

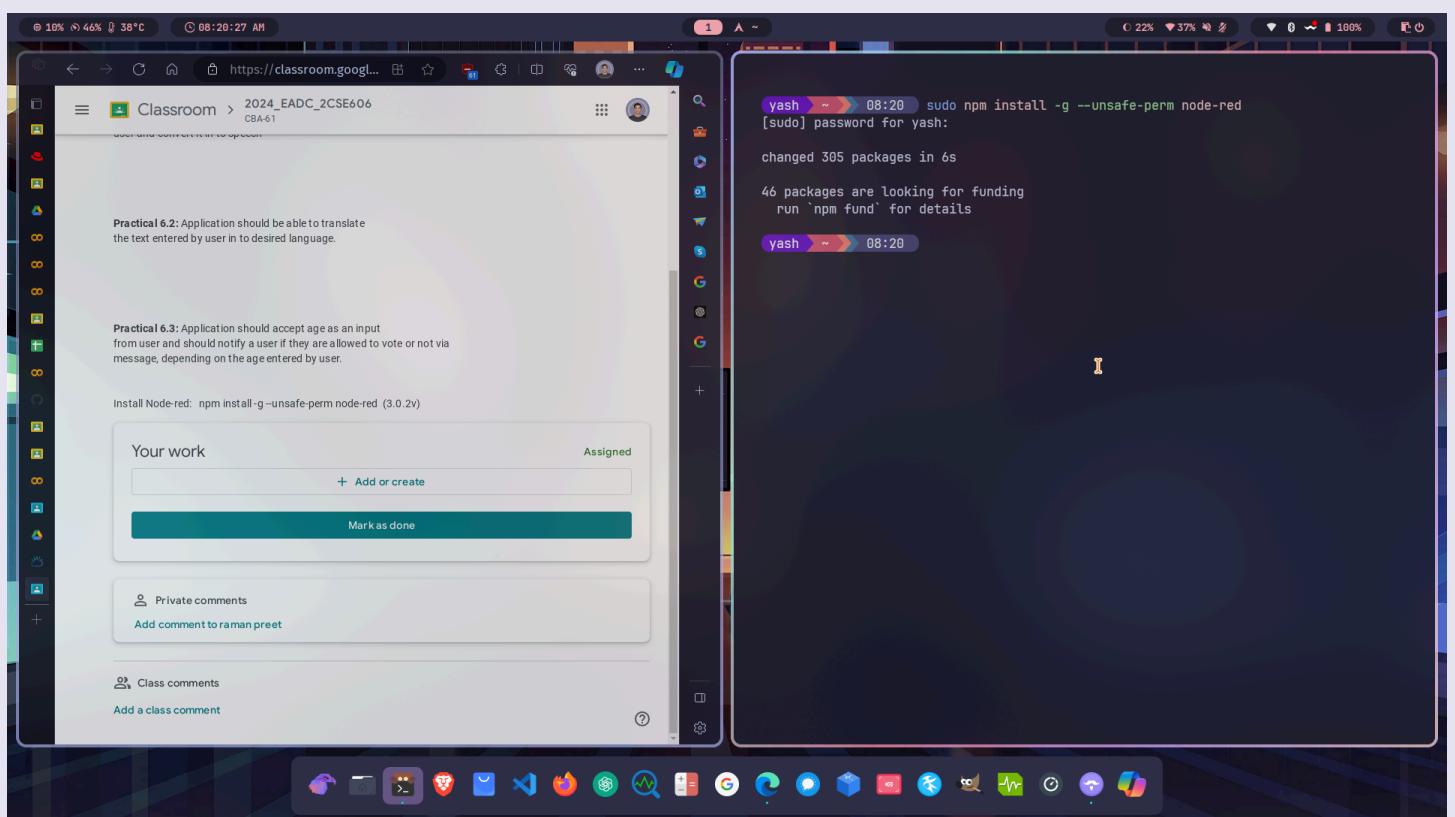
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Enrollment number - 21162101012  
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**Aim :** Using IBM Cloud, develop an application and extend its functionality using a flow based programming tool that allows to deploy your applications requiring 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**

- First, install node-red package to make it easier to design a web application.



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

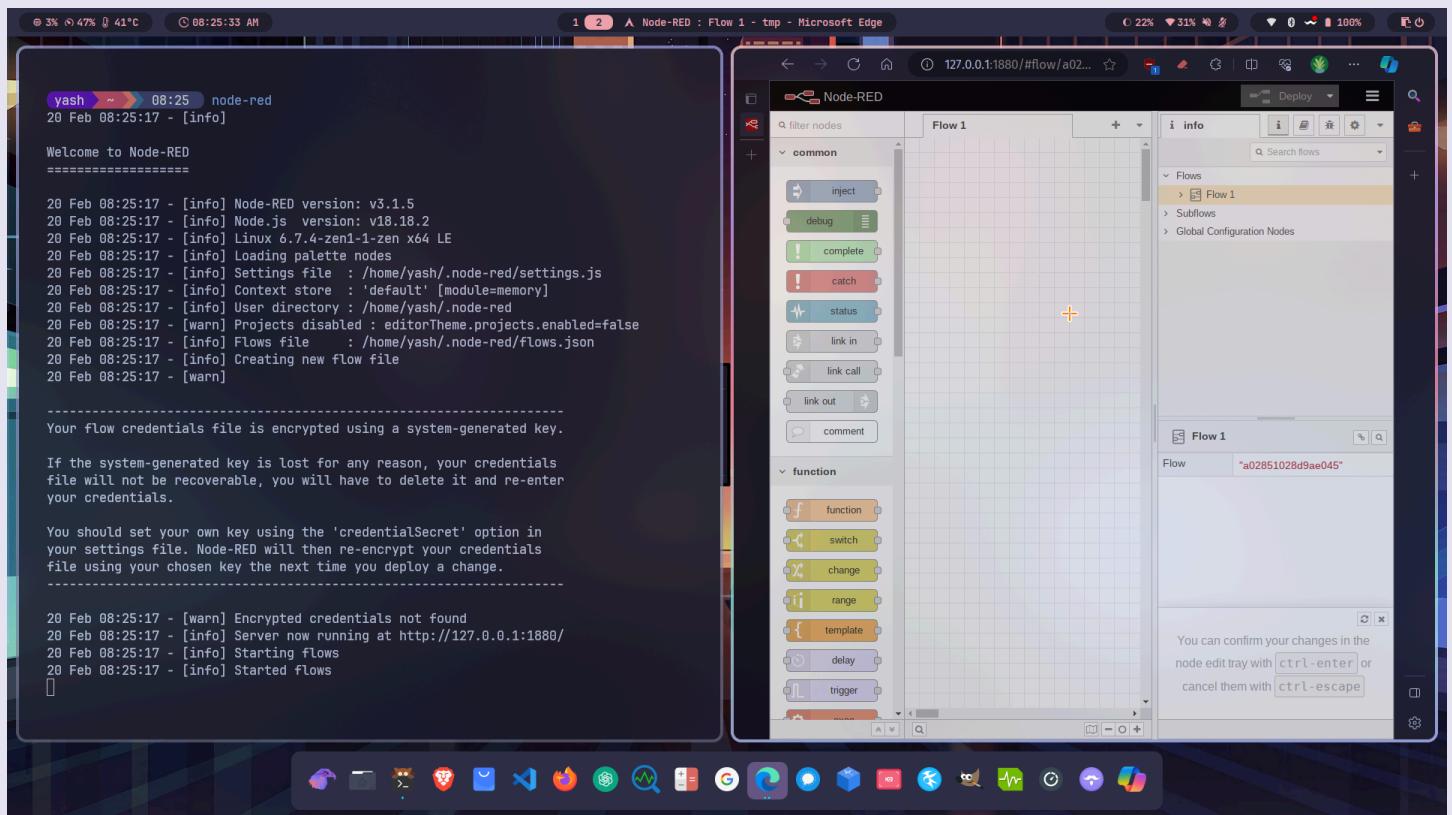
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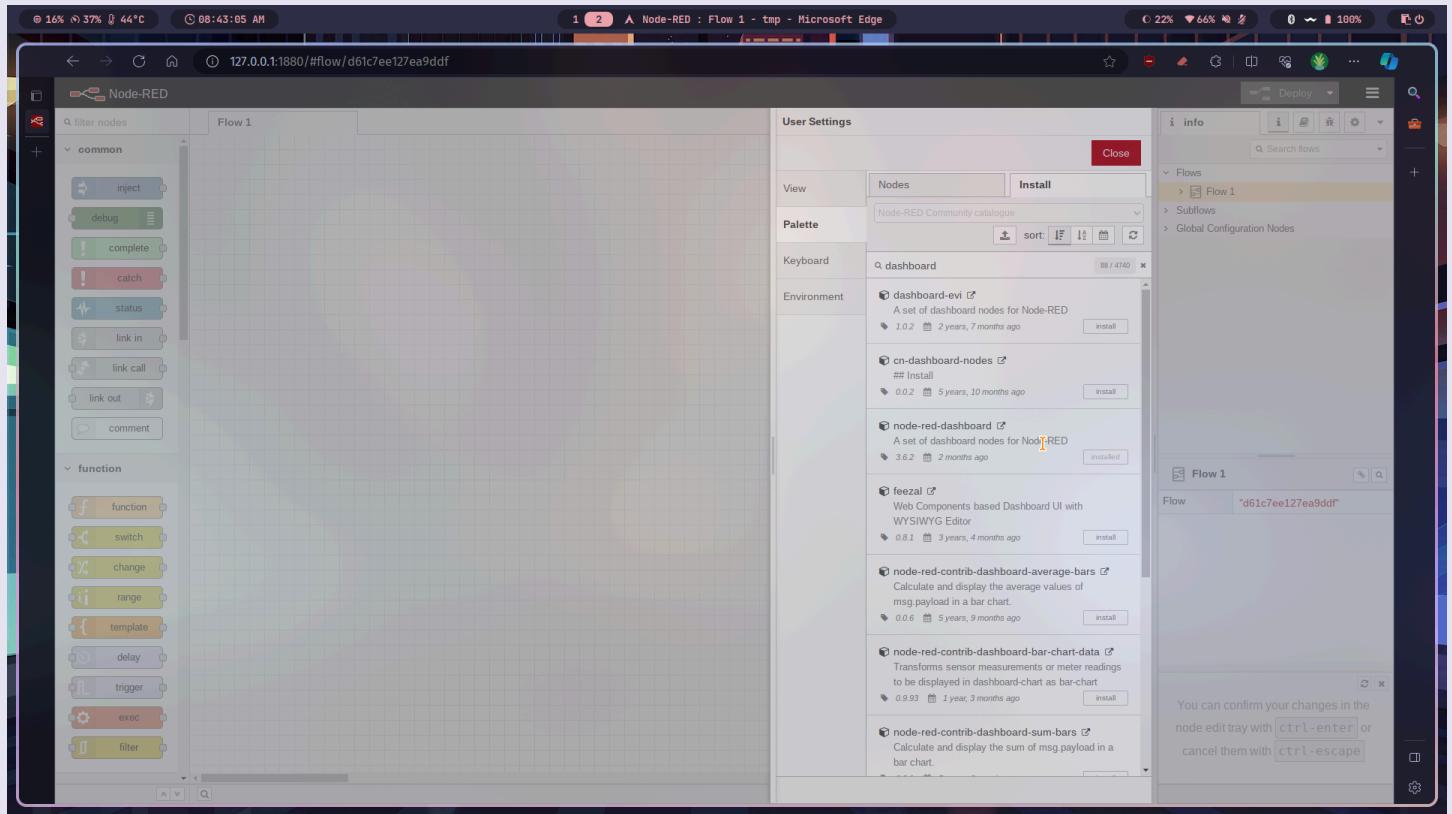
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b. After installation, open the localhost URL given after running node-red.



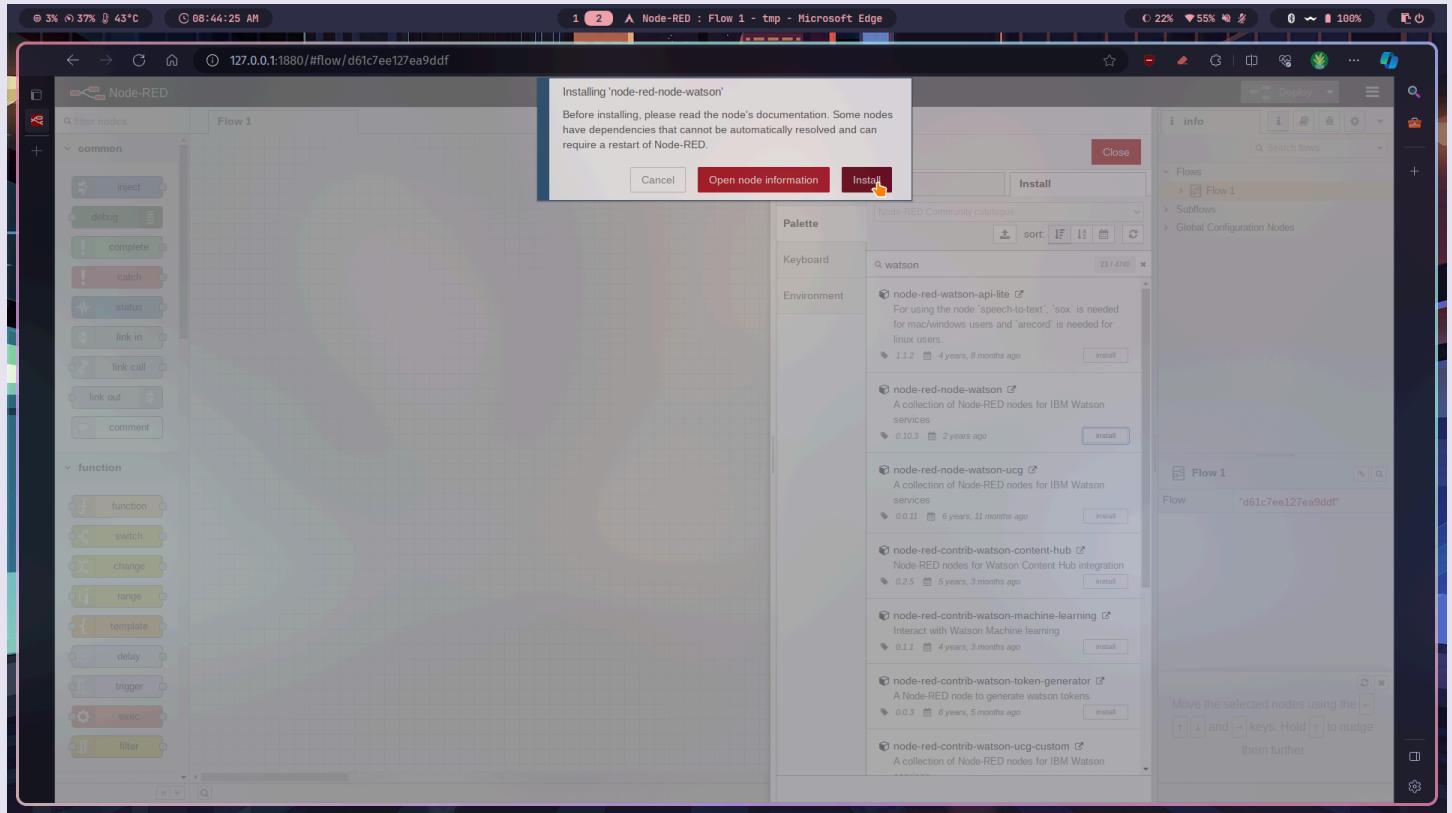
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- c. Now, from top right menu button, open 'Manage Palette' and install node-red-dashboard set of nodes



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d. Then, install node-red-node-watson set of nodes



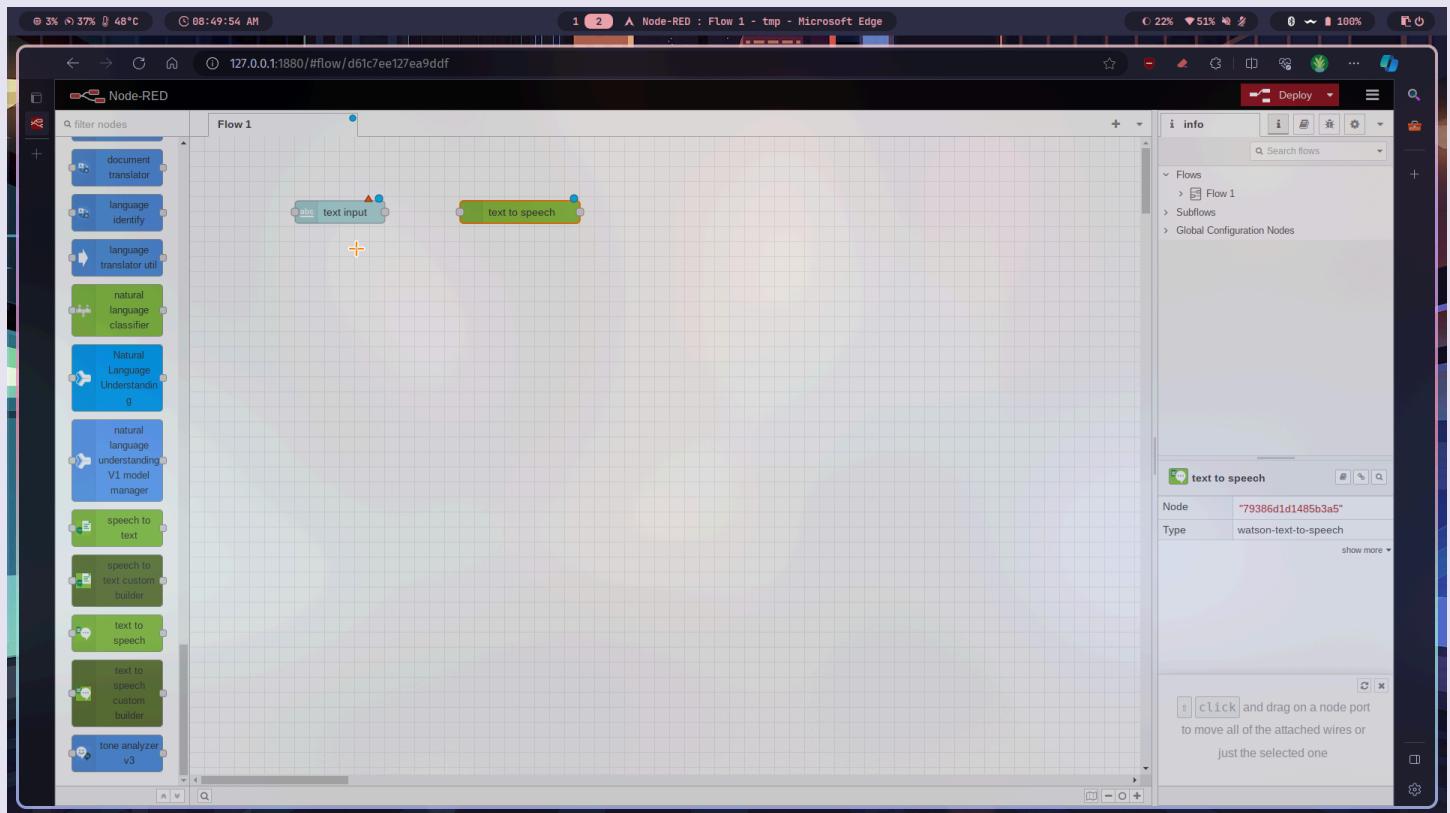
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- e. Take text input node from dashboard set and text to speech node from watson set



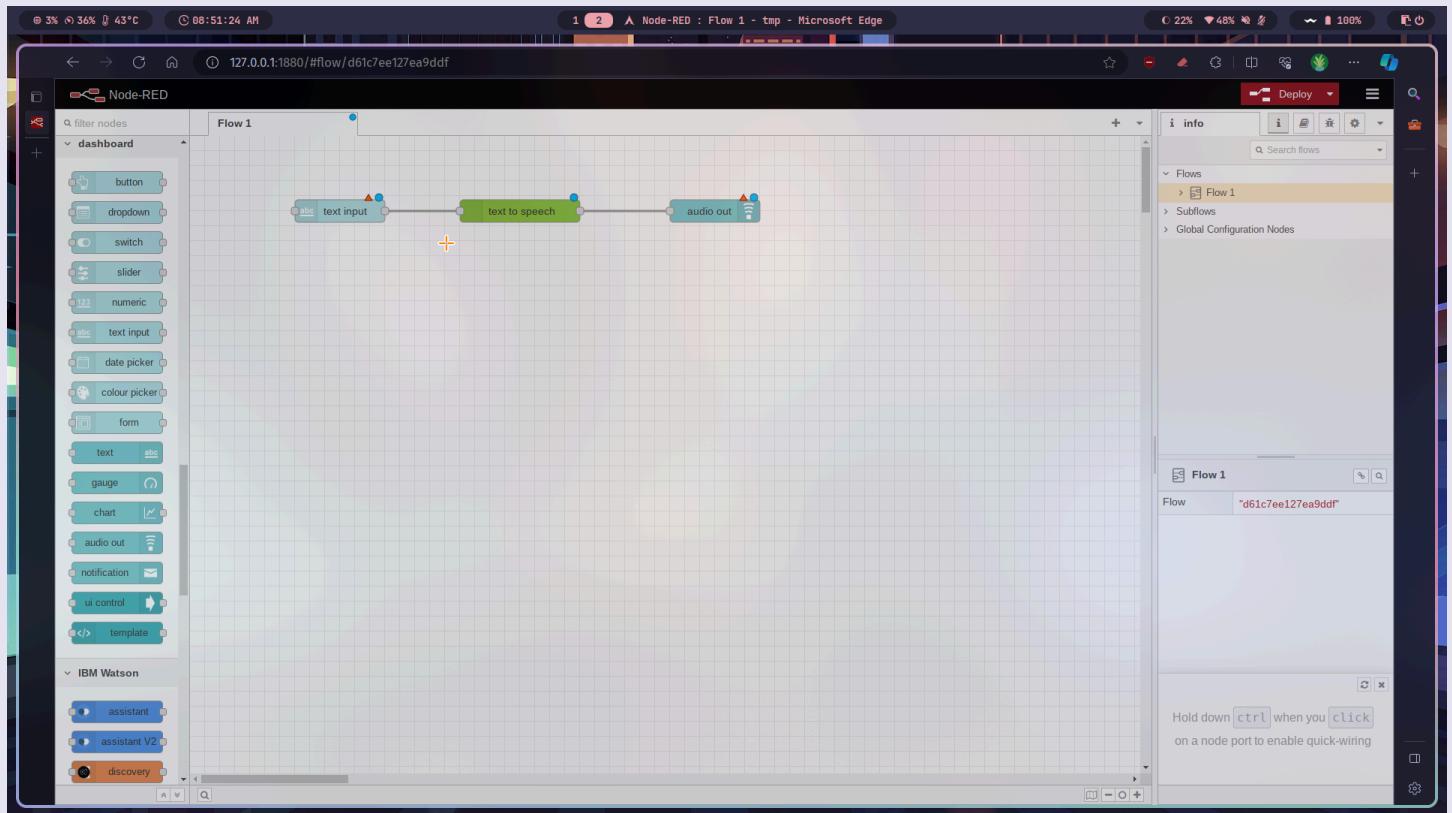
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f. Also, take audio out node from dashboard set to get audio output



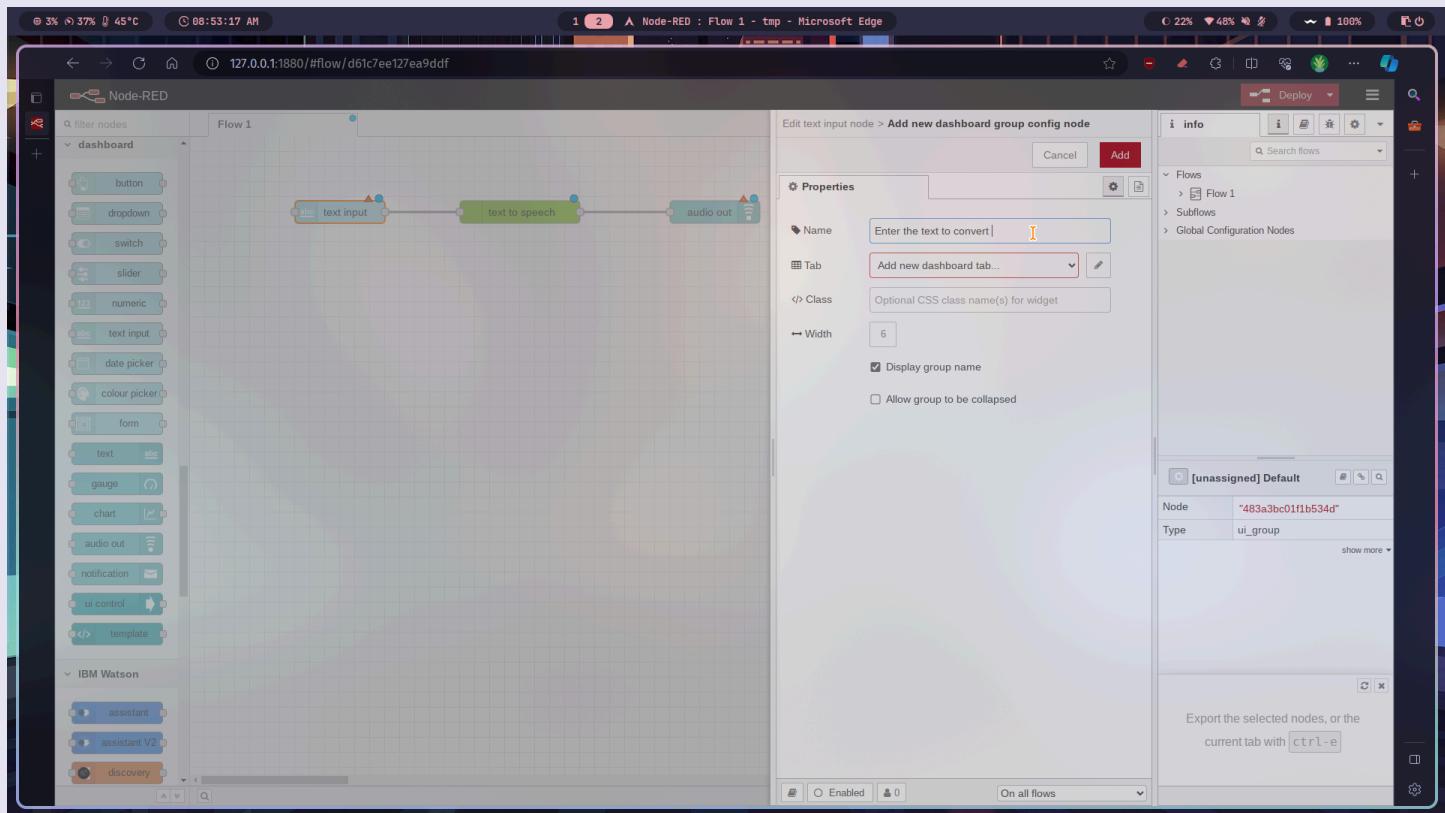
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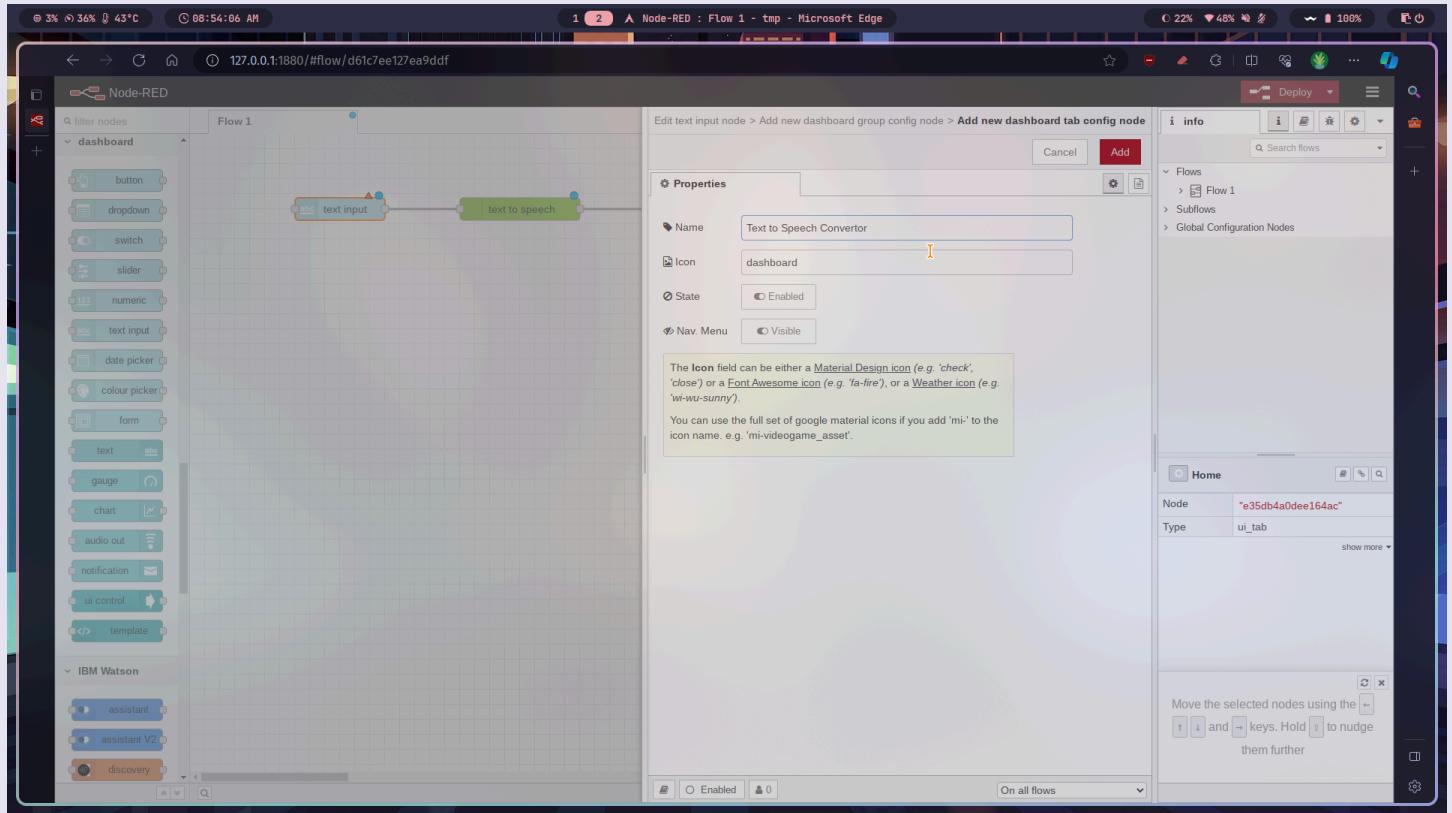
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g. Then, click the text input node and configure it by giving name as prompt to take user input



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h. For, dashboard tab, create a new tab with the appropriate title



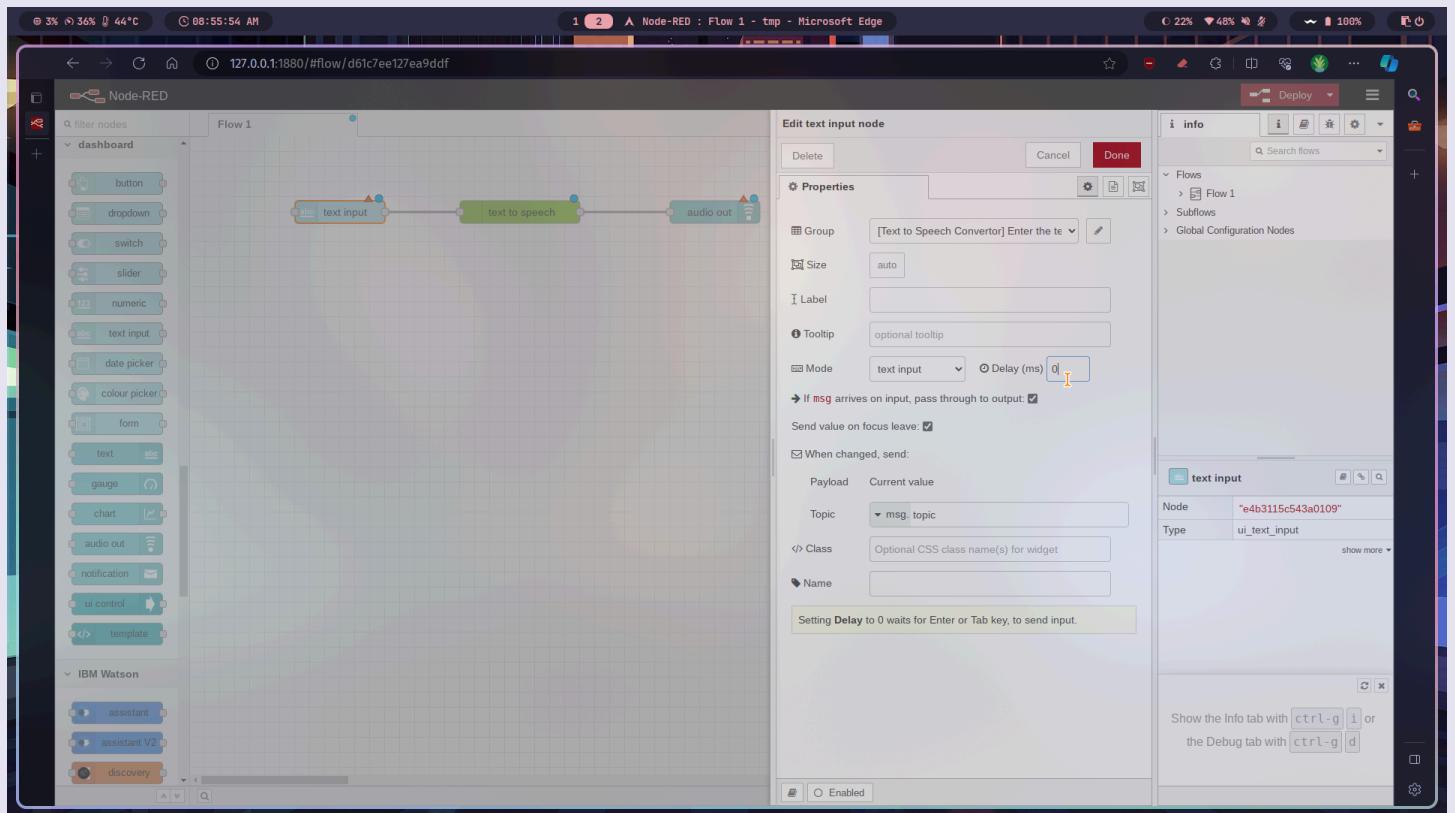
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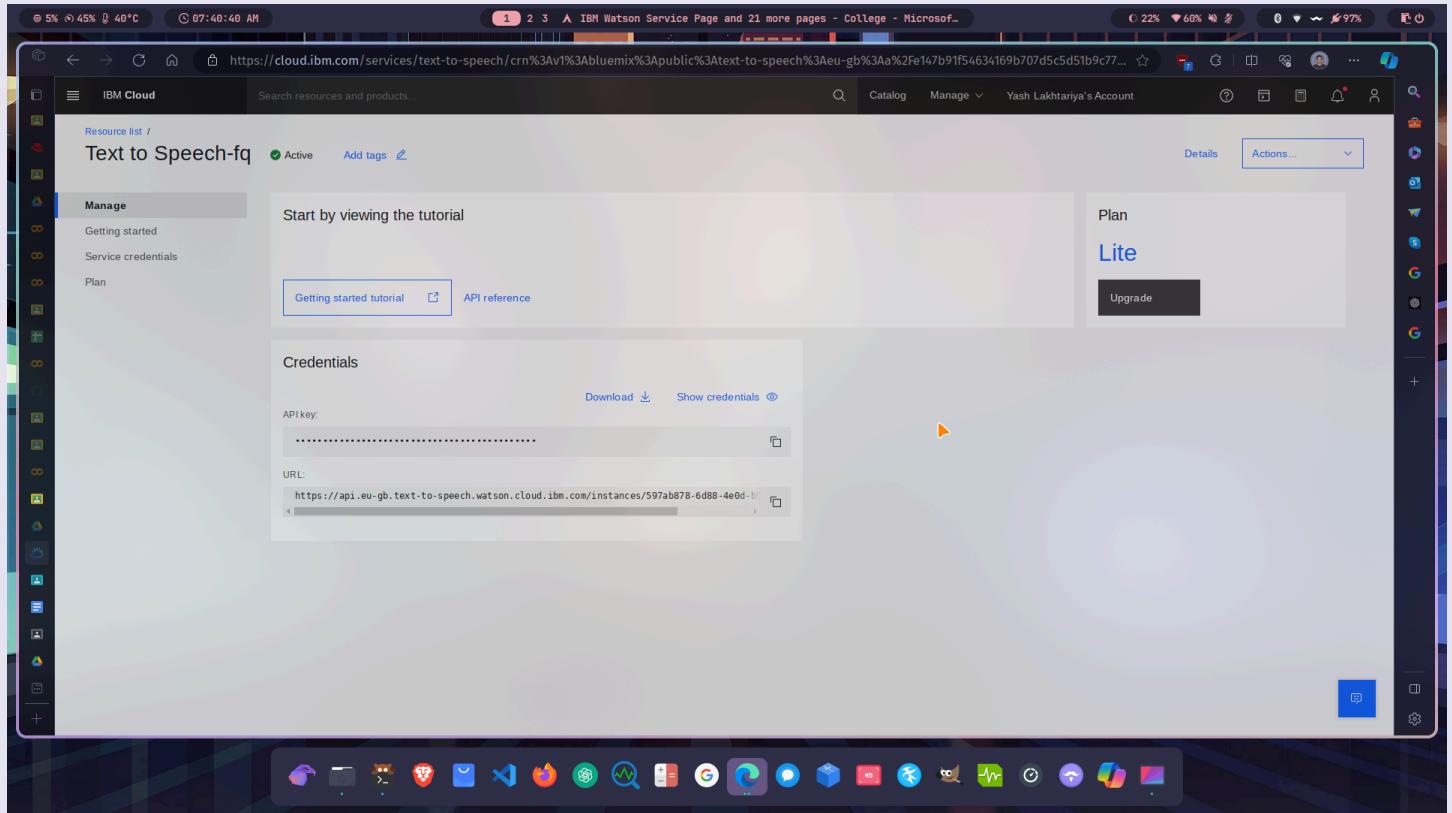
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- i. Set the delay for input to be 0, which states that the input is forwarded only after pressing Enter or Tab key and configure as given below



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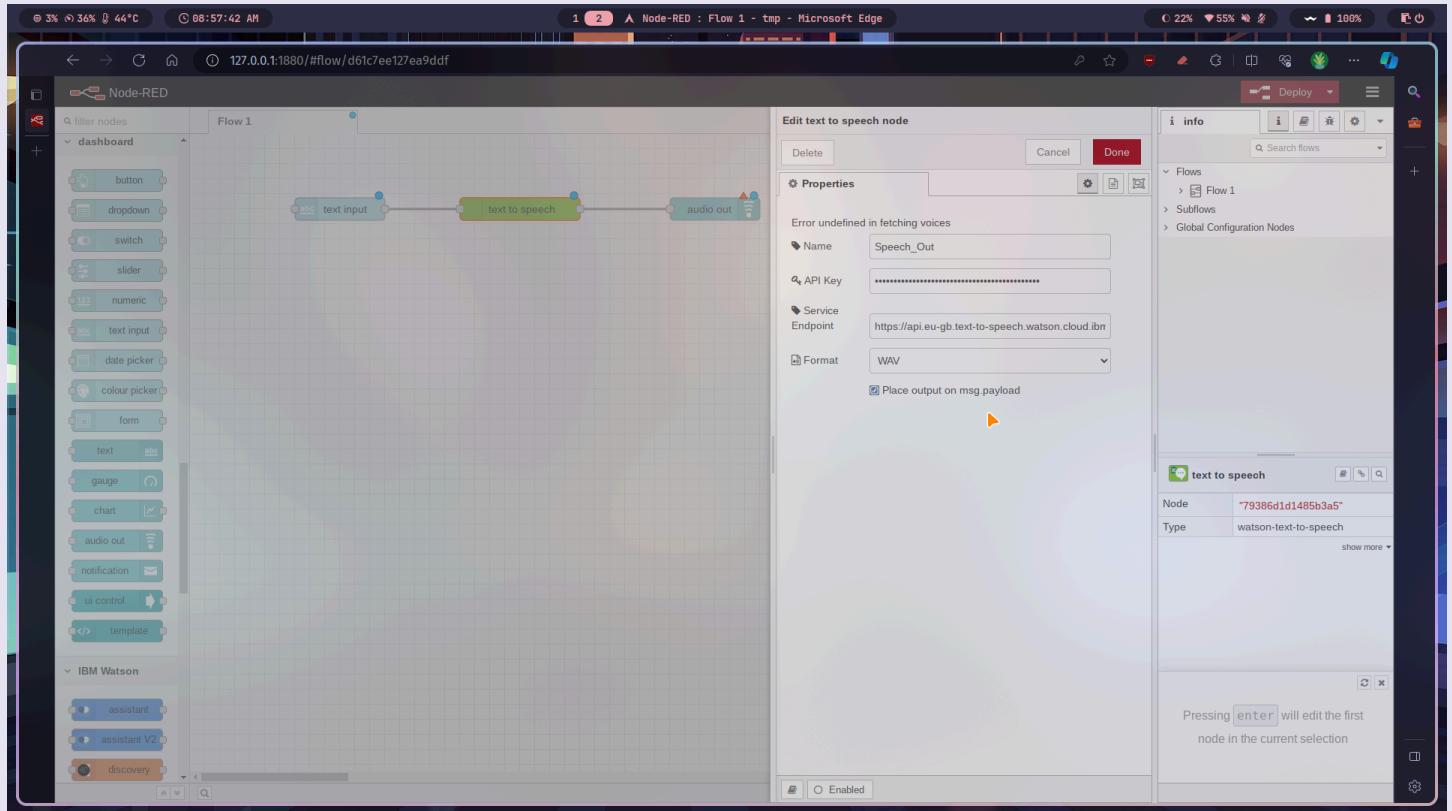
j. From IBM Cloud Text to speech service, copy the API key and URL



The screenshot shows the IBM Cloud interface for the Text-to-Speech service. The URL in the address bar is <https://cloud.ibm.com/services/text-to-speech/crn%3Av1%3Abuemix%3Apublic%3Atext-to-speech%3Aeu-gb%3Aa%2Fe147b91f54634169b707d5c5d51b9c77...>. The page displays the service details, including the service name "Text to Speech-fq", its status as "Active", and the "Lite" plan. Under the "Manage" section, the "Credentials" tab is selected, showing the API key and URL. The API key is represented by a series of dots, and the URL is <https://api.eu-gb.text-to-speech.watson.cloud.ibm.com/instances/597ab878-6d88-4e0d-b>.

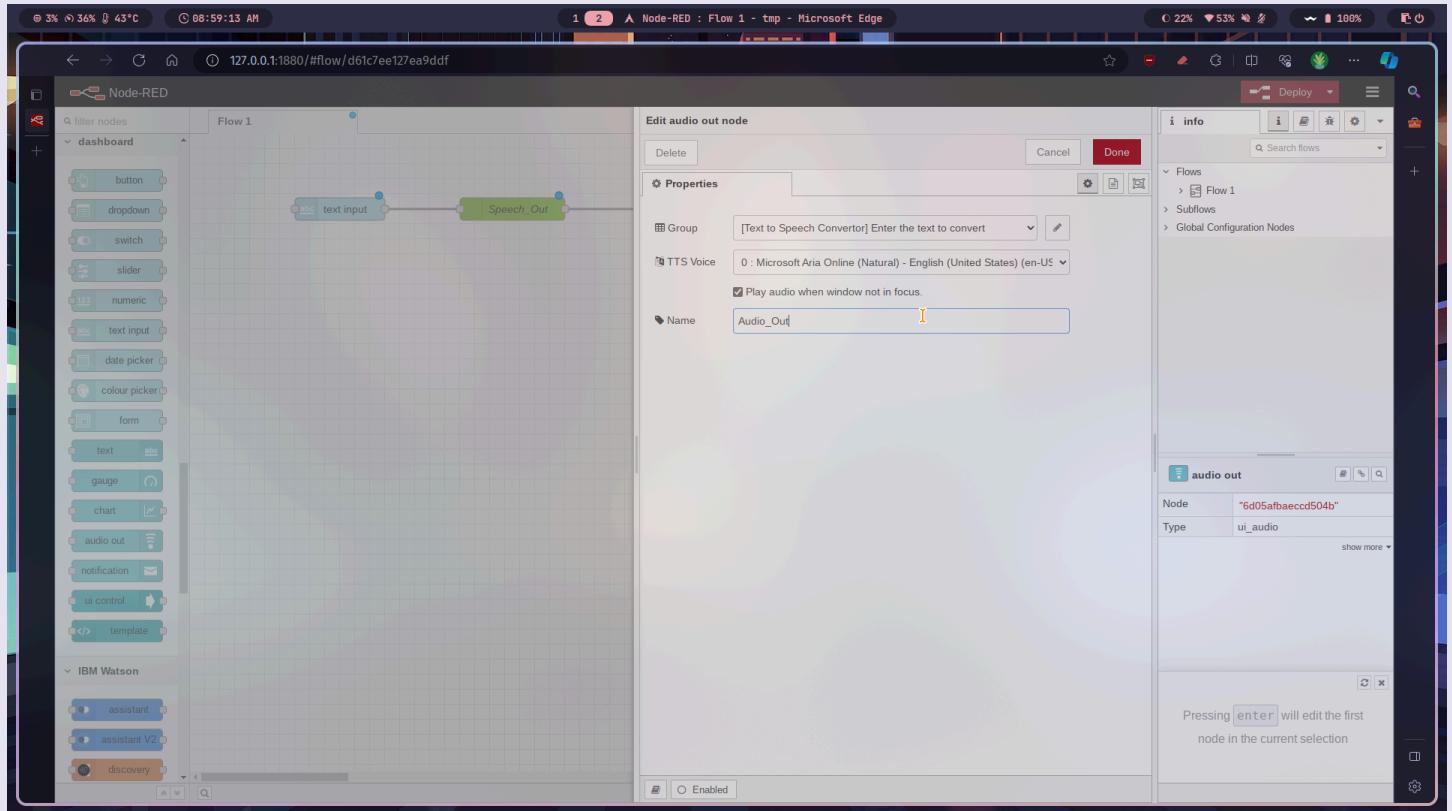
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k. In text to speech node, paste the credentials copied from IBM Cloud



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l. In audio output node, enter group and tts voice



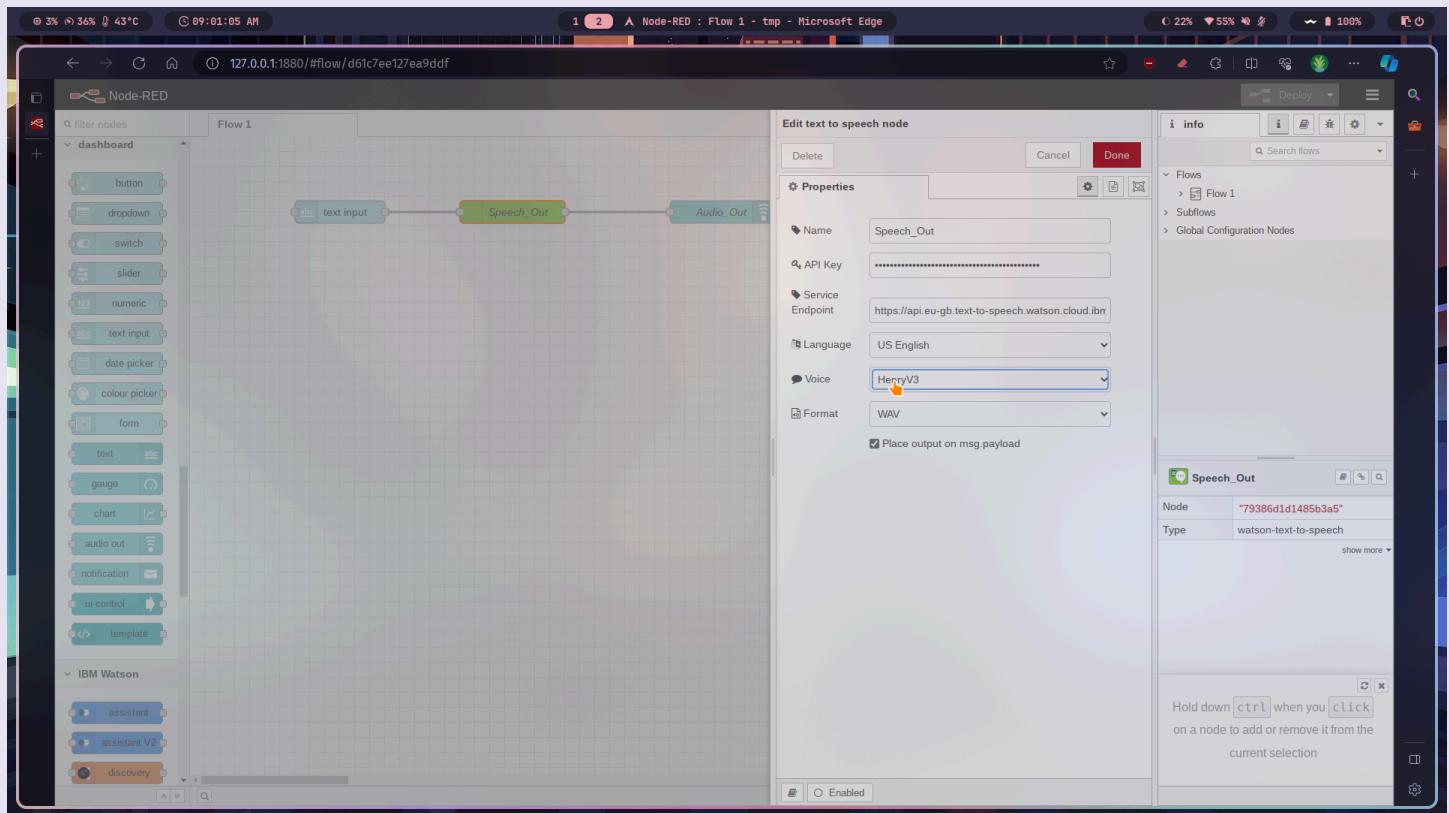
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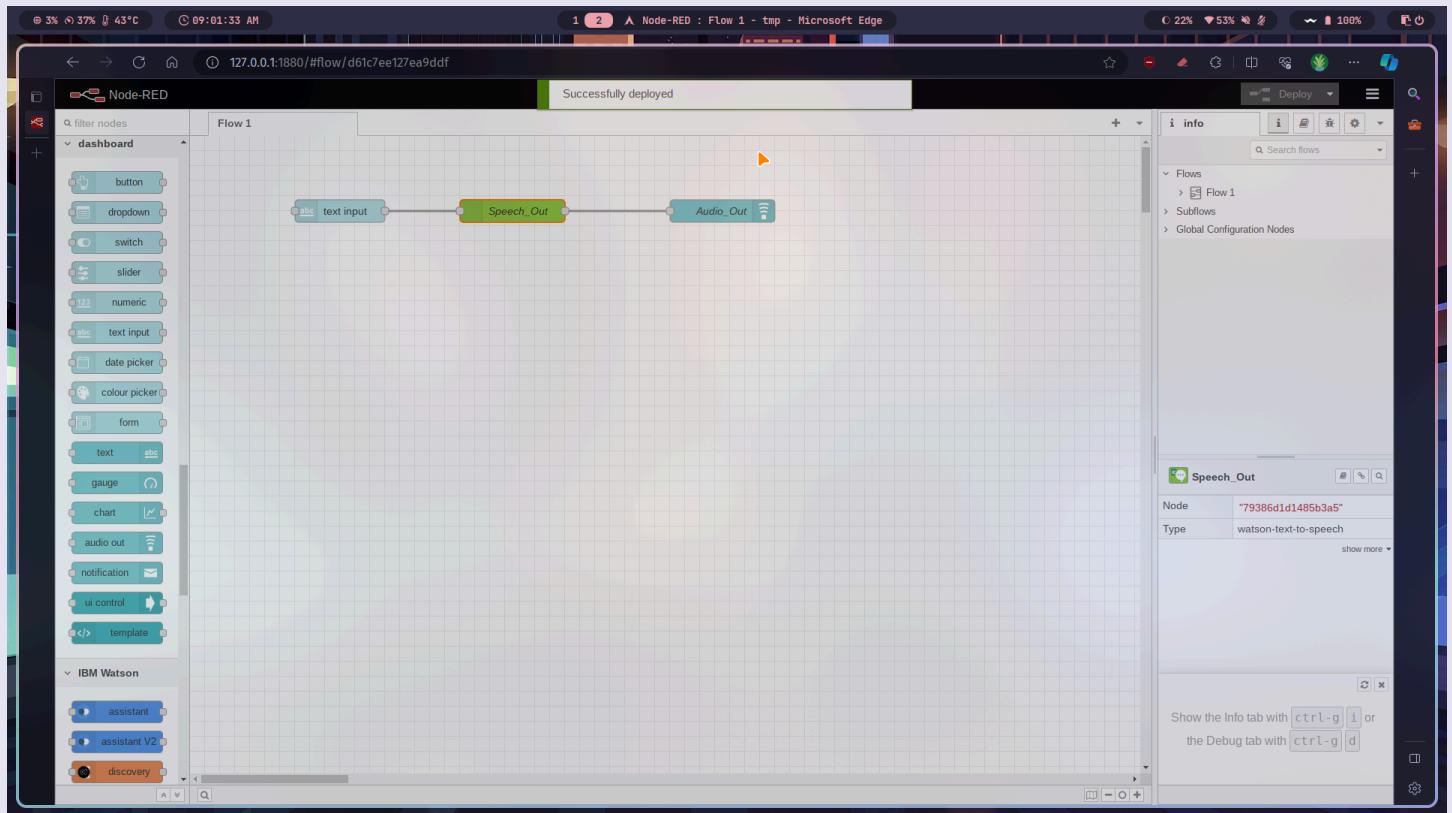
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m. Wait for a while and now configure text to speech node, setting the relevant voice and English(US) language



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## n. Deploy the flow



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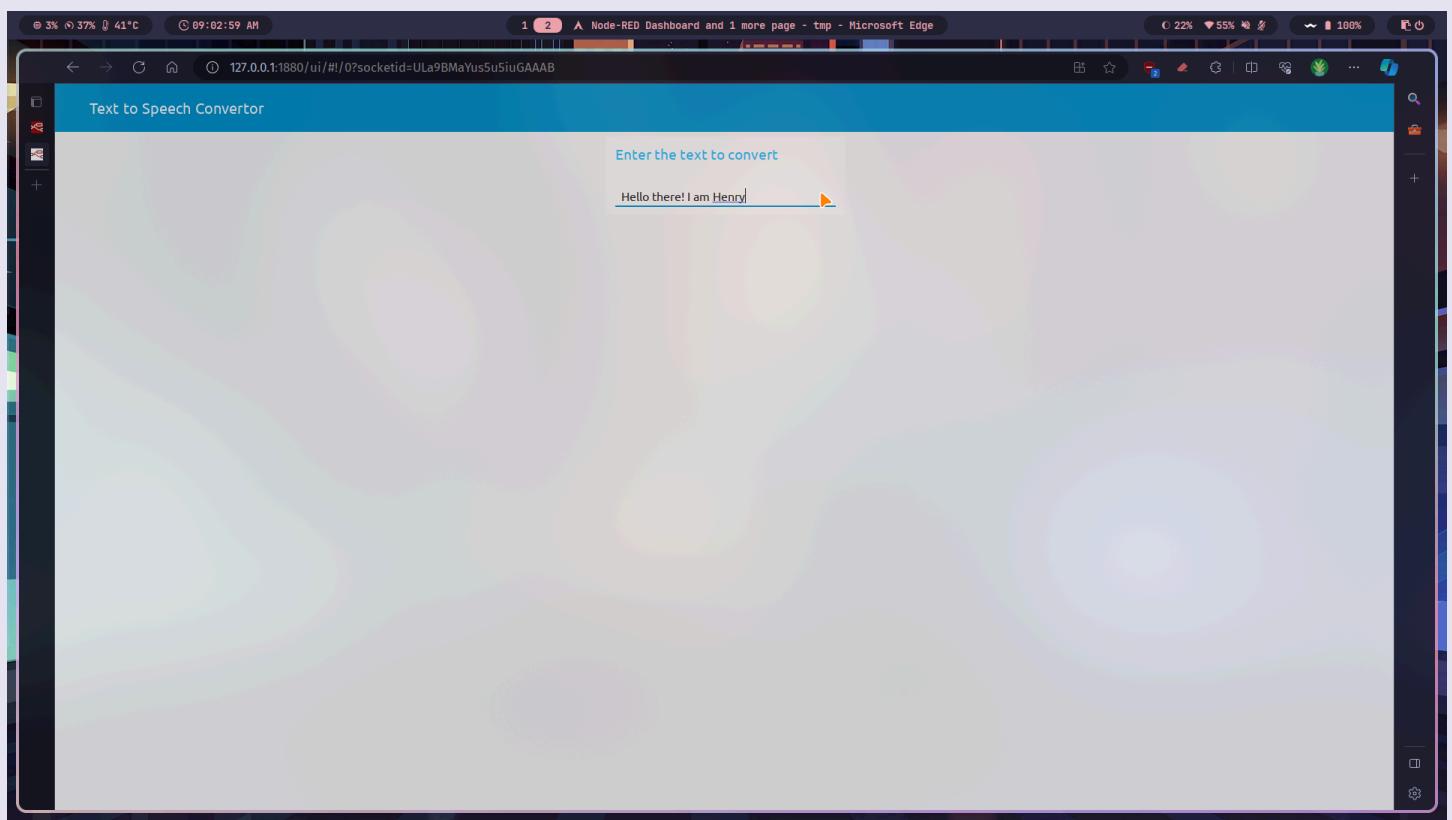
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- o. Open the 127.0.0.1:1880 url with ui as subpage, i.e. 127.0.0.1:1880/ui

The application is accessed here and enter any text. To get audio output, press Enter or Tab key



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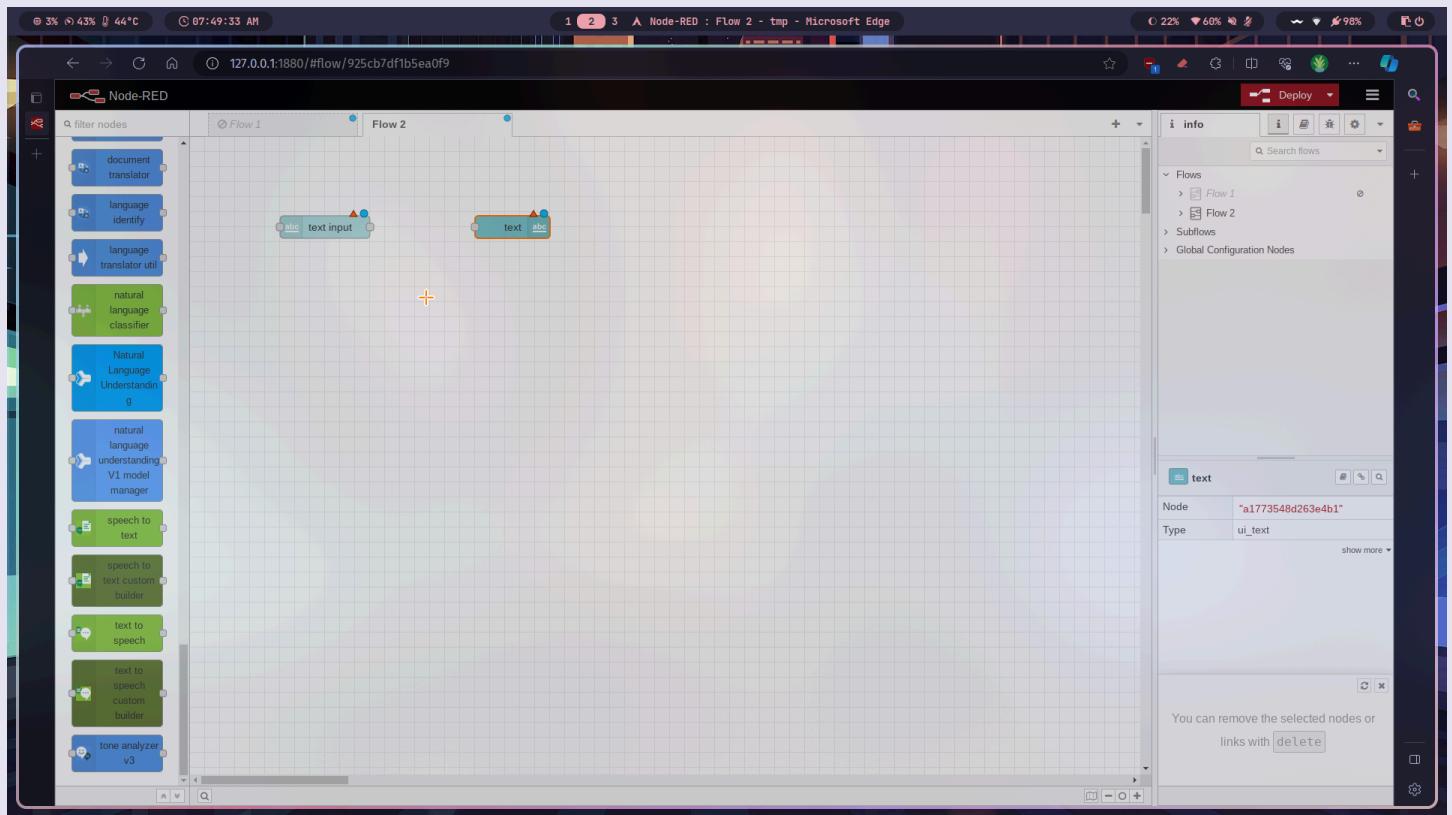
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## Practical 6.2: Application should be able to translate the text entered by user into desired language.

- Create new flow for this application and place text input and output nodes from dashboard set



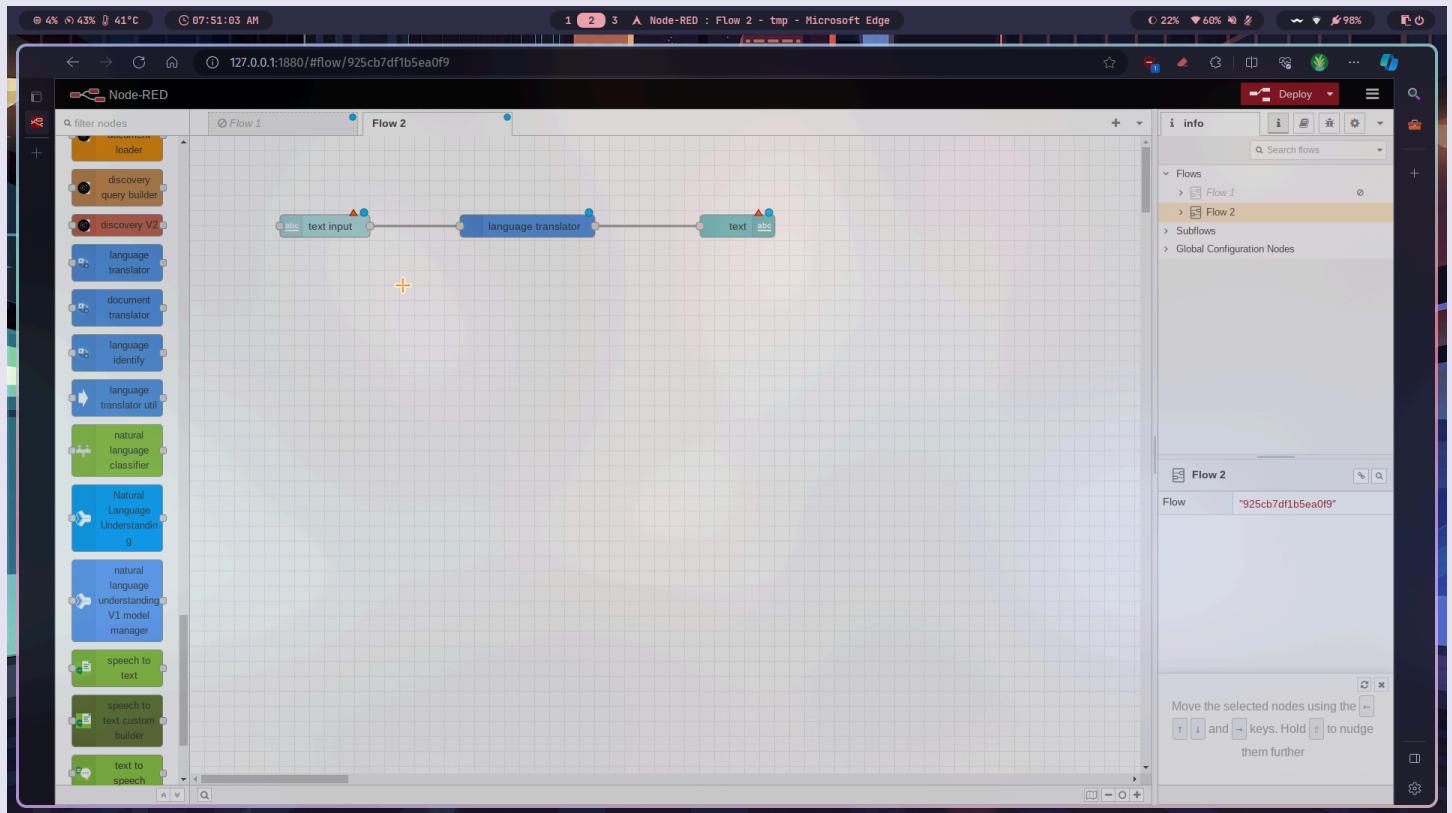
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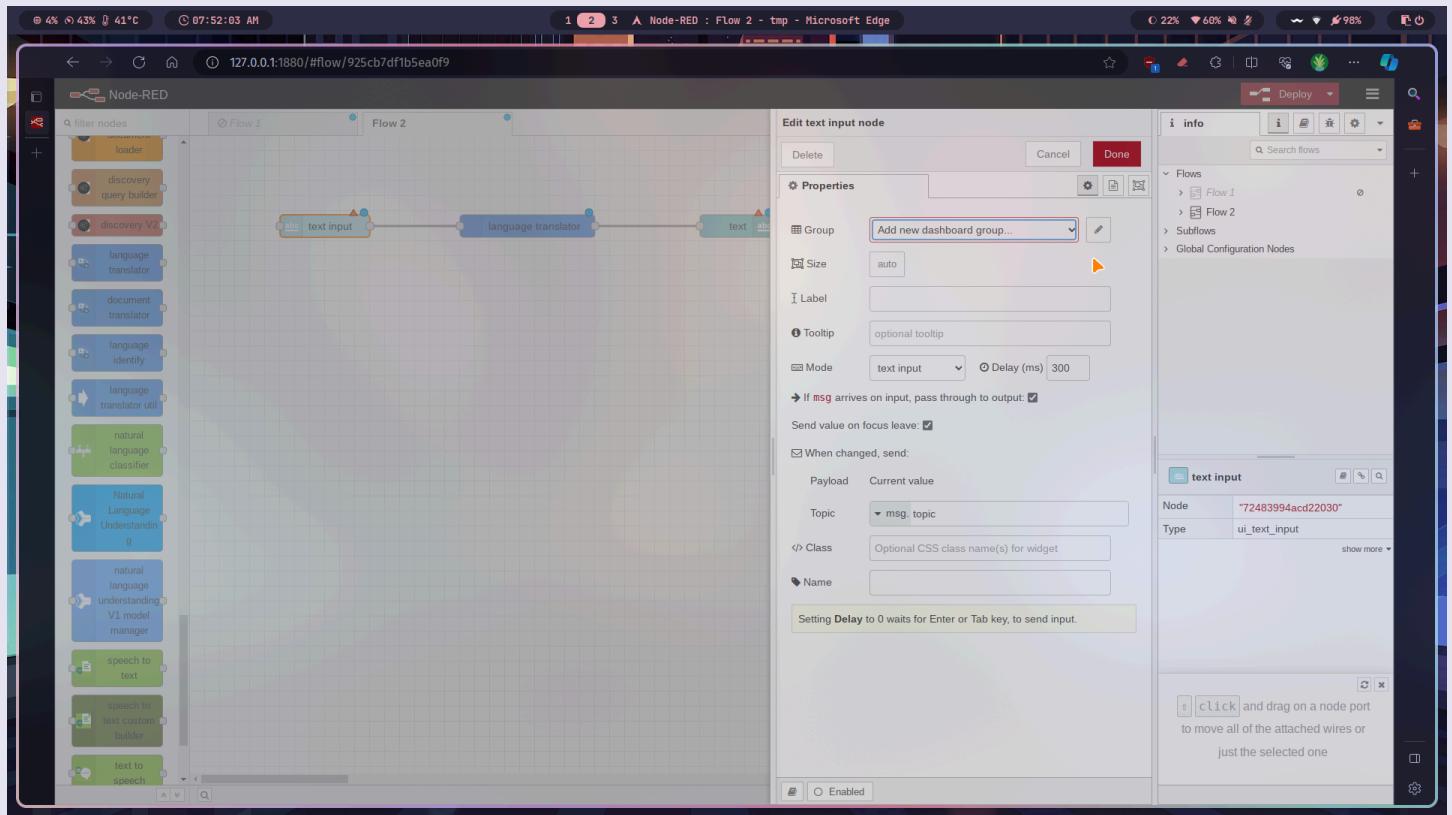
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b. Now, place language translator node from watson set and connect as shown



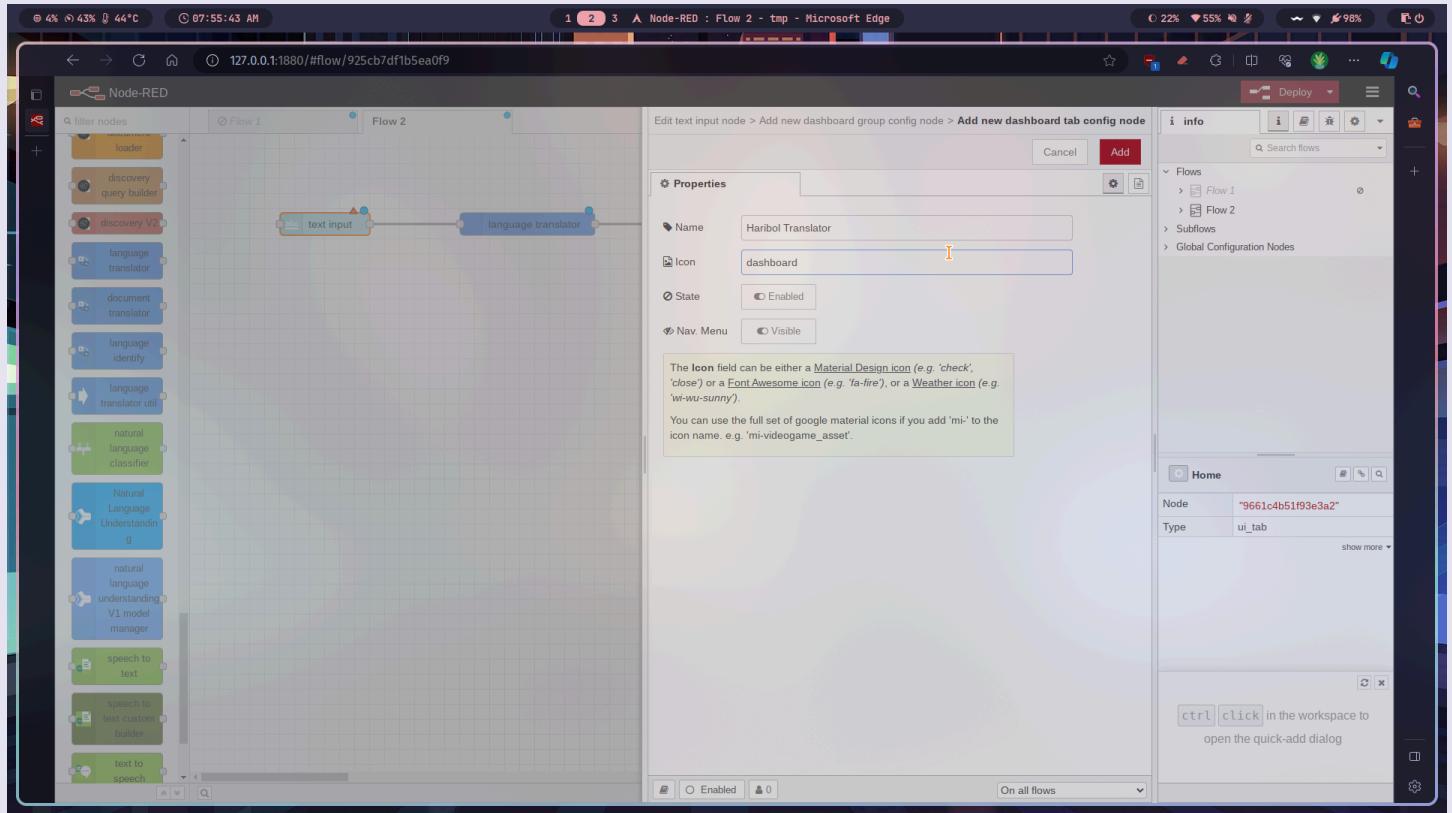
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c. Create new group in text input node



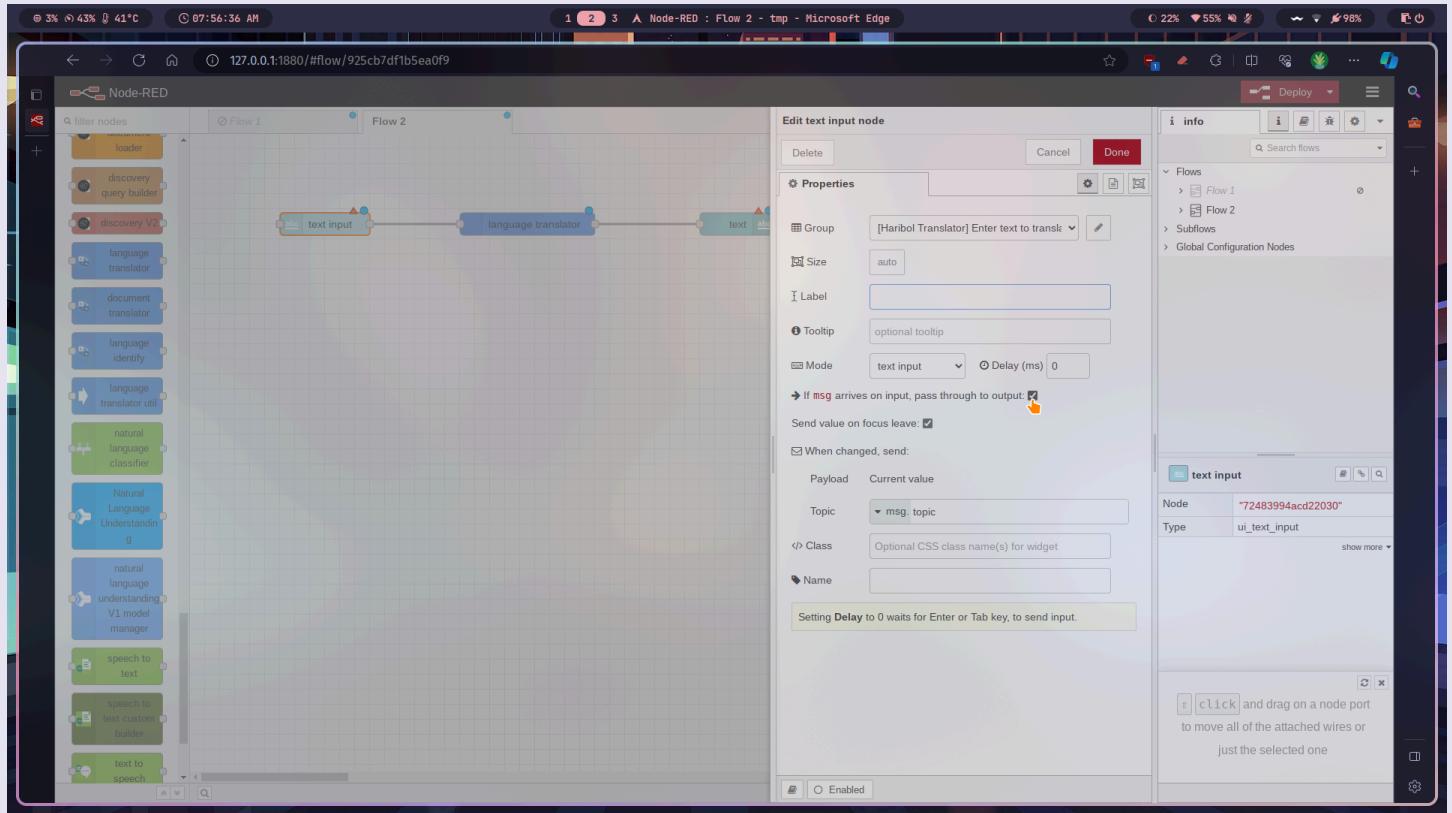
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#### d. Create new tab with appropriate name



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e. Set delay to 0 like previously done



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- f. Visit IBM Cloud Language Translator service (create if not done) and copy the credentials like previously done

The screenshot shows the IBM Watson Service Page with the URL <https://cloud.ibm.com/services/language-translator/crn%3Av1%3Abuemix%3Apublic%3Alanguage-translator%3Aaau-syd%3Aa%2Fe147b91f54634169b707d...>. The page displays the 'Language Translator-hp' resource, which is active. On the left, there's a sidebar with 'Manage' options: 'Getting started', 'Service credentials', and 'Plan'. The 'Plan' section shows a 'Lite' plan with an 'Upgrade' button. In the center, there's a 'Start by viewing the tutorial' section with 'Getting started tutorial' and 'API reference' buttons. Below that is a 'Credentials' section containing an 'API key:' field with a redacted value and a 'Download' button, along with a 'Show credentials' link. The URL for the service is listed as <https://api.au-syd.language-translator.watson.cloud.ibm.com/instances/649051a8-e486-43e0-83c1-1a2a1a2a1a2a>.

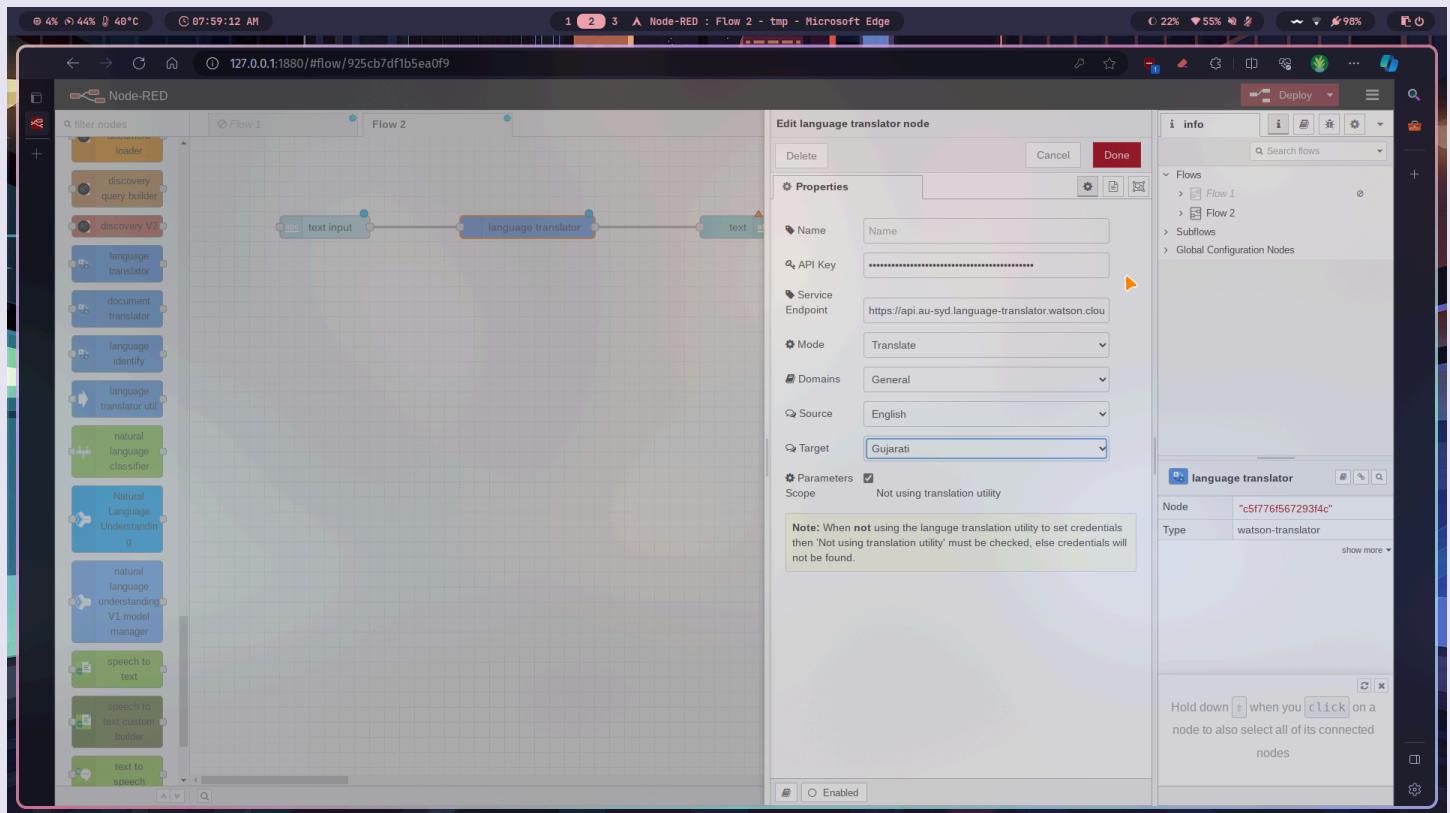
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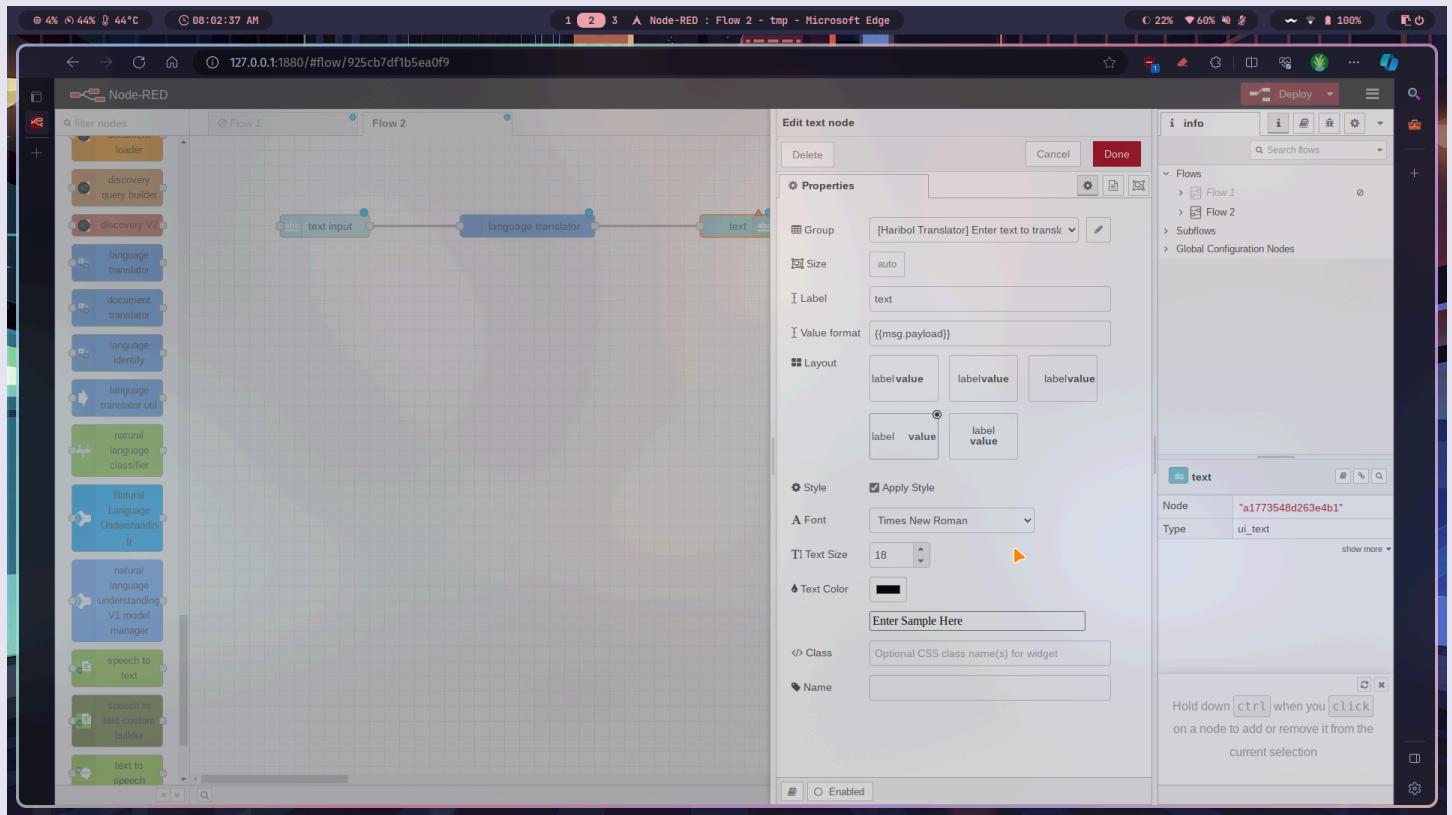
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g. Configure the translator node and paste the credentials here, setting the source and target languages



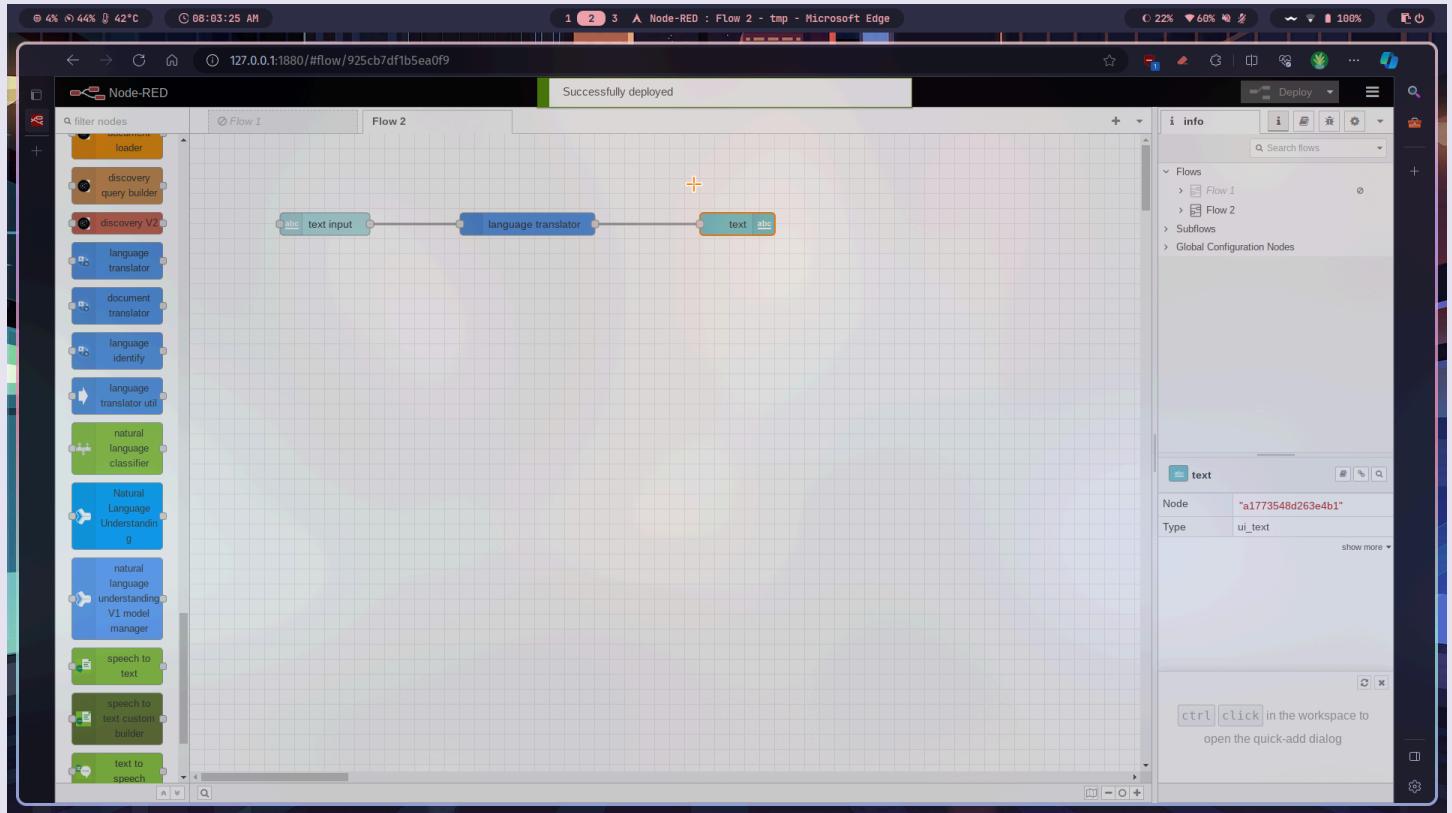
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h. Configure the text output node as shown



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i. Now, deploy the application



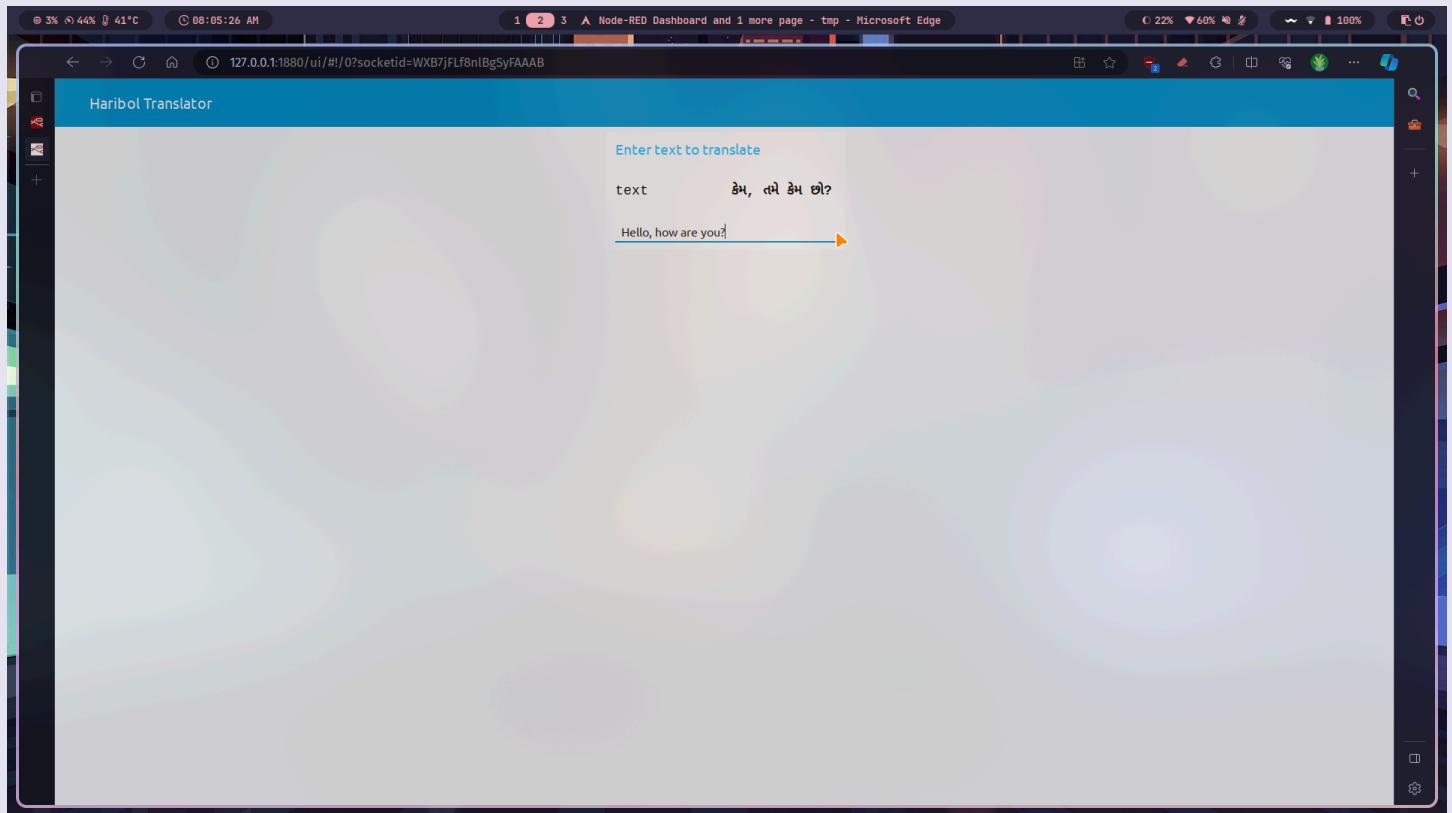
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j. Open the application and check if it is working



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**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.**

- Create twilio account if not exists and copy the credentials of Account SID and Authentication Token

Console | Twilio and 23 more pages - College - Microsoft Edge

My First Twilio account Trial: \$15.50 Upgrade

Develop Monitor

# Phone Numbers

- Manage
- Port & Host
- Regulatory Compliance
- Alphanumeric Sender IDs

Messaging Studio Voice

Explore Products +

Step 1: Get a Twilio phone number

To get started sending or receiving SMS messages with Twilio, you will need a virtual phone number. This trial phone number will allow you to build and prototype while routing voice calls or text messaging to any phone or application workflow.

Your trial includes one US 10DLC phone number

- 10DLC phone numbers support two-way SMS for conversational messaging, alerts & notifications, and one-time-passwords (OTP).
- Continue to build and engage with customers at scale by upgrading your 10DLC trial number to higher throughput starting at 10 messages per second (MPS) when sending to non-US/Canada countries and 1 MPS for US/Canada.
- To send messages to recipients in the United States (verified or unverified numbers), you must complete [A2P 10DLC registration](#) and [upgrade your account](#).

Get phone number

Account Info

Account SID: ACd61bc841044d3d520e8e6819c2304775

Auth Token: [REDACTED] [Show](#)

Helpful links

- How does Twilio work? [Learn more](#)
- SMS Quickstart guides [Learn more](#)
- Learn the basics of Twilio Messaging APIs.
- Explore Marketplace
- Support help center [Learn more](#)
- Troubleshoot common issues.

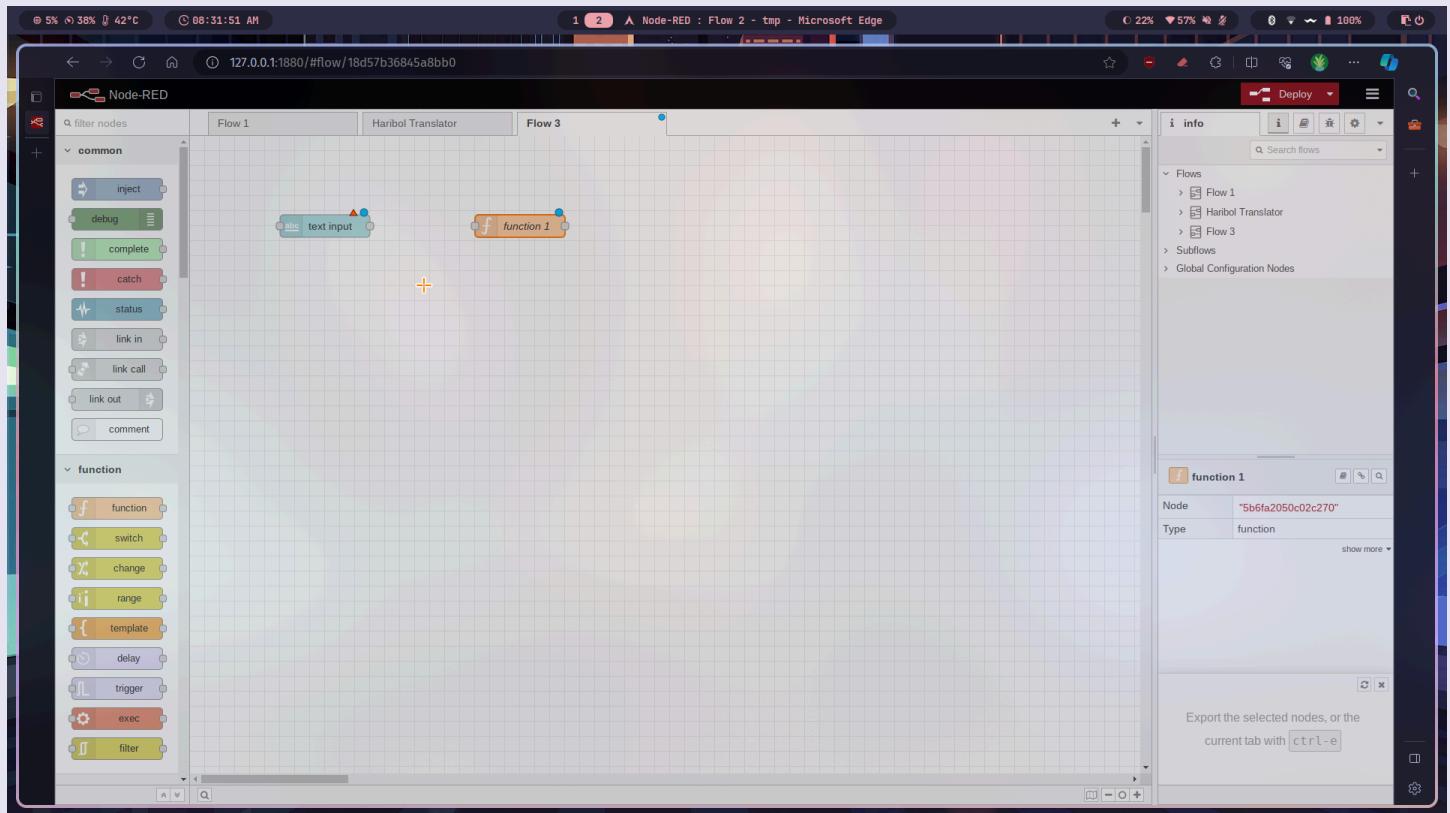
Name - Yash Lakhtariya  
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b. Generate the Twilio phone number and copy that

The screenshot shows the Twilio Console interface in Microsoft Edge. The URL is https://console.twilio.com/?frameUrl=%2fconsole%3fx-target-region%3Dus1. The page displays a trial account for sending SMS messages. It includes sections for Account Info (Account SID: ACd61bc841044d3d520e8e6819c2304775, Auth Token: masked), Helpful links (How does Twilio work?, SMS Quickstart guides, Explore Marketplace, Support help center), and a sidebar with Develop, Monitor, Phone Numbers, Messaging, Studio, and Voice options. A sidebar also lists Explore Products. The main content area shows a message: "To get started sending or receiving SMS messages with Twilio, you will need a virtual phone number. This trial phone number will allow you to build and prototype while routing voice calls or text messaging to any phone or application workflow." It also mentions "Your trial includes one US 10DLC phone number" and provides instructions for upgrading. A prominent section says "Congratulations! You've got a Twilio phone number!" followed by the number "+16082003537". There are icons for messaging, calling, and media.

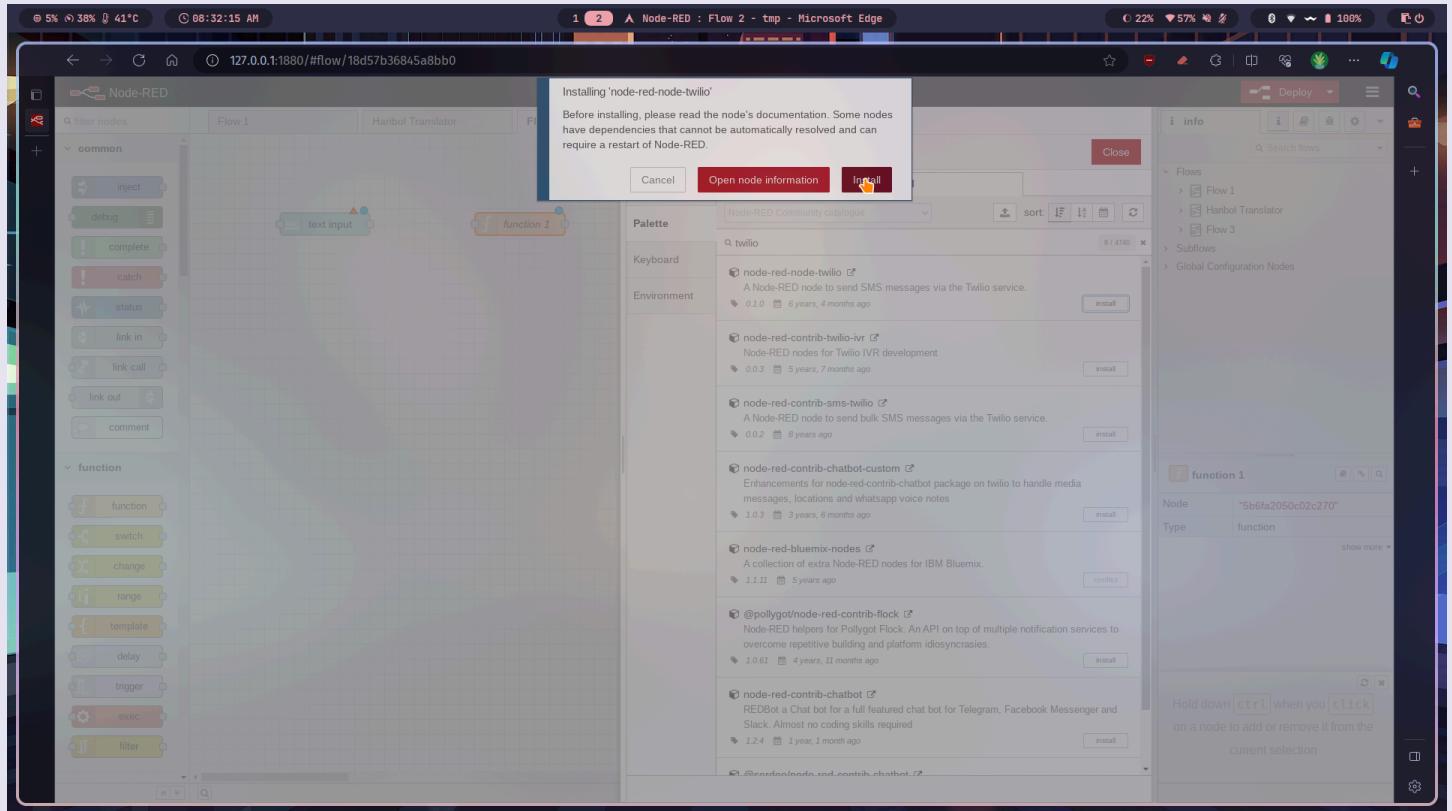
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c. Create the new flow and place text input and function nodes



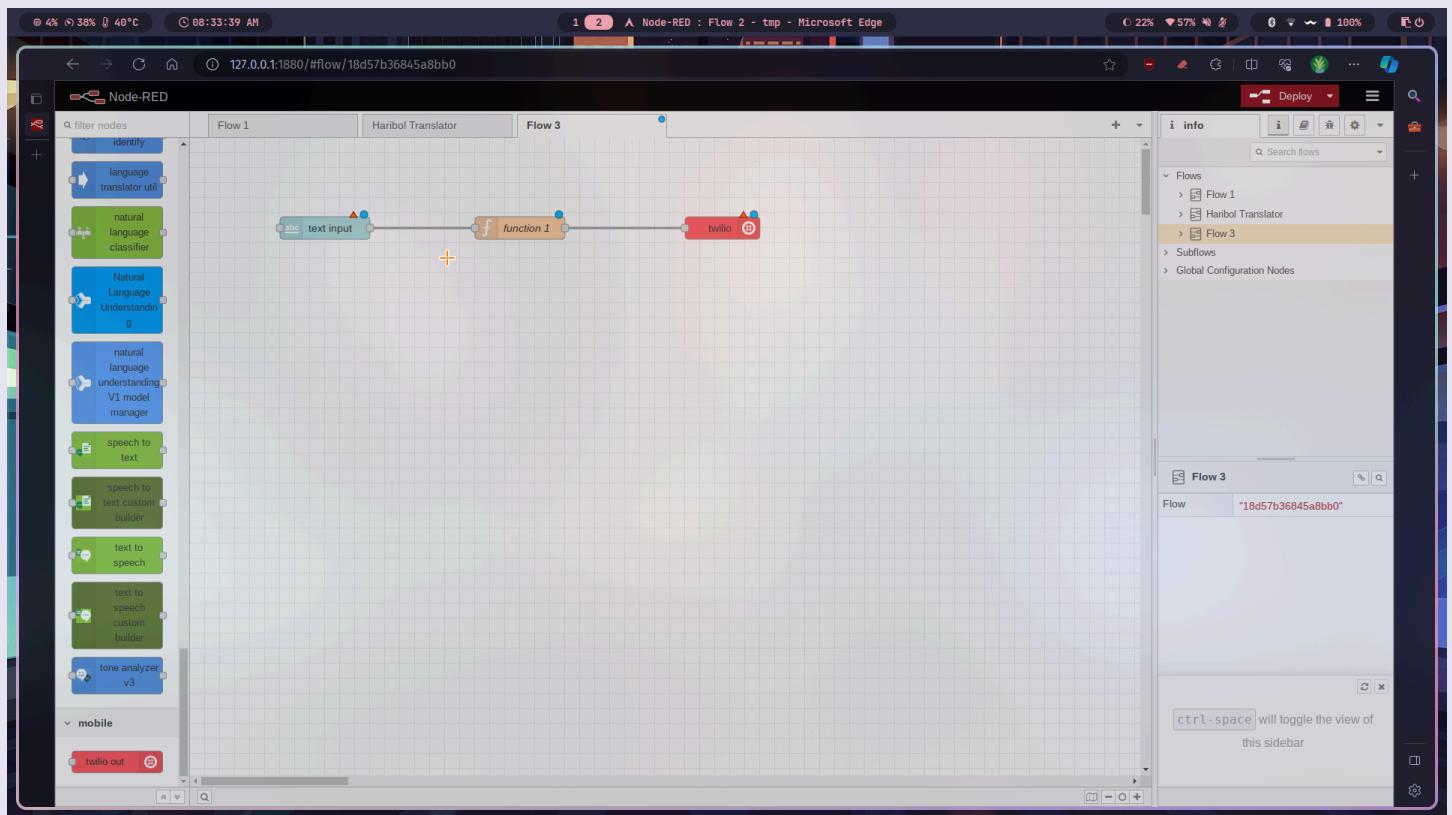
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d. Then, using palette, install the **node-red-node-twilio** set of nodes



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e. Arrange the nodes as shown below



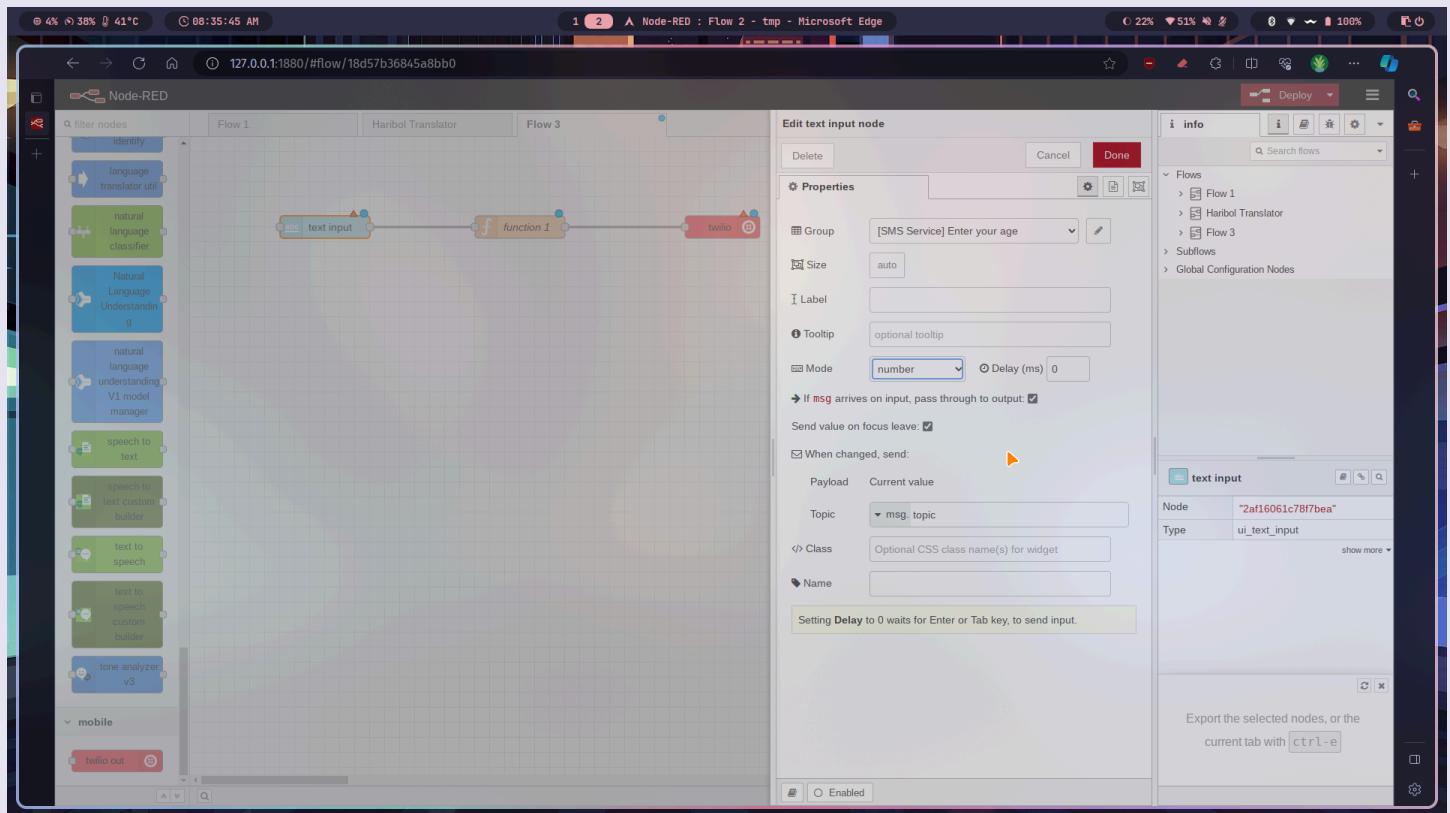
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- f. Similar to previous steps, create new group and tab for text input node and set delay to 0. Input type can be selected as number

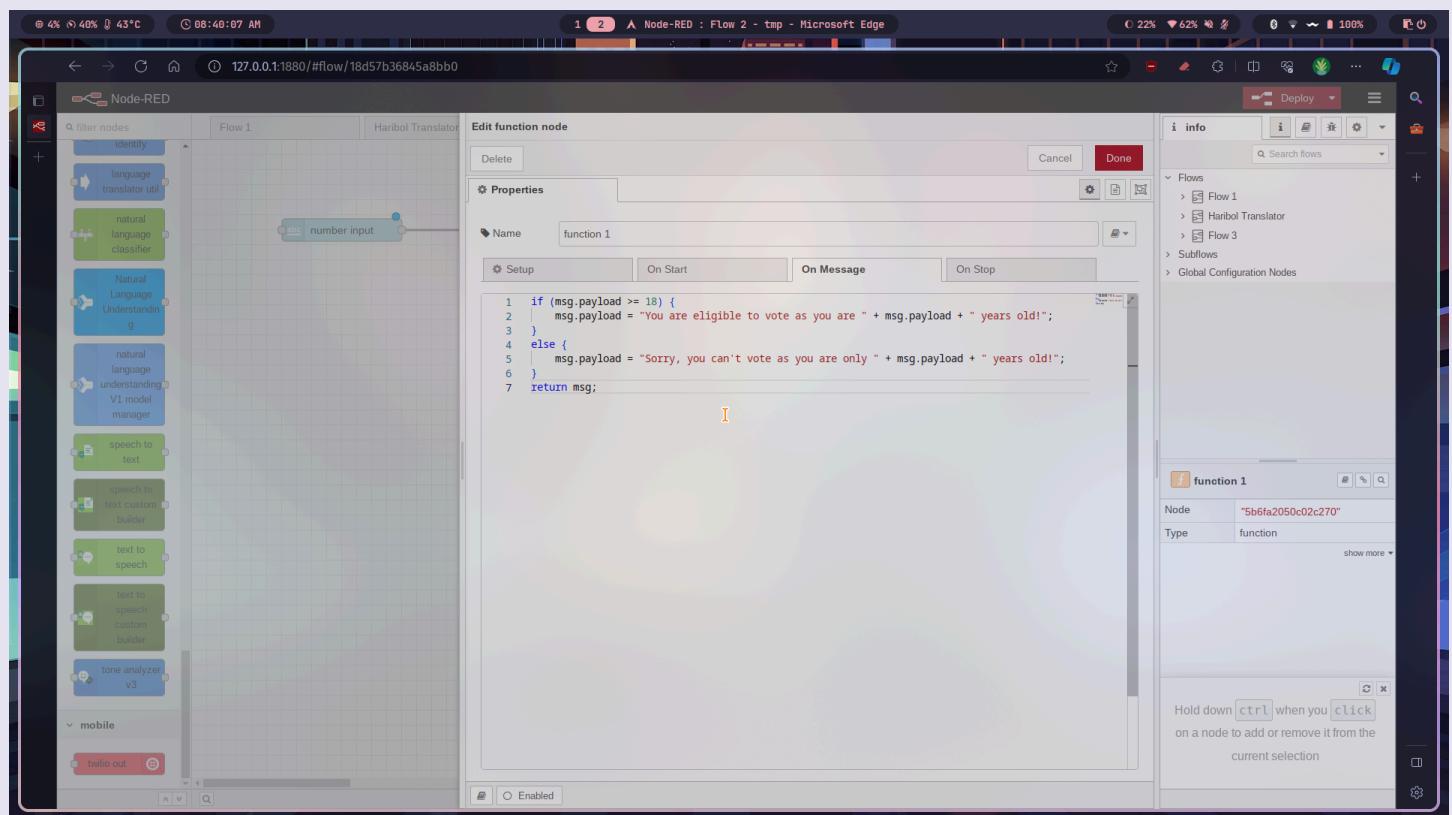


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g. Create a function in function node with logic that if the age is greater than or equal to 18, the user is eligible to vote and not otherwise

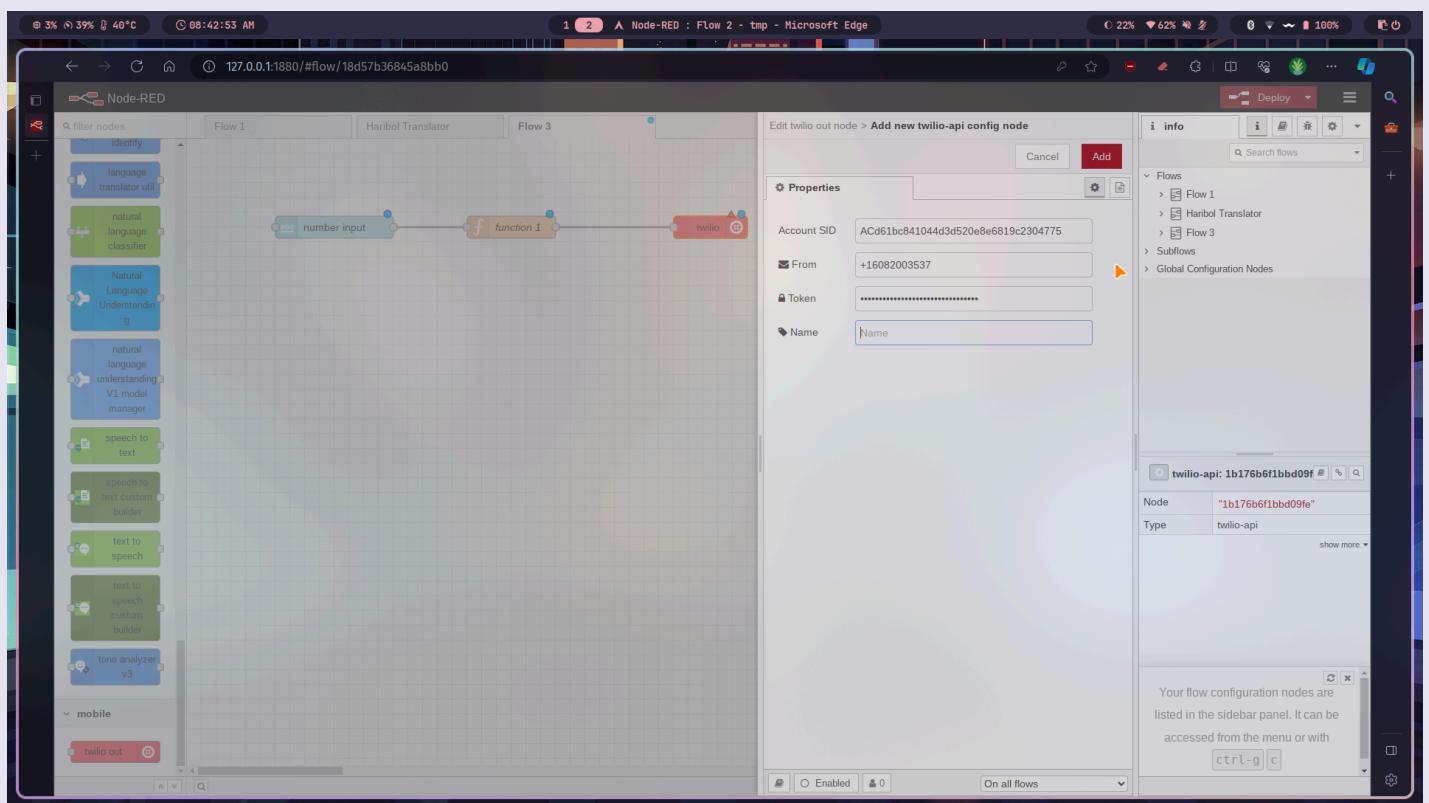
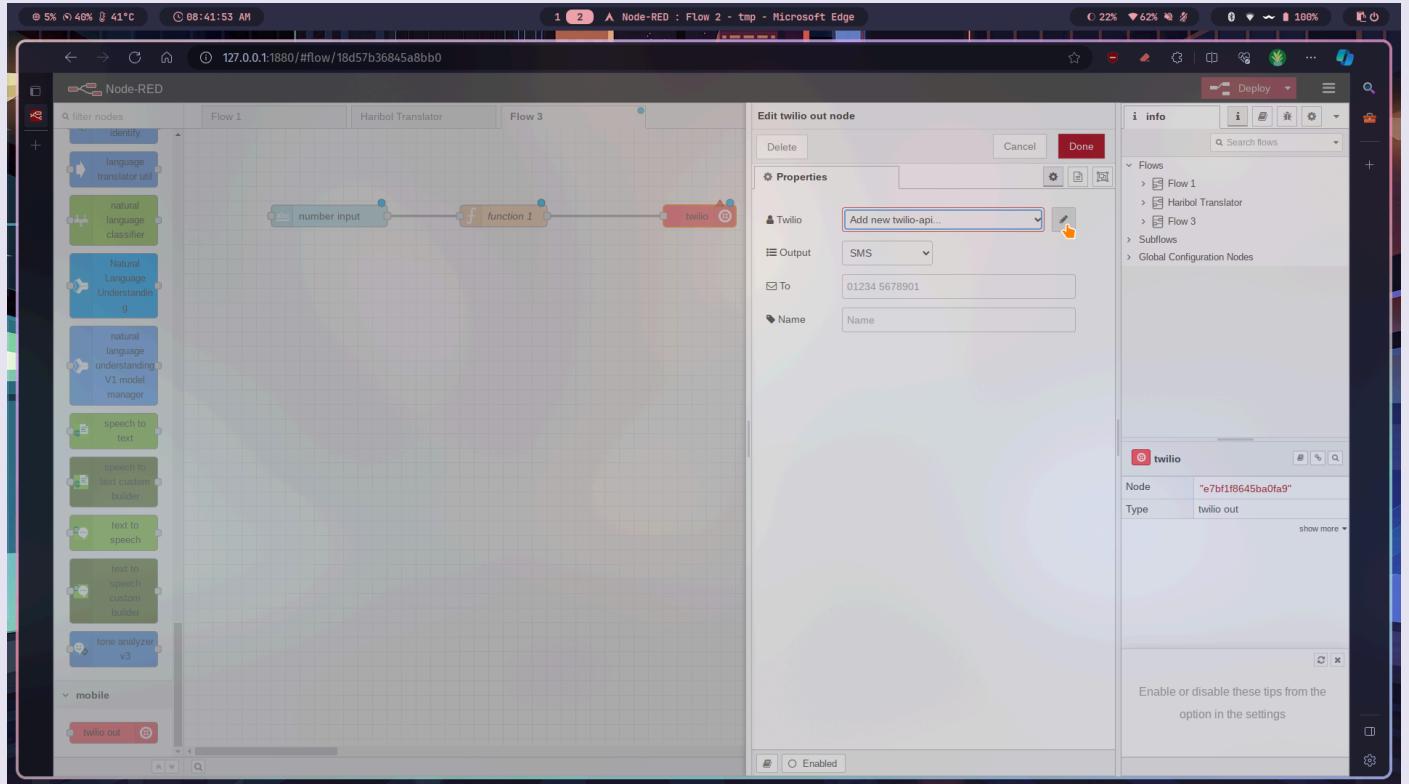
Function :

```
if (msg.payload >=18){  
    msg.payload = "You are eligible to vote as you are " + msg.payload + "  
years old";  
}  
else{  
    msg.payload = "Sorry, you can't vote as you are only " + msg.payload +  
" years old";  
}  
return msg;
```



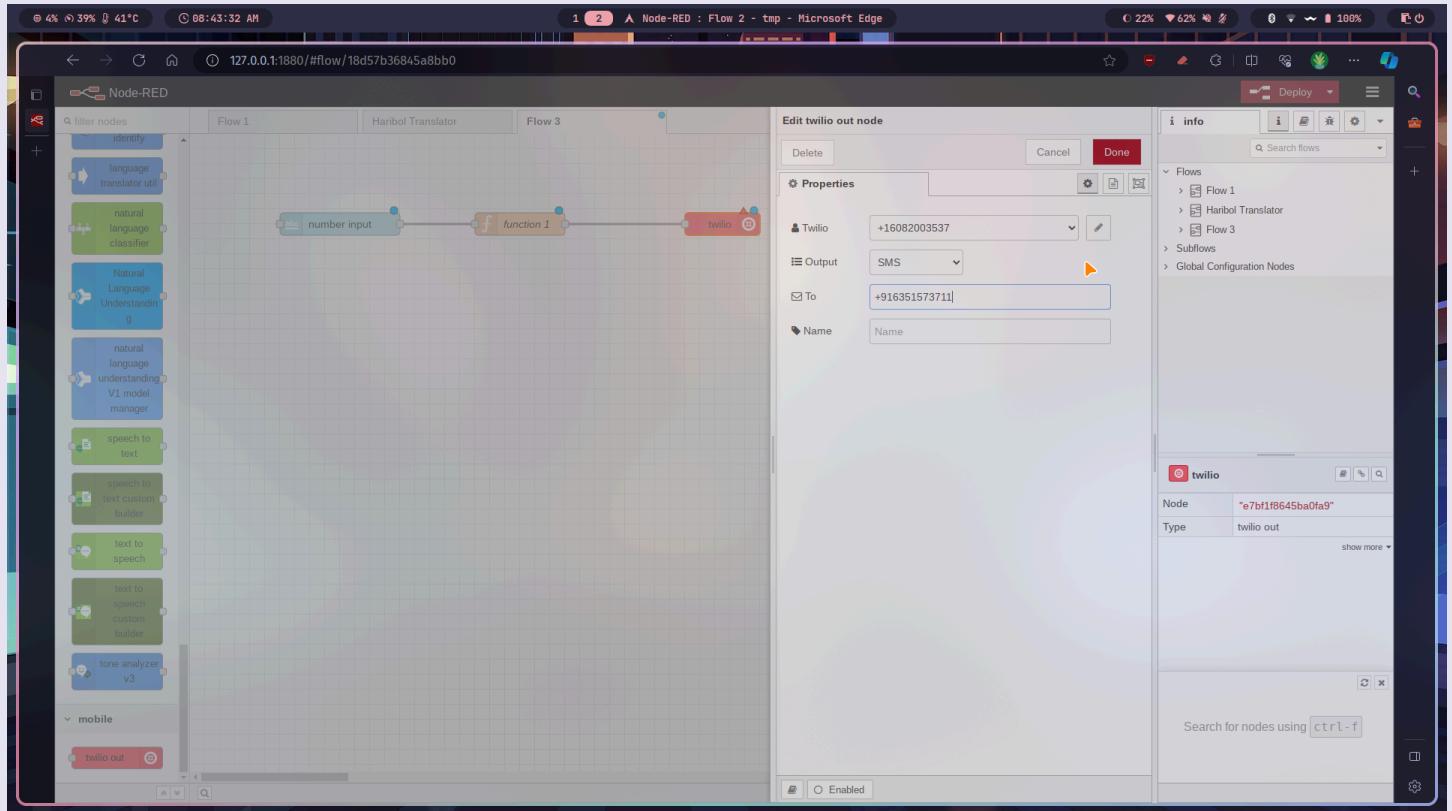
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h. Now, configure twilio node and paste the credentials from Twilio account here



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- i. Now, add the phone number to message the result



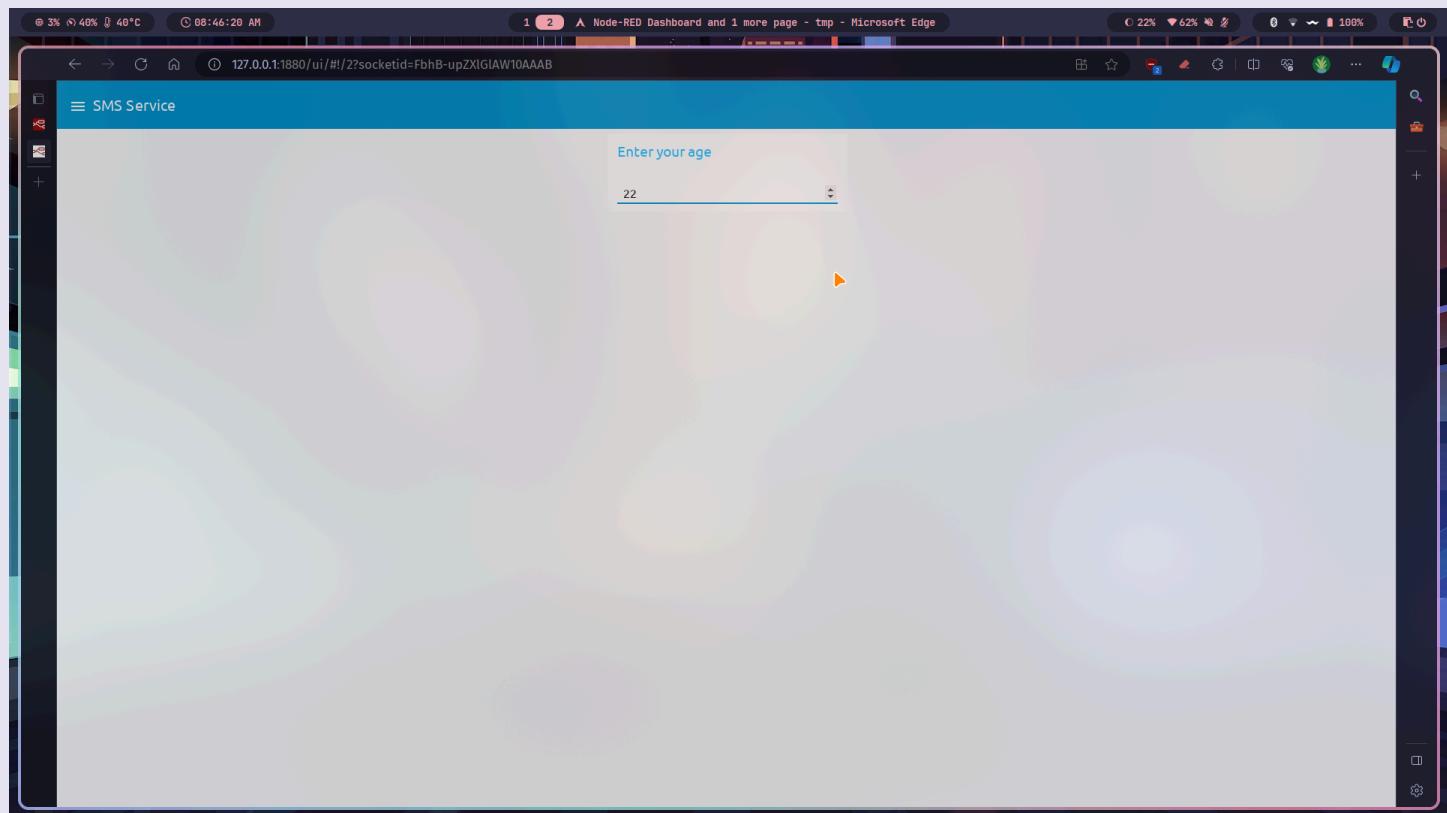
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j. Deploy and check if the application works



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