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**Branch: CBA**

**Batch:61**

## **PRACTICAL 06**

### **❖ Question :**

Using IBM Cloud, develop an application and extend its functionality using a flow based programming tool that allows to deploy your applications requiring less time and minimal or no programming.

Perform the following tasks:

**Practical 6.1:** Application should take text input from user and convert it in to speech

**Practical 6.2:** Application should be able to translate the text entered by user in to desired language.

**Practical 6.3:** Application should accept age as an input from user and should notify a user if they are allowed to vote or not via message, depending on the age entered by user.

» **First of all let's install node-red using npm:**

» **Open your terminal/CMD and run below command:**

**command :**

**npm install -g --unsafe-perm node-red**

```
>_ pwsh ┤ 2ms
>> npm install -g --unsafe-perm node-red
changed 305 packages in 42s

46 packages are looking for funding
  run `npm fund` for details
>_ pwsh ┤ 42s 429ms
>> |
```

» **Then start the Node-RED application :**

**command :**

**node-red**

```
25 Feb 10:22:18 - [info] Node-RED version: v3.1.5
25 Feb 10:22:18 - [info] Node.js version: v20.10.0
25 Feb 10:22:18 - [info] Windows_NT 10.0.22631 x64 LE
25 Feb 10:22:19 - [info] Loading palette nodes
25 Feb 10:22:19 - [info] Settings file : C:\Users\Tushar\.node-red\settings.js
25 Feb 10:22:19 - [info] Context store : 'default' [module=memory]
25 Feb 10:22:19 - [info] User directory : C:\Users\Tushar\.node-red
25 Feb 10:22:19 - [warn] Projects disabled : editorTheme.projects.enabled=false
25 Feb 10:22:19 - [info] Flows file : C:\Users\Tushar\.node-red\flows.json
25 Feb 10:22:19 - [info] Creating new flow file
25 Feb 10:22:19 - [warn]

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Your flow credentials file is encrypted using a system-generated key.

If the system-generated key is lost for any reason, your credentials file will not be recoverable, you will have to delete it and re-enter your credentials.

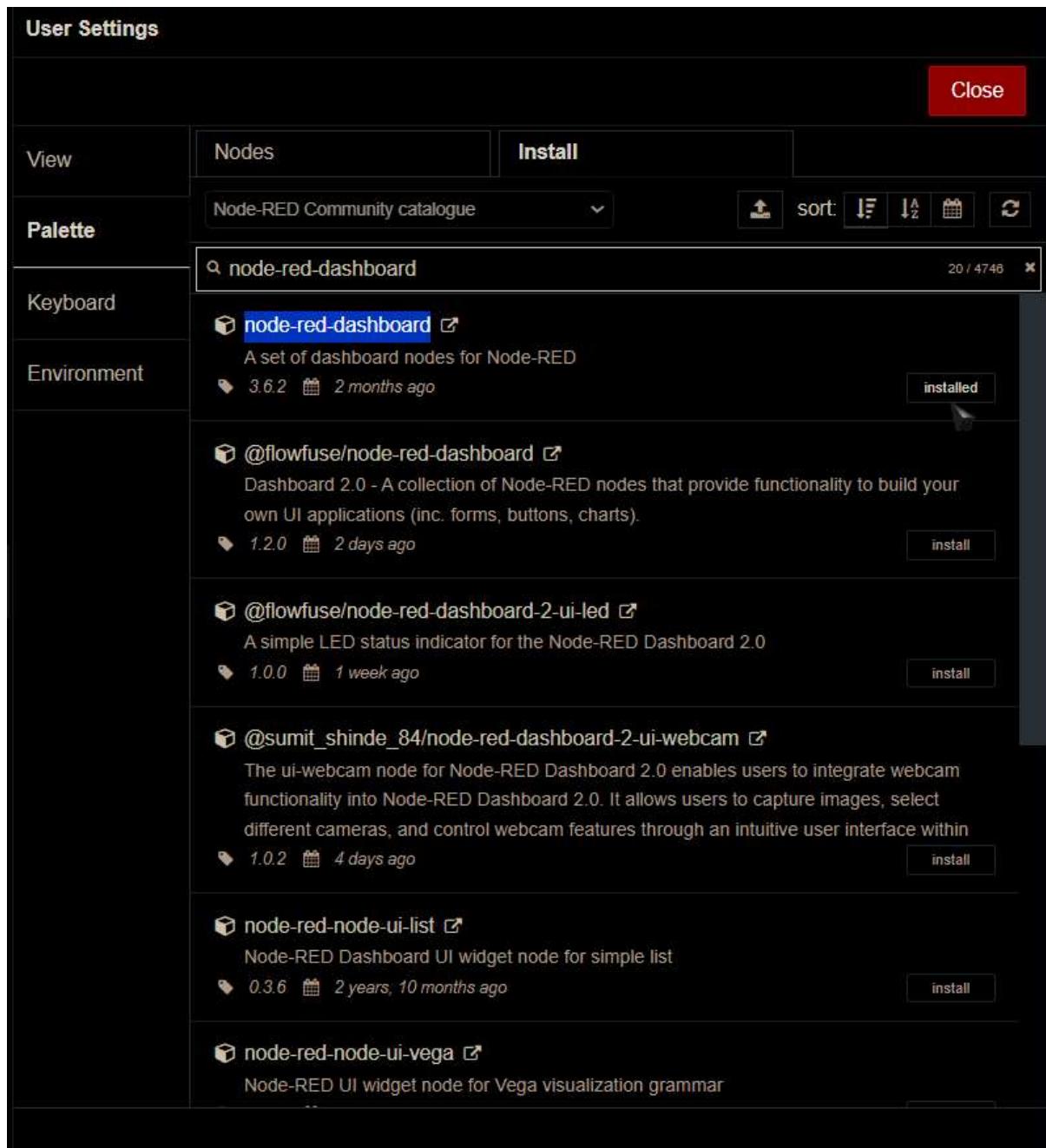
You should set your own key using the 'credentialSecret' option in your settings file. Node-RED will then re-encrypt your credentials file using your chosen key the next time you deploy a change.
-----

25 Feb 10:22:19 - [info] Server now running at http://127.0.0.1:1880/
25 Feb 10:22:19 - [warn] Encrypted credentials not found
25 Feb 10:22:19 - [info] Starting flows
25 Feb 10:22:19 - [info] Started flows
```

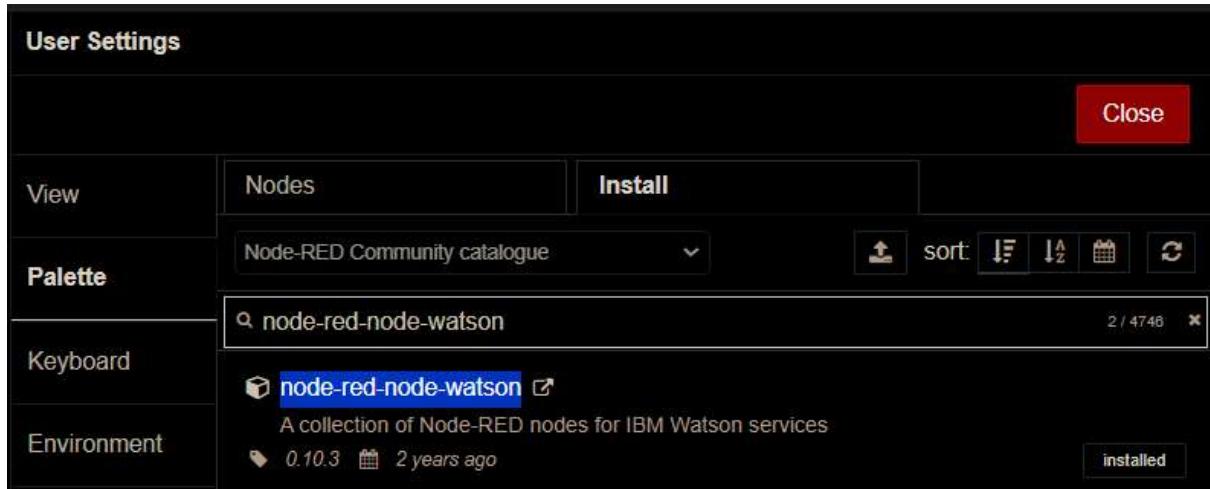
it starts the Node-RED server, and you can access the Node-RED editor through a web browser by navigating to **http://localhost:1880** (by default). This web-based editor allows you to create and deploy flows by connecting nodes that represent different functions or devices.

### **» Practical 6.1 : Application should take text input from user and convert it in to speech.**

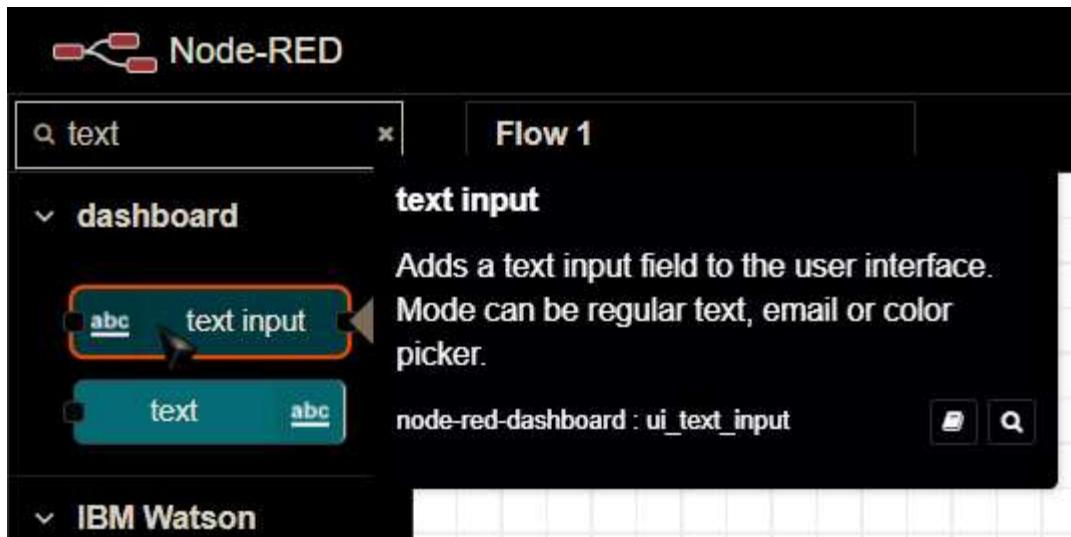
Go to user settings and install “**node-red-dashboard**” palette :



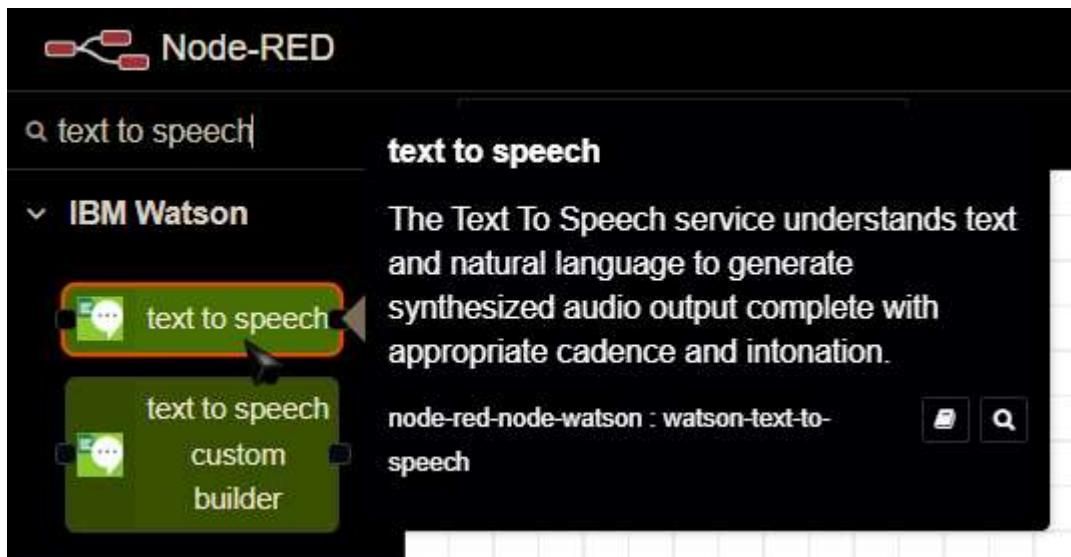
After that install “**node-red-node-watson**” palette :



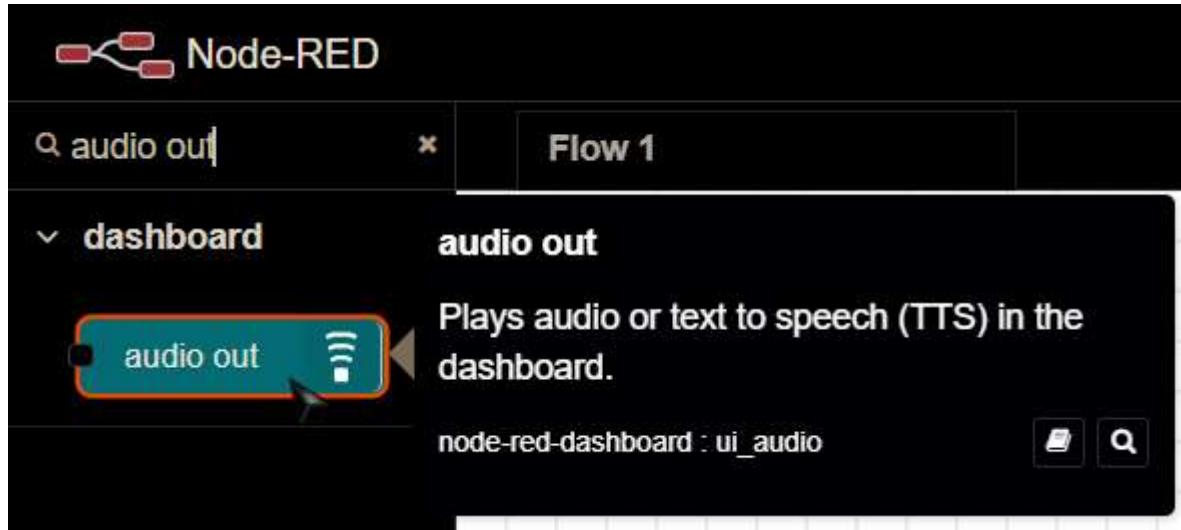
In the flow add filter node “**text input**”:



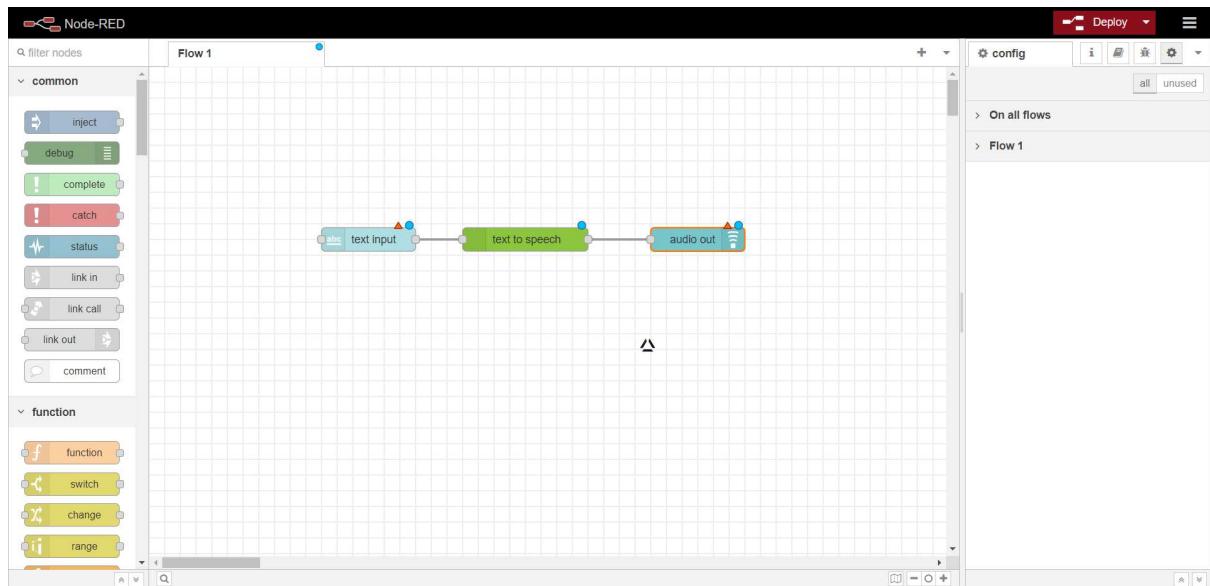
Add filter node “**text to speech**”:



Add filter node “**audio out**”:



After adding this nodes connect it together :



Click on text input node and edit group add name configure it :

Edit text input node > Add new dashboard group config node

**Properties**

Name: Enter your text to convert it into audio

Tab: TEXT TO SPEECH

</> Class: Optional CSS class name(s) for widget

Width: 6

Display group name

Allow group to be collapsed

Now hit add button on top and set delay "0" :

Edit text input node

**Properties**

Group: [TEXT TO SPEECH] Enter your text to

Size: auto

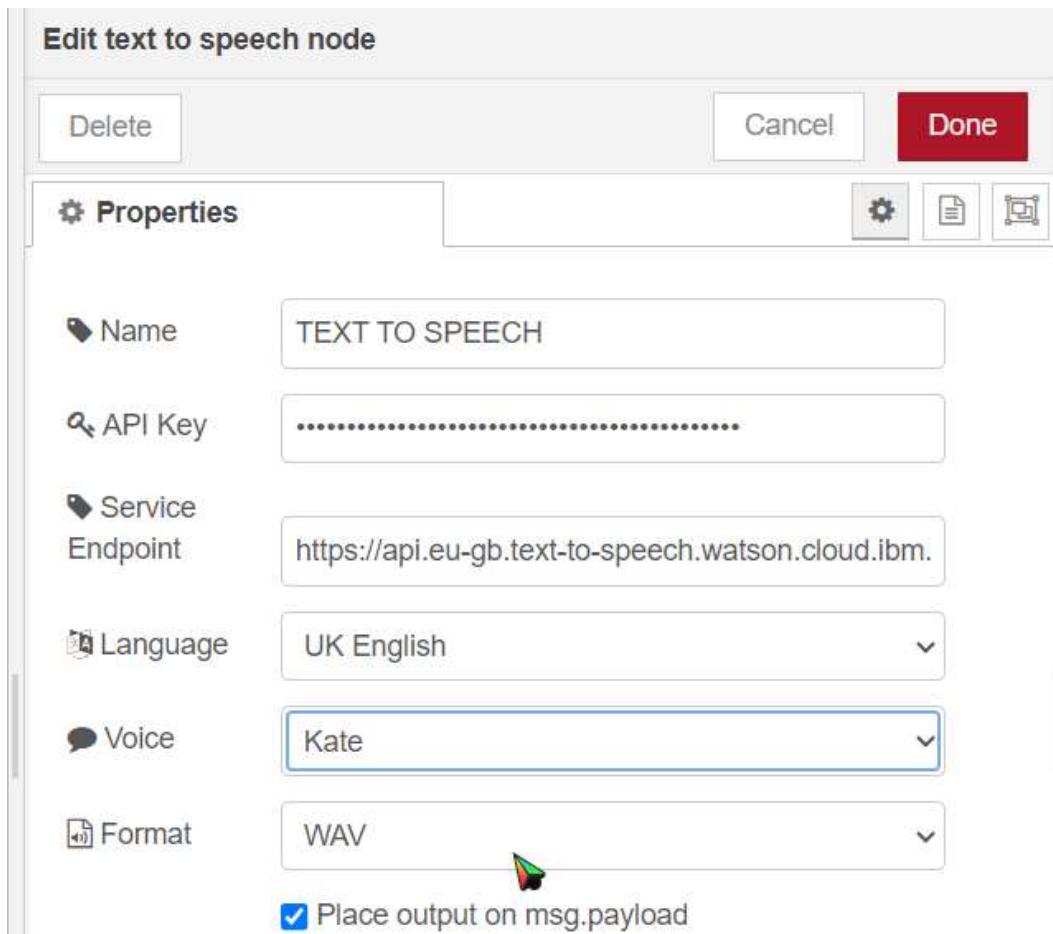
Label:

Tooltip: optional tooltip

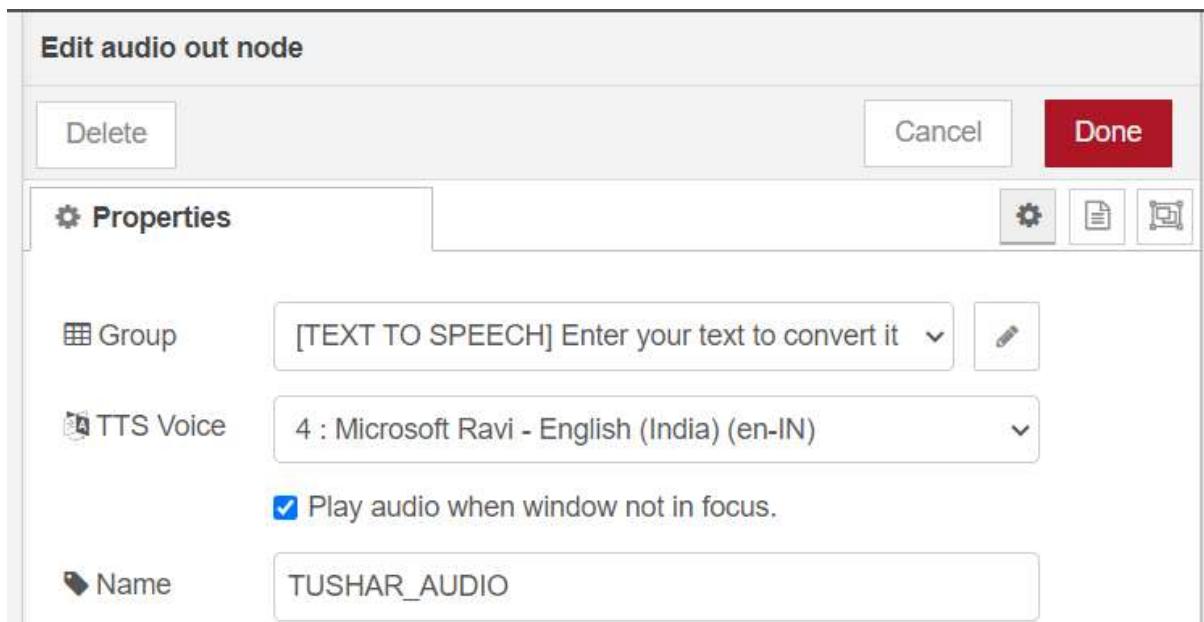
Mode: text input  Delay (ms) 0

Now finally hit done button.

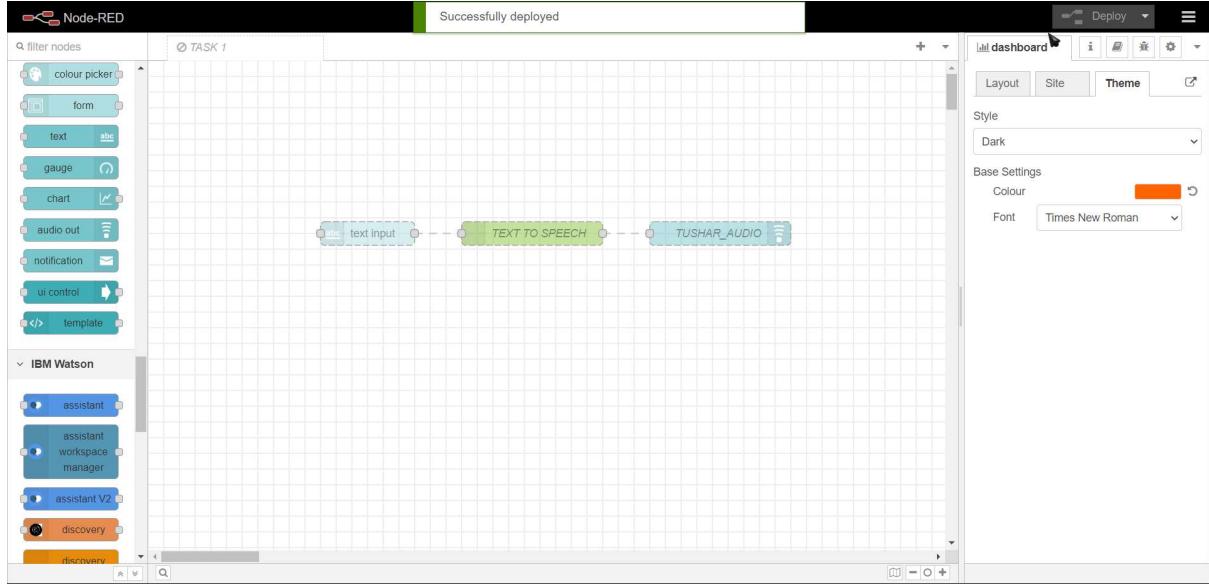
Then click on text to speech node and enter name API key & URL from service that we have created on IBM cloud :



After that click on audio out node & set name & select group name :

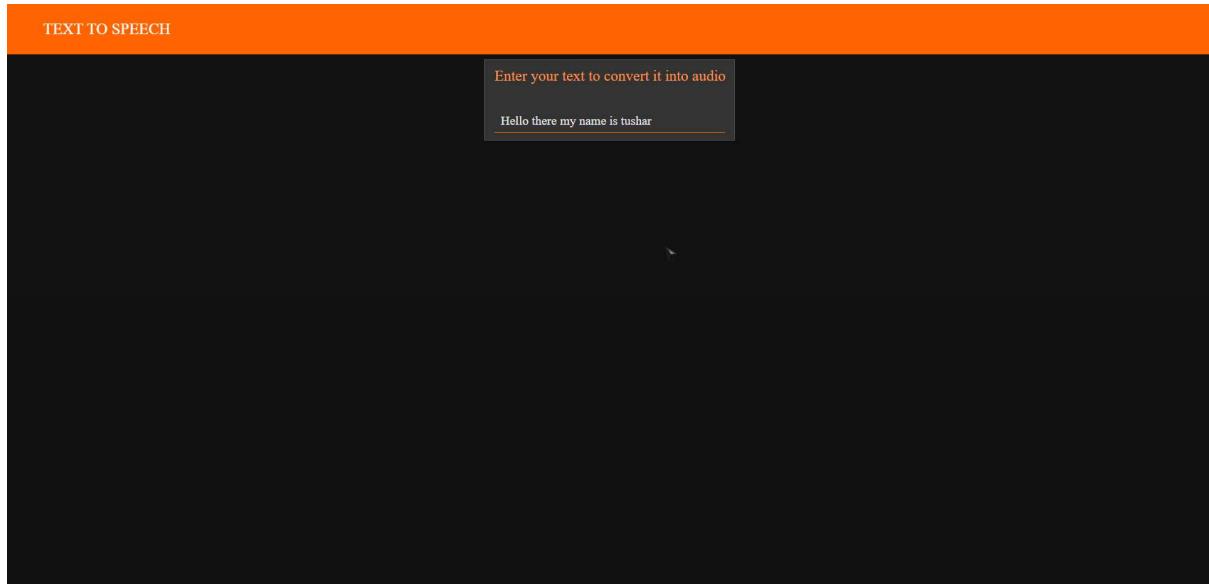


After configuring all nodes you can finally deploy this flow to be able to get output of this flow :



Open new tab & go to this url to get our output :

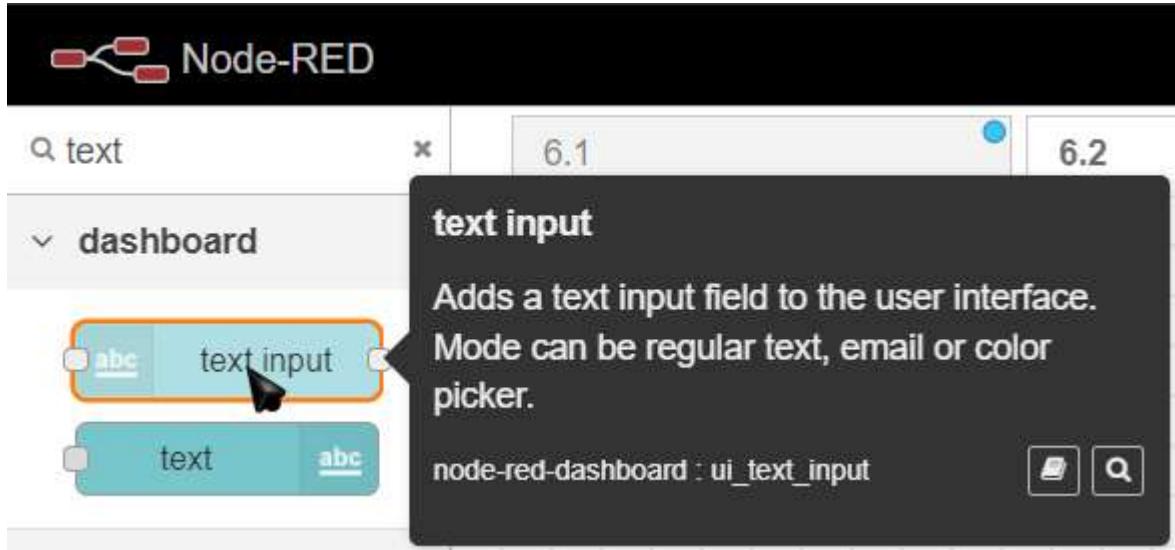
<http://127.0.0.1:1880/ui/>



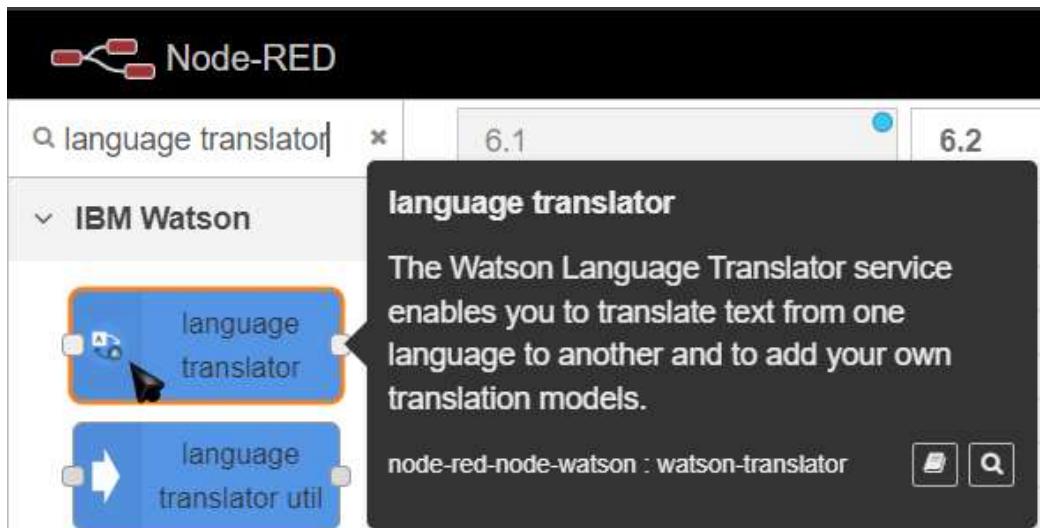
I typed text input in that input box after that if I hit enter button I can hear an audio output of that entered text.

» **Practical 6.2 : Application should be able to translate the text entered by user in to desired language.**

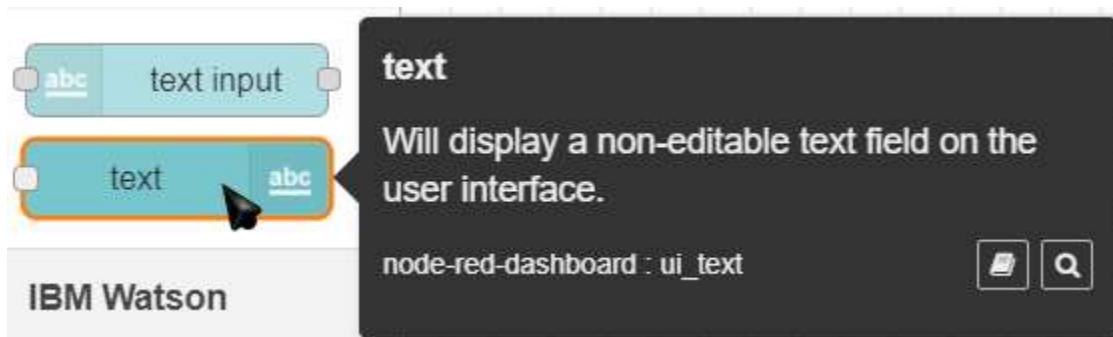
Add the new flow & add filter node “**text input**”:



add filter node “**language translator**”:



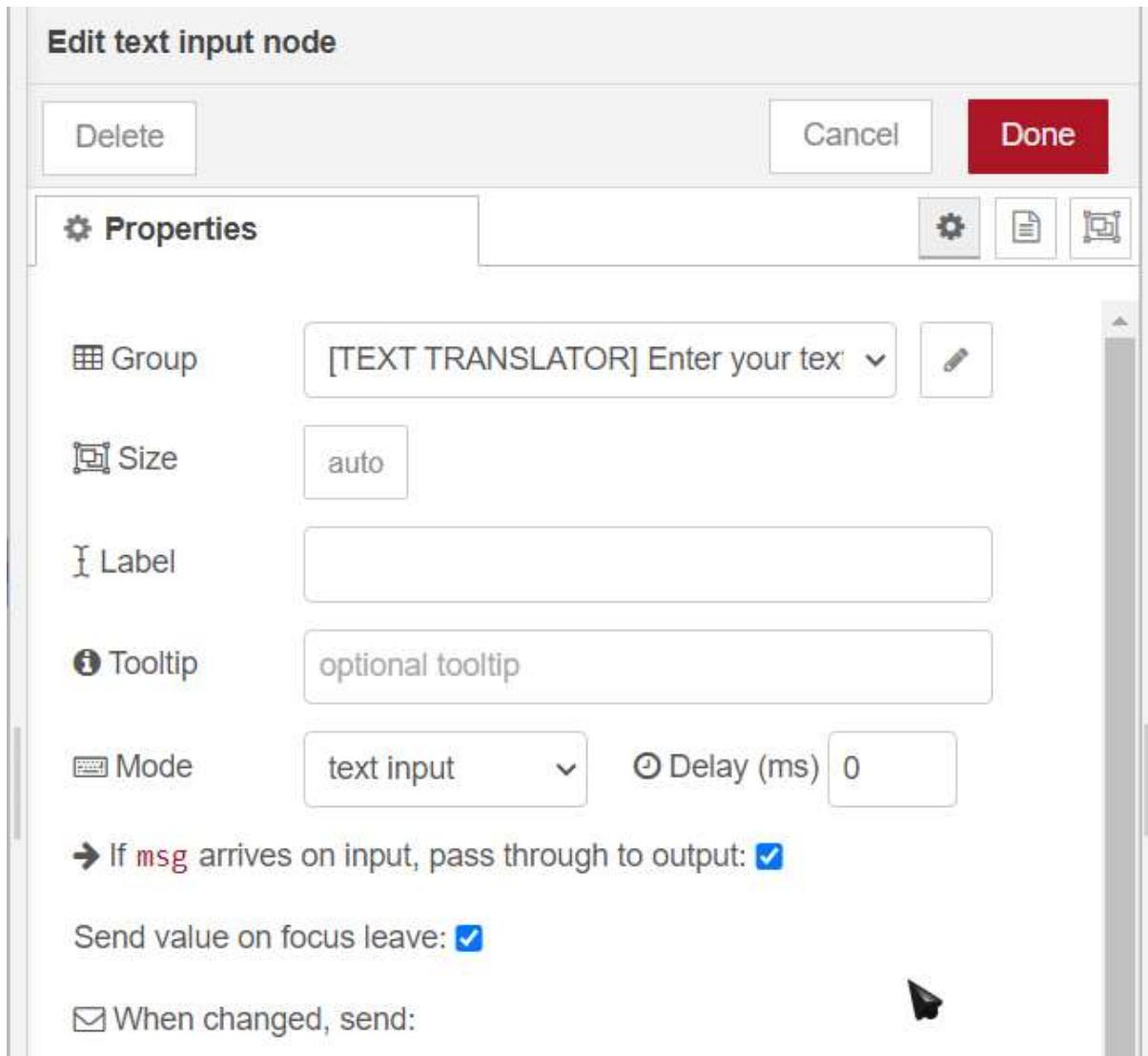
add filter node “**text**”:



Connect the all nodes together :



Click the text input node & configure group name set delay "0" :



You can also configure tab by clicking on pencil icon that available at right position of group icon,

Then simply hit done button .

After that configure language translator node enter Name , api key & url from language translator service that we have already created on our IBM cloud account :

**Edit language translator node**

Delete      Cancel      Done

**Properties**

Name	TUSHAR_LANGUAGE_TRANSLATOR
API Key	.....
Service Endpoint	https://api.au-syd.language-translator.watson.cloud.ibm.com
Mode	Translate
Domains	General
Source	English
Target	Gujarati
Parameters	<input checked="" type="checkbox"/> Scope Not using translation utility

After that click on text node & configure it :

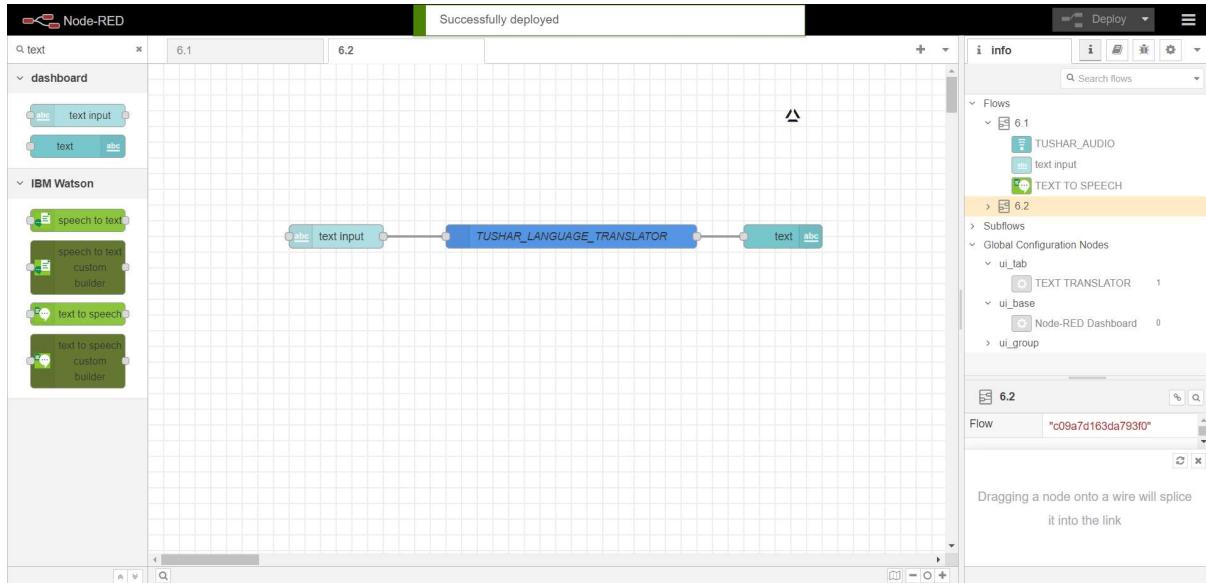
**Edit text node**

Delete      Cancel      Done

**Properties**

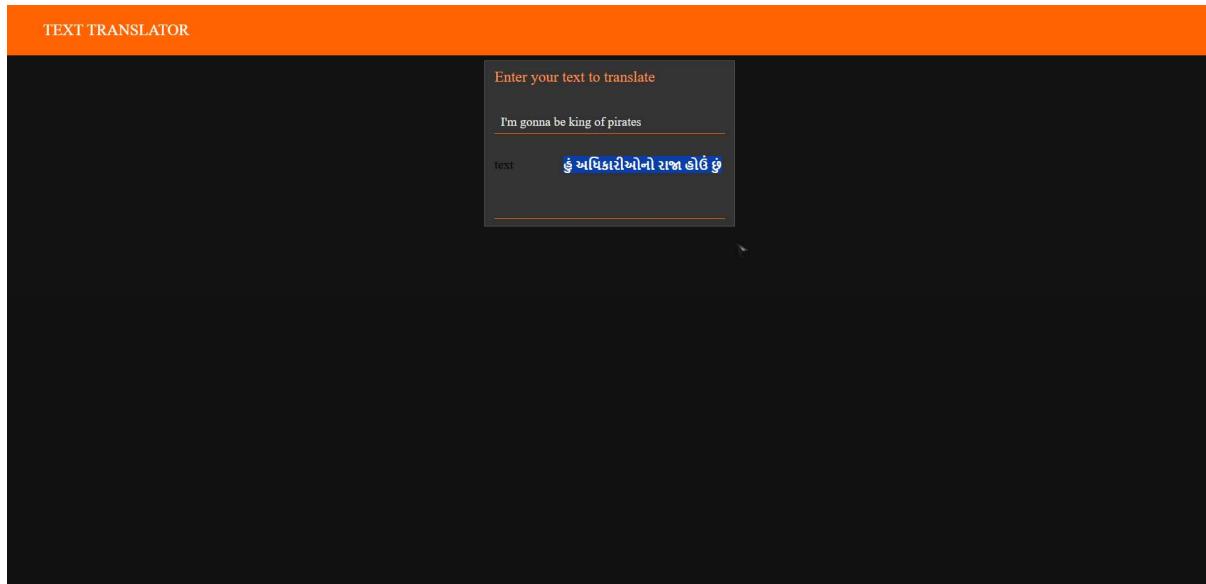
Group	[TEXT TRANSLATOR] Enter your text
Size	auto
Label	text
Value format	{{msg.payload}}

After configuring all nodes you can finally deploy.



Open new tab & go to this url to get our output :

<http://127.0.0.1:1880/ui/>



» **Practical 6.3 : Application should accept age as an input from user and should notify a user if they are allowed to vote or not via message, depending on the age entered by user.**

Open twilio website and sign in first :

<https://www.twilio.com/en-us>

after login you will see a home page like this

The screenshot shows the Twilio Console homepage. At the top, it says "Console My first Twilio account Trial: \$15.50 Upgrade". Below that, there are two tabs: "Develop" (which is selected) and "Monitor". On the left sidebar, there are links for Phone Numbers, Verify, Studio, Messaging, and Video. Under "Explore Products", there is a "+". In the main content area, it says "Ahoy Tushar, welcome to Twilio!". There are three main sections: "Connect to 3rd-party applications" (with a list of required items: Account SID and Auth token, Twilio phone number, Upgraded Twilio account), "Invite teammates" (with a "Invite teammates" button), and "Talk to Sales" (with a "Talk to Sales" button). At the bottom, there are sections for "Account Info" (Account SID: ACf6eb307ab6df82d475a0ca5c12afb97b) and "Helpful links" (How does Twilio work?, Read 3rd-party integration FAQ).

This screenshot shows the same Twilio Console homepage as the previous one, but with more detailed account information. The "Account Info" section now includes the "Auth Token" field, which is currently empty and has a "Show" link. A warning message below it says: "⚠ Always store your token securely to protect your account. [Learn more](#)". The "Helpful links" section has been expanded to include: "How does Twilio work?", "API documentation", "Explore Marketplace", "Support help center", and "Explore Marketplace". The rest of the interface is identical to the first screenshot.

Go to phone number section under devlop and click on manage

After that click on buy a number and buy any number whatever you want to buy :

Number	Type	Voice	SMS	MMS	Fax	Address Requirement	Monthly fee	
+1 985 465 3380▲	Local	📞	💬	🖼️	📅	None	\$1.15	<button>Buy</button>
+1 270 817 7855▲	Local	📞	💬	🖼️	📅	None	\$1.15	<button>Buy</button>
+1 318 504 3979▲	Local	📞	💬	🖼️	📅	None	\$1.15	<button>Buy</button>

After buying a number you can see that number added to our account :

Always store your token securely to protect your account. [Learn more](#)

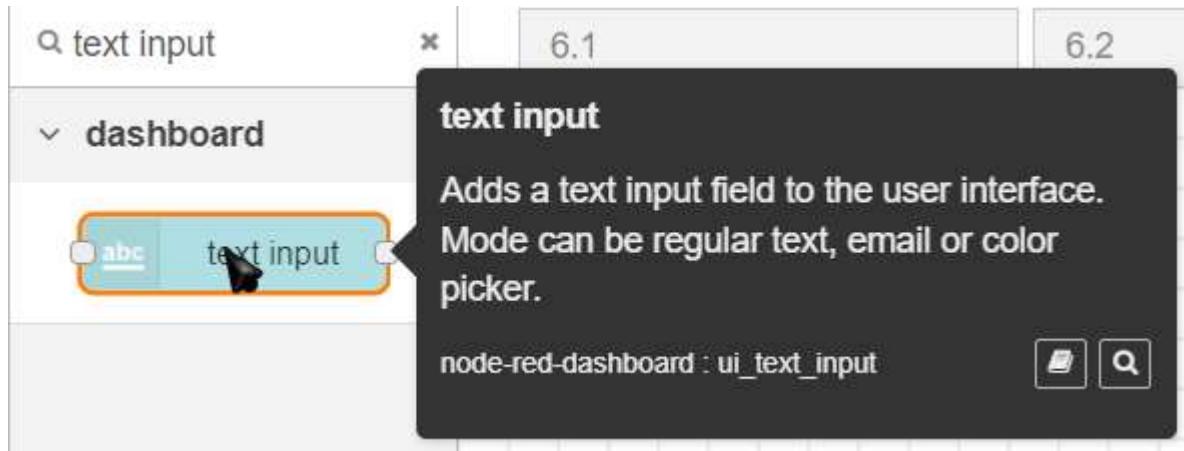
**My Twilio phone number**

You are in a trial account and can only send messages and make calls to [verified\\_phone\\_numbers](#). Learn more about your [trial account](#).

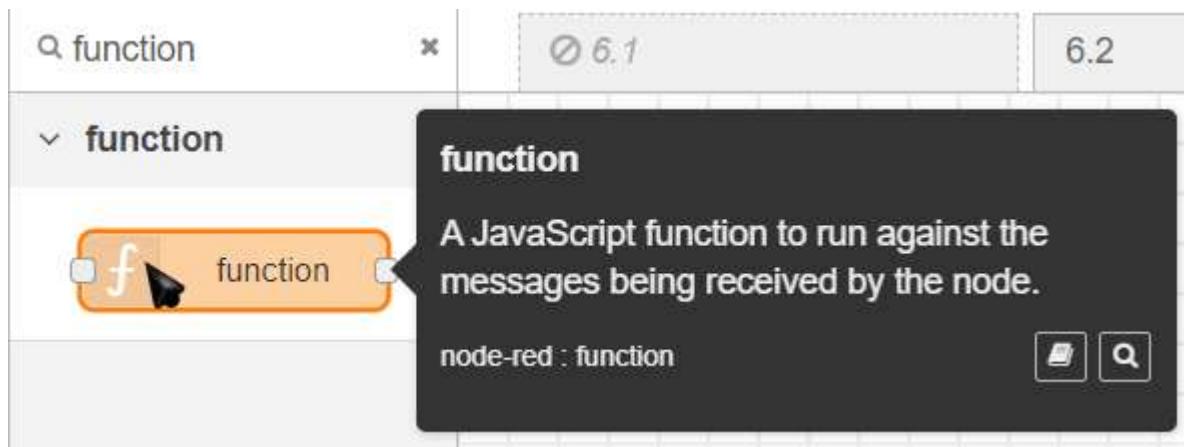
That's it.

Then go back to node-red-application and add new flow :

add filter node “**text input**”:



add filter node “**function**”:



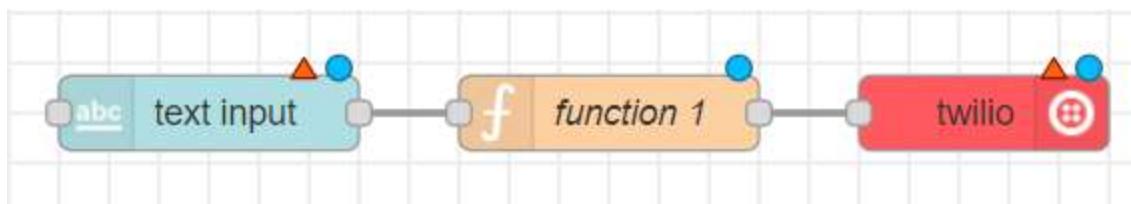
Go to user settings and install “**node-red-node-twilio**” palette :



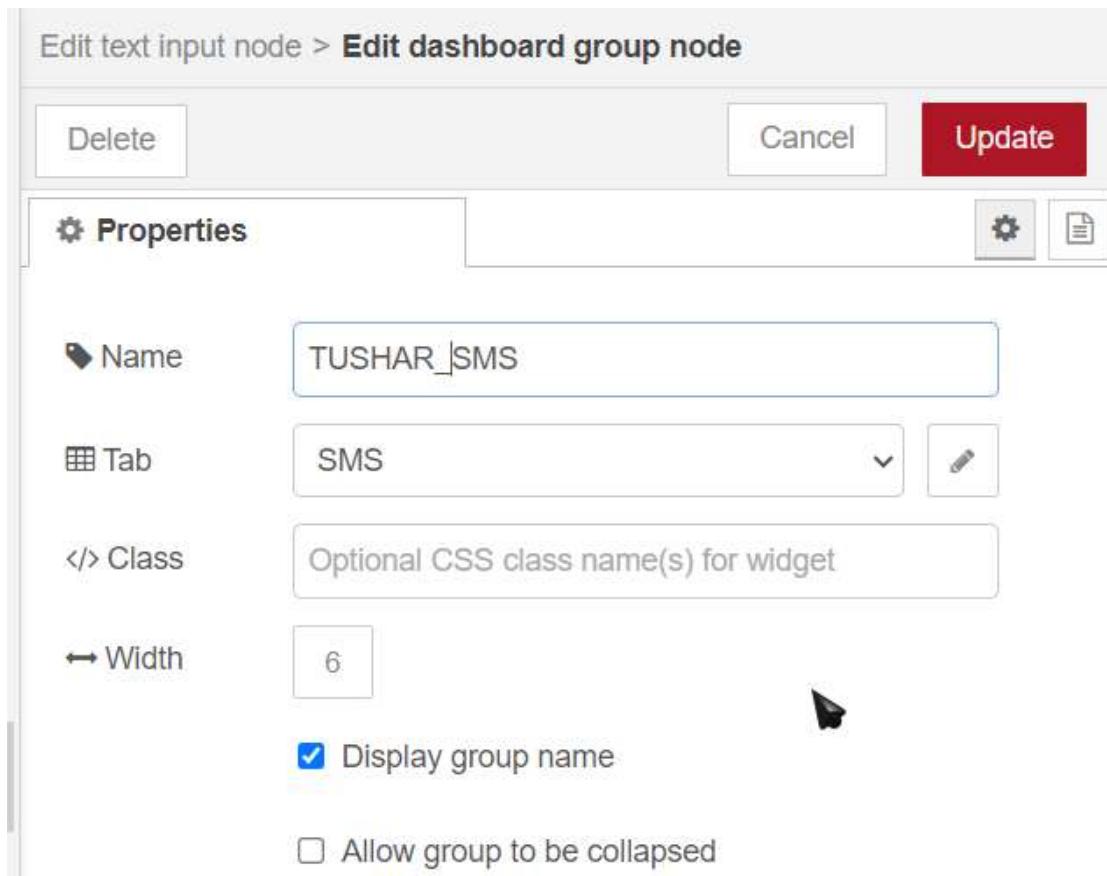
add filter node “**twilio out**”:



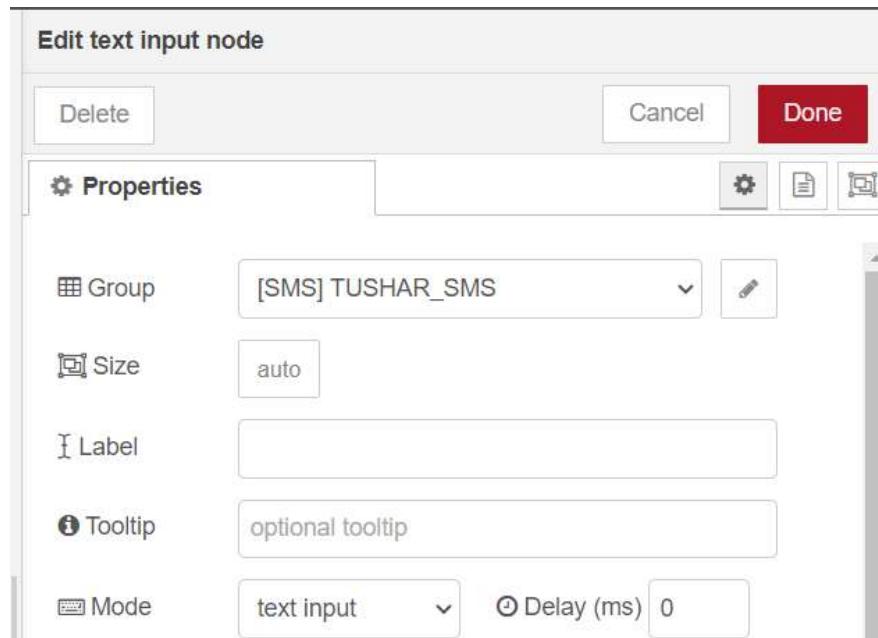
After that Connect all nodes together :



Click on the text input node & add new group name & configure it :



Then set delay "0" and hit done button.



After that click on function node add code of age if that 18+ than give massage you are eligible If not 18+ than show sorry you are not eligible:

```
if (msg.payload > 18) {
    msg.payload = "🎉 Congratulations! You are eligible to
vote= " + msg.payload + "Years old";
}
else {
    msg.payload = "😢 Sorry, you are not eligible to vote= " +
msg.payload + "Years old";
}
return msg;
```



Click on Twilio node and enter SID ,phone number you buyed , add token & add name :

Edit twilio out node > **Add new twilio-api config node**

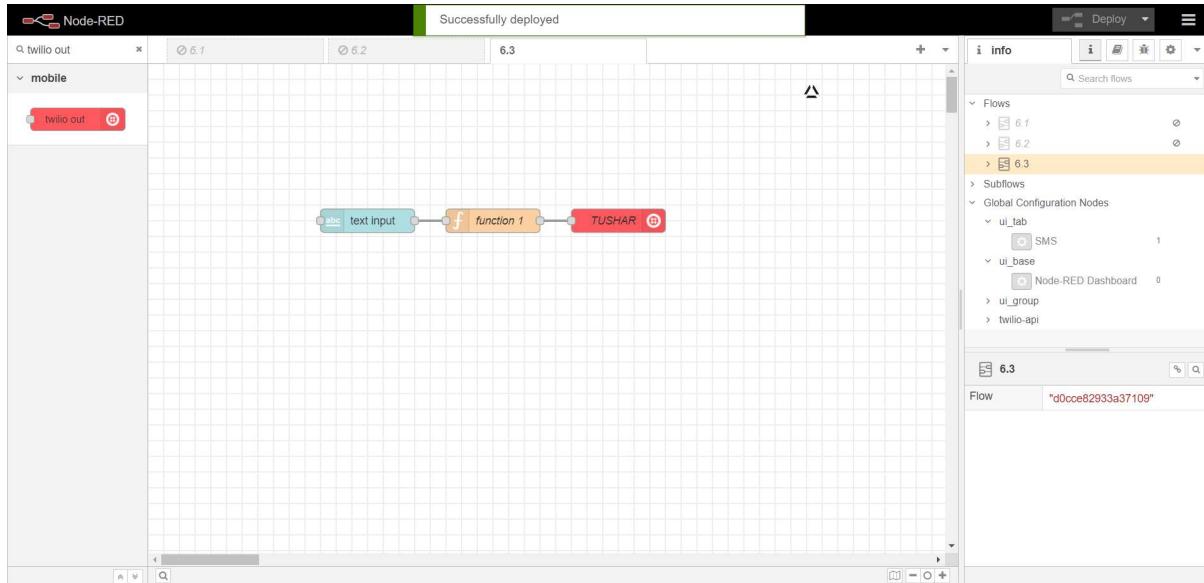
		<b>Cancel</b>	<b>Add</b>
<b>Properties</b>			
Account SID	ACf6eb307ab6df82d475a0ca5c12afb97b		
✉ From	+19854653380		
🔒 Token	.....		
🏷 Name	TWILIO		

After adding this select sms in output and enter your phone number to receive SMS on your phone number :

**Edit twilio out node**

		<b>Delete</b>	<b>Cancel</b>	<b>Done</b>
<b>Properties</b>				
👤 Twilio	TWILIO			
☰ Output	SMS			
✉ To	+919687834849			
🏷 Name	TUSHAR			

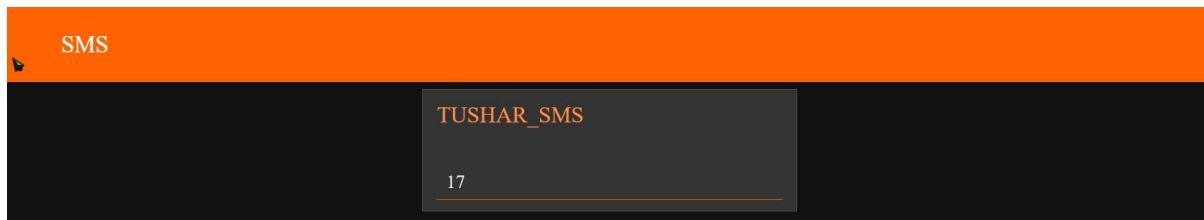
After configuring all nodes you can finally deploy.



Open new tab & go to this url to get our output :

<http://127.0.0.1:1880/ui/>

enter age less than 18 like "17" :



And enter age greater than 18 like "69" :



As you can see in below messages 17 age are not eligible to vote and 69 age are eligible to vote my smartphone's screenshot :

