

## PRE-REQUISITES

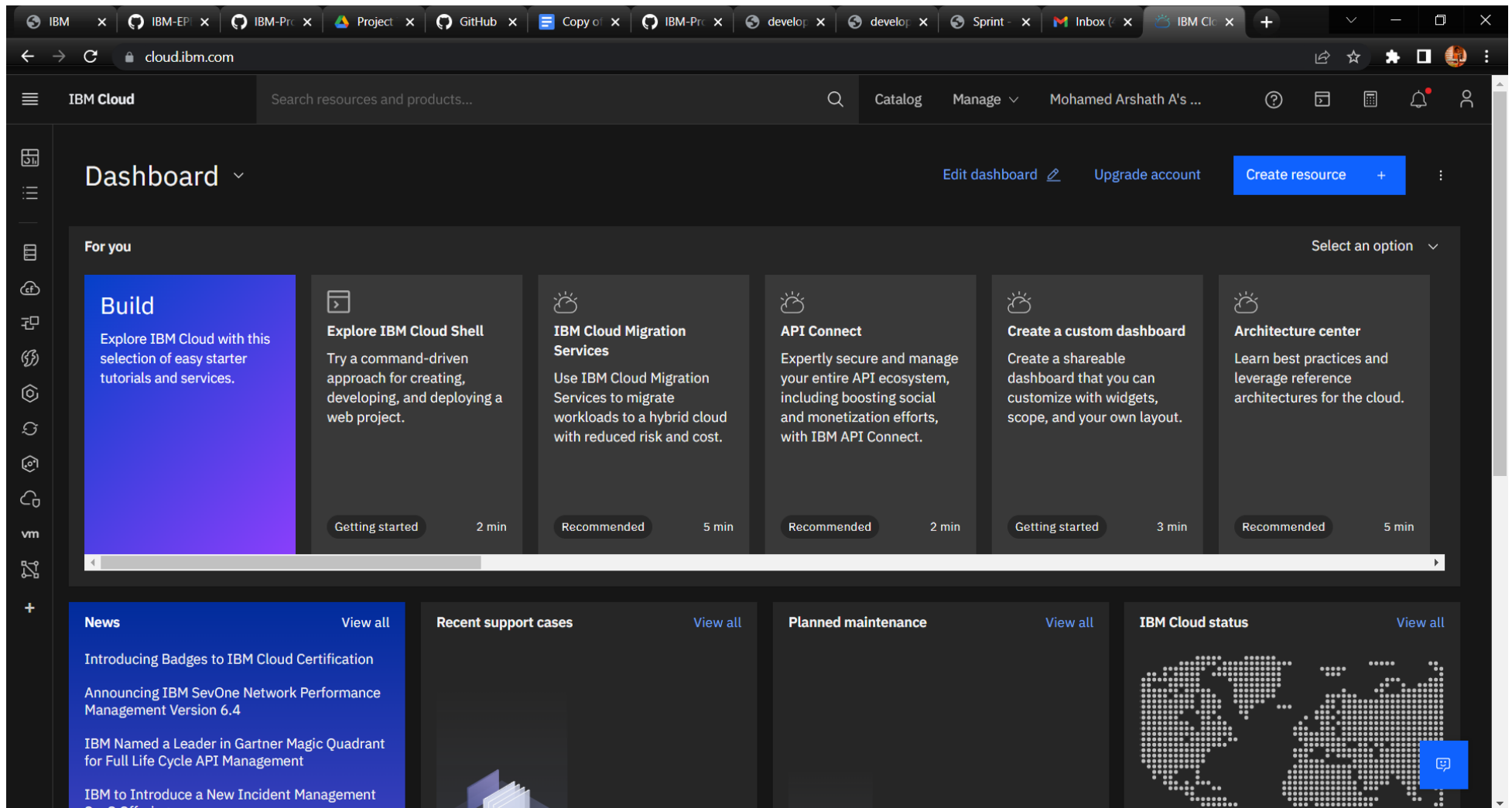
Date	05 November 2022
Team ID	PNT2022TMID07461
Project Name	SmartFarmer-IoT Enabled Smart Farming Application
Maximum Marks	4 Marks

### Prerequisites:

To complete this project, the prerequisites are

- IBM Cloud Services
- IBM Watson IOT Platform
- Node-Red Service
- MIT App Inventor
- Software-Python
- Fast2sms

## IBM Cloud Services:



The screenshot displays the IBM Cloud Dashboard in a web browser. The browser's address bar shows 'cloud.ibm.com'. The dashboard's header includes the 'IBM Cloud' logo, a search bar, and navigation links for 'Catalog', 'Manage', and the user's name 'Mohamed Arshath A's ...'. On the left, a vertical sidebar contains icons for various services like Cloud Shell, Cloud Migration, API Connect, and Cloud Status. The main content area is titled 'Dashboard' and features a 'For you' section with six recommended cards: 'Build' (highlighted in blue), 'Explore IBM Cloud Shell', 'IBM Cloud Migration Services', 'API Connect', 'Create a custom dashboard', and 'Architecture center'. Each card provides a brief description and a 'Getting started' or 'Recommended' button with a time estimate. Below this, there are four sections: 'News' (with links to certification, network performance, and Gartner Magic Quadrant), 'Recent support cases', 'Planned maintenance', and 'IBM Cloud status' (featuring a world map and a chat button).

IBM Cloud

Search resources and products...

Catalog Manage Mohamed Arshath A's ...

Dashboard

Edit dashboard Upgrade account Create resource +

For you

Select an option

**Build**  
Explore IBM Cloud with this selection of easy starter tutorials and services.

**Explore IBM Cloud Shell**  
Try a command-driven approach for creating, developing, and deploying a web project.  
Getting started 2 min

**IBM Cloud Migration Services**  
Use IBM Cloud Migration Services to migrate workloads to a hybrid cloud with reduced risk and cost.  
Recommended 5 min

**API Connect**  
Expertly secure and manage your entire API ecosystem, including boosting social and monetization efforts, with IBM API Connect.  
Recommended 2 min

**Create a custom dashboard**  
Create a shareable dashboard that you can customize with widgets, scope, and your own layout.  
Getting started 3 min

**Architecture center**  
Learn best practices and leverage reference architectures for the cloud.  
Recommended 5 min

**News** View all  
Introducing Badges to IBM Cloud Certification  
Announcing IBM SevOne Network Performance Management Version 6.4  
IBM Named a Leader in Gartner Magic Quadrant for Full Life Cycle API Management  
IBM to Introduce a New Incident Management

**Recent support cases** View all

**Planned maintenance** View all

**IBM Cloud status** View all

## IBM Watson IOT Platform:

IBM Watson IoT platform acts as the mediator to connect the web application to IoT devices, so create the IBM Watson IoT platform.

The screenshot displays the IBM Cloud console interface. At the top, the browser address bar shows the URL: `cloud.ibm.com/services/iotf-service/crn%3Av1%3Abluemix%3Apublic%3Aiotf-service%3Aeu-de%3Aa%2F37a028dc3e64d10baa137e10b802a54%3Ab5e170a3-4ef9-4499-9d71-4b4...`. The console header includes the IBM Cloud logo, a search bar, and navigation links for Catalog, Manage, and the user profile (Mohamed Arshath A's ...).

The main content area is titled "Internet of Things Platform-ko" and shows a status of "Active". A sidebar on the left contains links for "Manage", "Plan", and "Connections". The "Manage" tab is selected, displaying a large graphic of a central square with four circular nodes connected by lines, representing the IoT platform architecture.

Below the graphic, the text "Let's get started with IBM Watson IoT Platform" is followed by a description: "Securely connect, control, and manage devices. Quickly build IoT applications that analyze data from the physical world." Two buttons, "Launch" and "Docs", are provided for user action.

Further down, a section titled "Ready for the next level?" introduces the "IBM Watson IoT Platform Journey". This section features three service plans: Lite, Non-Production, and Production. Each plan is represented by a progress indicator (a circle with a checkmark for Lite, and empty circles for the others) and a brief description of its capabilities.

- Lite**: The Lite service plan provides a lightweight development environment to get you started with the connectivity capabilities of Watson IoT Platform.
  - Free
  - 200 MB data-transfer limit
- Non-Production**: The Non-Production service plan is a full-featured, fully-integrated offering that enables you to explore Watson IoT Platform to see how the service can fit into your IoT environment.
  - Starts at \$500 per month
  - Capacity limit based on device type
- Production**: The Production service is a fully managed SaaS offering that enables you to manage and analyze enterprise IoT data.
  - Includes IBM Service & Support
  - Pricing based on number of devices per

The bottom of the screen shows the Windows taskbar with various application icons, a search bar, and system information including the date (10/11/2022) and time (14:06).

IBM Watson IoT Platform

ld4vg3.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform

mohamedarshath503@gmail.com  
ID: ld4vg3

Browse

Action

Device Types

Interfaces

Add Device +

Search by Device ID

Device Simulator ☒

	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	
▼	56780	Connected	SmartIot	Device	17 Nov 2022 20:35		→ ...

Identity

Device Information

Recent Events

State

Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
status	{"temperature":78,"humidity":83}	json	a few seconds ago
status	{"temperature":27,"humidity":95}	json	a few seconds ago
status	{"temperature":25,"humidity":22}	json	a few seconds ago
status	{"temperature":-17,"humidity":6}	json	a few seconds ago
status	{"temperature":102,"humidity":77}	json	a few seconds ago

1 Simulation running

## Node-Red:

To create a web application, we need to create a Node-RED service

The screenshot shows the Node-RED web interface in a browser. The browser's address bar displays the URL: `node-red-fwjuo-2022-11-10.eu-gb.mybluemix.net/red/#flow/a89a404089ce9e84`. The interface is divided into several panels:

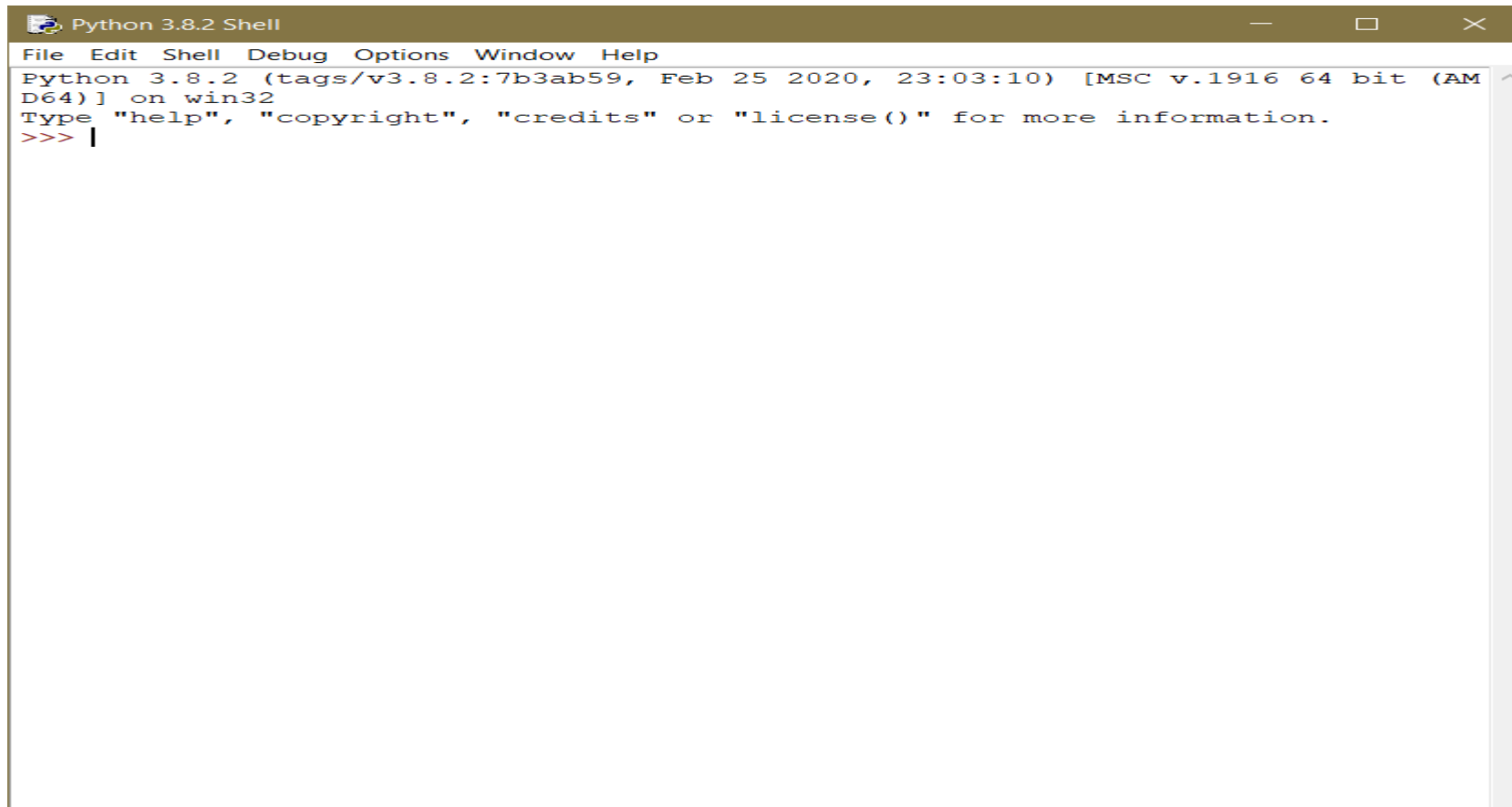
- Left Panel (Node Palette):** Contains two categories of nodes:
  - common:** Includes nodes like `inject`, `debug`, `complete`, `catch`, `status`, `link in`, `link call`, `link out`, and `comment`.
  - function:** Includes nodes like `function`, `switch`, `change`, and `range`.
- Center Panel (Canvas):** Displays a flow named "Flow 1". It contains two nodes connected by a wire: a blue `inject` node with the text "Hello Node-RED!" and a green `msg.payload` node.
- Right Panel (Info and Flows):**
  - The top section, labeled "info", shows a search bar and a list of flows. "Flow 1" is selected and highlighted in orange.
  - The bottom section, labeled "Flow 1", shows the flow's ID as `"a89a404089ce9e84"` and a message: "Your flow configuration nodes are listed in the sidebar panel. It can be accessed from the menu or with `ctrl-g c`".

## MIT App inventor:

The screenshot displays the MIT App Inventor web interface in a browser window. The browser's address bar shows the URL `ai2.appinventor.mit.edu/#6181618629607424`. The interface is divided into several panels:

- Top Bar:** Includes the 'SmartFarmer' project name, a 'Screen1' dropdown, and buttons for 'Add Screen ...', 'Remove Screen', and 'Publish to Gallery'. On the right, there are 'Designer' and 'Blocks' tabs.
- Left Panel (Palette):** Contains a search bar and categories for components: 'User Interface', 'Layout', 'Media', 'Drawing and Animation', 'Maps', 'Charts', 'Sensors', 'Social', and 'Storage'. The 'User Interface' category is expanded, showing components like Camcorder, Camera, ImagePicker (highlighted), Player, Sound, SoundRecorder, SpeechRecognizer, TextToSpeech, Translator, and VideoPlayer.
- Center Panel (Viewer):** Shows a mobile phone mockup of the 'Smart Farmer Application'. The app's UI includes a title bar 'Smart Farmer Application', input fields for 'Temperature' and 'Humidity', and two buttons labeled 'Light ON' and 'Light OFF'. Above the mockup, there are checkboxes for 'Display hidden components in Viewer' and a 'Phone size (505,320)' dropdown.
- Right Panel (Components and Properties):**
  - Components:** A tree view showing the hierarchy of components on the screen, including 'Screen1', 'HorizontalArrangement3', 'Label3', 'HorizontalArrangement4', 'HorizontalArrangement1', 'Label1', 'TextBox1', 'HorizontalArrangement5', 'HorizontalArrangement2', 'Label2', 'TextBox2' (highlighted), 'HorizontalArrangement7', 'HorizontalArrangement6', 'Button1', 'Button2', 'Web1', 'Clock1', and 'Web2'. 'Rename' and 'Delete' buttons are at the bottom.
  - Properties:** A list of properties for the selected 'TextBox2' component, including 'BackgroundColor' (Default), 'Enabled' (checked), 'FontBold' (unchecked), 'FontItalic' (unchecked), 'FontSize' (14.0), 'FontTypeface' (default), 'Height' (Automatic...), 'Width' (Automatic...), 'Hint' (Hint for TextBox2), 'MultiLine' (unchecked), 'NumbersOnly' (unchecked), 'ReadOnly' (unchecked), and 'Text'.

## Software-Python:

A screenshot of a Python 3.8.2 Shell window. The window has a title bar with the text "Python 3.8.2 Shell" and standard window controls (minimize, maximize, close). Below the title bar is a menu bar with the following items: File, Edit, Shell, Debug, Options, Window, and Help. The main area of the window displays the following text: "Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AMD64)] on win32", "Type \"help\", \"copyright\", \"credits\" or \"license()\" for more information.", and a prompt ">>> |" with a vertical cursor. A vertical scrollbar is visible on the right side of the window.

```
Python 3.8.2 Shell
File Edit Shell Debug Options Window Help
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> |
```

## Fast2sms:

The screenshot displays the Fast2SMS web dashboard. At the top, the browser's address bar shows the URL `fast2sms.com/dashboard/sms/bulk`. The dashboard header includes the Fast2SMS logo, account information (Account Info), the current time (04:02:38 PM), and the user's name (Mohamed Ar...). A red sidebar on the left contains a balance of ₹55.00 and an 'ADD CREDIT' button, along with a menu of services: Bulk SMS, DLT SMS, Quick SMS, Address Book, Delivery Reports, Transactions, Dev API, Settings, and Help. The main content area is divided into two sections. The left section, titled 'PROMOTIONAL', contains a form for sending a bulk SMS. The form fields include 'Sender ID' (FastSM), 'Mobile Number' (+91), and 'Message' (Dearuseryourotp:). Below the message field, it indicates '35 / 1 SMS'. The form has two tabs: 'PROMOTIONAL' and 'SERVICE'. The right section, titled 'FEATURES', lists several benefits for marketing and promotional SMS, including 'No DLT Registration Required', 'Only for Non DND numbers', 'SMS Delivery After Approval', 'Send SMS from 10 AM - 9 PM', and 'Personal SMS not allowed'.

IBM x IBM-Project-53260-1661325866/ x Verify Email - Fast2SMS x Email Verification Link - Fast2SMS x Bulk SMS - Fast2SMS x

fast2sms.com/dashboard/sms/bulk

**FAST2SMS** Account Info 04:02:38 PM Mohamed Ar...

₹55.00 ADD CREDIT

Bulk SMS

DLT SMS

Quick SMS

Address Book

Delivery Reports

Transactions

Dev API

Settings

Help

PROMOTIONAL SERVICE

Sender ID

FastSM

Mobile Number

CONTACT LIST EXCEL

+91

Message (maximum 60 characters)

ENGLISH

Dearuseryourotp:

- Sent via ftwsms

35 / 1 SMS

SEND OR SCHEDULE

**FEATURES**

For Marketing & Promotional SMS

- ✓ No DLT Registration Required
- ✓ Only for Non DND numbers
- ✓ SMS Delivery After Approval
- ⌚ Send SMS from 10 AM - 9 PM
- ⊘ Personal SMS not allowed



IBM

IBM-Project-53260-1

Verify Email - Fast2SMS

Email Verification Link

Developer Api - Fast2SMS

https://www.fast2sms.com

API Documentation -

fast2sms.com/dashboard/dev-api

How Developer API Works

Account Info

04:08:33 PM

Mohamed Ar...

₹55.00

ADD CREDIT

Bulk SMS

DLT SMS

Quick SMS

Address Book

Delivery Reports

Transactions

Dev API

Settings

Help

Dev API

API Key

Security

For OTP Based SMS use 'OTP SMS API'

READ API DOCS

Method

GET

Route

Quick SMS

Message (NOTE: Per SMS cost ₹ 3.50)

hello

Language

GET https://www.fast2sms.com/dev/bulkV2

Query Parameter :

authorization = WV6HnfEh3zkt84R57ZclXjxmbSyOAI9pq0Dsw2duYNFLrMP1QY40rS5R7qnUPJIHWjMfkyvZdXlhKNs

route = q

message = hello

language = "english"

numbers = 9177757796

flash = "0"

Overall URL = https://www.fast2sms.com/dev/bulkV2?authorization=WV6HnfEh3zkt84R57ZclXjxmbSyOAI9pq0Dsw2duYNFLrMP1QY40rS5R7qnUPJIHWjMfkyvZdXlhKNs&route=q&message=hello&language=english&flash=0&numbers=9177757796