

## PREREQUISITES

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Team ID	PNT2022TMID16061
Project Name	Project - Smart Waste Management system for Metropolitan Cities

### IBM Cloud Services:

The screenshot shows the IBM Cloud service catalog interface. At the top, there's a navigation bar with 'IBM Cloud', a search bar, and account information for 'ABARNA S's Account'. Below the navigation is a resource card for 'Internet of Things Platform-gp'. The card indicates it is 'Active' and has an 'Add tags' button. On the left, a sidebar menu shows 'Manage' (selected), 'Plan', and 'Connections'. The main content area features a central icon of a central processing unit (CPU) with arrows pointing to it from various directions, representing connectivity. To the right of the icon, the text 'Let's get started with IBM Watson IoT Platform' is displayed, followed by a brief description: 'Securely connect, control, and manage devices. Quickly build IoT applications that analyze data from the physical world.' Below this are two buttons: 'Launch' (in blue) and 'Docs'. Further down, a section titled 'Ready for the next level?' shows the 'IBM Watson IoT Platform Journey' with three levels: 'Lite' (selected, indicated by a checked checkbox), 'Non-Production', and 'Production'. Each level has a brief description and a small circular icon. The 'Lite' level description states: 'The Lite service plan provides a lightweight development environment to get you started with the connectivity capabilities of Watson IoT Platform.' The 'Non-Production' level description states: '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.' The 'Production' level description states: 'The Production service is a fully managed SaaS offering that enables you to manage and analyze enterprise IoT data.' A blue feedback button is located in the bottom right corner of the journey section.

## IBM Watson IoT Platform:

The screenshot shows the 'IBM Watson IoT Platform' dashboard with the title 'Browse Devices'. At the top, there are tabs for 'Browse', 'Action', 'Device Types', and 'Interfaces'. A blue button on the right says 'Add Device +'. Below the tabs, the title 'Browse Devices' is displayed, followed by two buttons: 'All Devices' (highlighted in blue) and 'Diagnose'. A note below the buttons states: 'This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.' A search bar labeled 'Search by Device ID' is present. The main area is a table with columns: Device ID, Status, Device Type, Class ID, Date Added, and Descriptive Location. One row is shown: '123456789' (Status: Disconnected, Device Type: Node\_Mcu, Class ID: Device, Date Added: Nov 9, 2022 8:21 PM). Below the table are buttons for 'Items per page' (set to 50), '1–1 of 1 item', and navigation arrows. On the far right, there is a 'Device Simulator' toggle switch.

## Node - RED:

The screenshot shows the 'Node-RED' interface with the title 'Flow 1'. The left sidebar lists nodes categorized under 'common' and 'function'. The main workspace contains a flow starting with an 'inject' node, followed by a 'Hello Node-RED!' node, a 'jersree' node, and an 'IBM IoT' node. The 'IBM IoT' node has three output branches connected to 'ultra sonic', 'weight', and 'gps' function nodes, which then connect to 'Garbage Level', 'Garbage Weight', and 'Bin Location' debug nodes respectively. The bottom right corner shows a 'debug' panel displaying a log of sensor data messages. The log entries are as follows:

```
"11.36637,76.889828" }  
11/10/2022, 10:23:02 PM node: 022649a.0d0d98  
id-2/typeNode_Mcu/0/123456789@v0/v0/TSensor/fmt/json : msg.payload : Object  
> { Ultrasonic: 48, Weight: 58, GPS:  
"11.138168,76.888997" }  
11/10/2022, 10:23:08 PM node: 022649a.0d0d98  
id-2/typeNode_Mcu/0/123456789@v0/v0/TSensor/fmt/json : msg.payload : Object  
> { Ultrasonic: 59, Weight: 42, GPS:  
"11.206234,76.891715" }  
11/10/2022, 10:23:14 PM node: 022649a.0d0d98  
id-2/typeNode_Mcu/0/123456789@v0/v0/TSensor/fmt/json : msg.payload : Object  
> { Ultrasonic: 29, Weight: 79, GPS:  
"11.312577,76.818482" }  
11/10/2022, 10:23:20 PM node: 022649a.0d0d98  
id-2/typeNode_Mcu/0/123456789@v0/v0/TSensor/fmt/json : msg.payload : Object  
> { Ultrasonic: 18, Weight: 66, GPS:  
"11.330039,76.846347" }  
11/10/2022, 10:23:26 PM node: 022649a.0d0d98  
id-2/typeNode_Mcu/0/123456789@v0/v0/TSensor/fmt/json : msg.payload : Object  
> { Ultrasonic: 69, Weight: 85, GPS:  
"11.338478,76.898242" }  
11/10/2022, 10:23:32 PM node: 022649a.0d0d98  
id-2/typeNode_Mcu/0/123456789@v0/v0/TSensor/fmt/json : msg.payload : Object  
> { Ultrasonic: 38, Weight: 34, GPS:  
"11.445693,76.895289" }  
11/10/2022, 10:23:38 PM node: 022649a.0d0d98  
id-2/typeNode_Mcu/0/123456789@v0/v0/TSensor/fmt/json : msg.payload : Object  
> { Ultrasonic: 20, Weight: 53, GPS:  
"11.337416,76.896172" }
```

## Cloudant Dashboard:

The screenshot shows the Cloudant Dashboard interface. The left sidebar contains navigation links: All Documents, Query, Permissions, Changes, Design Documents, and Log Out. The main area displays a table of documents with columns: id, key, and value. The table has 20 rows, each representing a document. The 'key' column shows unique document IDs, and the 'value' column shows JSON objects. A toolbar at the top right includes Document ID, Options, JSON, and a bell icon. A 'Create Document' button is located in the top right corner of the main table area.

id	key	value
0016e3f62b7c15e23c1e7b5a63c68a71	0016e3f62b7c15e23c1e7b5a63c68a71	{"rev": "1-3f27eb78ffade21f2d84116eac6d1..."}
0016e3f62b7c15e23c1e7b5a63f84f6b	0016e3f62b7c15e23c1e7b5a63f84f6b	{"rev": "1-f6669174f89d6e7f7cfceda2e7242..."}
0016e3f62b7c15e23c1e7b5a63f8501b	0016e3f62b7c15e23c1e7b5a63f8501b	{"rev": "1-c214a24910f5ba9be4fa6f0afbb88..."}
00f75f16d0c686ffeedddab332774c22	00f75f16d0c686ffeedddab332774c22	{"rev": "1-407845d905fe3532ca528bb413a..."}
01d723fe9a3f0206df8bd2cde202fa5e	01d723fe9a3f0206df8bd2cde202fa5e	{"rev": "1-a13bebcbf31537464f8aba358ddc0..."}
01d723fe9a3f0206df8bd2cde20465d3	01d723fe9a3f0206df8bd2cde20465d3	{"rev": "1-21542749e80f2c5681317326aa9c..."}
01d723fe9a3f0206df8bd2cde2063060	01d723fe9a3f0206df8bd2cde2063060	{"rev": "1-37bc4b40e428e7b7358fd399753..."}
01d723fe9a3f0206df8bd2cde263e291	01d723fe9a3f0206df8bd2cde263e291	{"rev": "1-d717526ae9c4360caed0375e160..."}
0287daa99d661feda6b791e9bda7e09	0287daa99d661feda6b791e9bda7e09	{"rev": "1-d789db870287944b5078d26e110..."}
0287daa99d661feda6b791e9be096ef	0287daa99d661feda6b791e9be096ef	{"rev": "1-a2d7d66ba56a7a1cc5104e91a5db..."}
0287daa99d661feda6b791e9be14164	0287daa99d661feda6b791e9be14164	{"rev": "1-7ac16f7ebe863339fb29f073179cf..."}
0287daa99d661feda6b791e9be190e9	0287daa99d661feda6b791e9be190e9	{"rev": "1-965049720b984431e9ba166ecd3..."}
0287daa99d661feda6b791e9be296ae	0287daa99d661feda6b791e9be296ae	{"rev": "1-be78a9697bc93f0e8f906311c01d..."}
0287daa99d661feda6b791e9be31e46	0287daa99d661feda6b791e9be31e46	{"rev": "1-568b19d9165ae273fb341f7fb087..."}
0287daa99d661feda6b791e9be31e46	0287daa99d661feda6b791e9be31e46	...