' output node. The right sidebar shows the 'info' panel with the following information:

- Information**
- Flow: "faed2803.657ba8"
- Name: Flow 2
- Status: Enabled
- Description**

An 'Activate Windows' watermark is visible in the bottom right corner.

Result

node-red-abs5.eu-gb.mybluemix.net/ui/#/0?socketid=TLpvjdii1crgbU8gAAAL

Home Page

Life Expectancy Prediction

Life Expectancy	81.97
Country *	Canada
Year *	2015
Status *	Developing
Adult Mortality *	64
Infant deaths *	2
Alcohol *	8.9
Percentage Expenditure *	0
Measles *	195
BMI *	67
Under five deaths *	2

Activate Windows
Go to Settings to activate Windows.

Type here to search

10:52 PM
05-07-2020

node-red-abs5.eu-gb.mybluemix.net/ui/#/0?socketid=TLpvjdii1crgbU8gAAAL

Home Page

Measles *	195
BMI *	67
Under five deaths *	2
Polio *	91
Diphtheria *	91
HIV / AIDS *	0.1
GDP *	43315.74
Thinness 1-19 Years *	0.6
Income Composition of Resources *	0.919
Schooling *	16.3

SUBMIT CANCEL

Activate Windows
Go to Settings to activate Windows.

Type here to search

10:52 PM
05-07-2020