TENSORFLOW UI USER MANUAL

VERSION:0.1

Contents

1. Terms of Use of this Manual

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2. Introduction and Overview

About this app

This web-based app provides a visual programming language to build Tensorflow machine learning models.

TensorFlow is a powerful machine learning framework that allows developers to build and deploy machine learning projects. Unfortunately, Tensorflow is difficult to use for a first-time user. To remedy this situation, we are developing a user interface for Tensorflow.
This user interface uses the idea of nodes as code segments which map to Tensorflow functionality. These nodes visually illustrate the machine learning model being created. User input and math functions are represented as nodes which can be linked together to create machine learning logic.

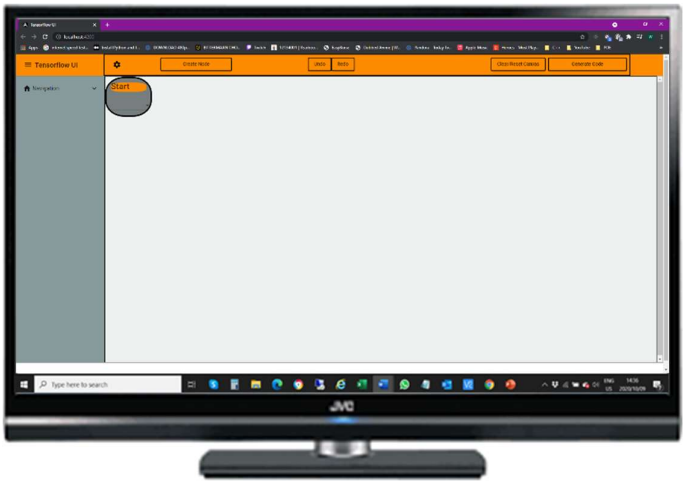
After a visual machine learning model has been built, runnable python code will be generated for the model. This code will be available to download for further use. This allows users who fully understand neural networks, but lack programming knowledge, to work with Tensorflow.

This user interface is represented as an intuitive educational tool, which will facilitate the understanding and building of neural networks.

The aim of this project is to make machine learning more accessible by lowering the knowledge required to use the Tensorflow framework, while writing and training a model. This is achieved with our user-friendly interface for Tensorflow.

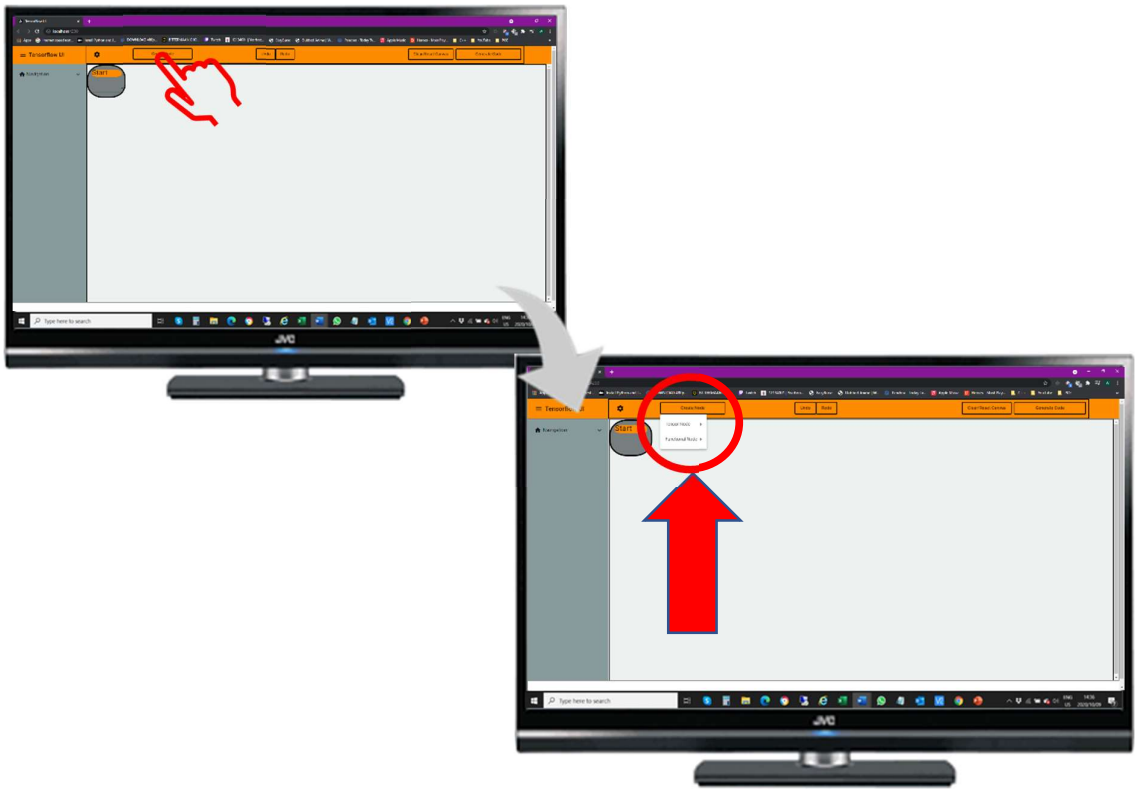
3. Accessing the web app

- For a full insatallation guid, please see the Installation manual.
- Download the web-app from github: https://github.com/COS301-SE-2021/TensorFlow-UI
- Run npm install in powershall
- Run ‘ng serve’ (without the quotes) and open the link provided



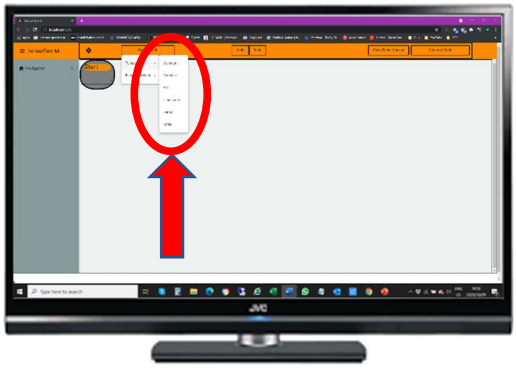
4. Create a Node

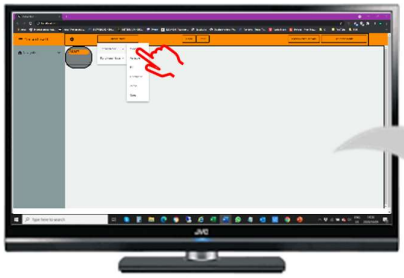
- Click on the create node button to reveal Tensor Node and Functional node options:



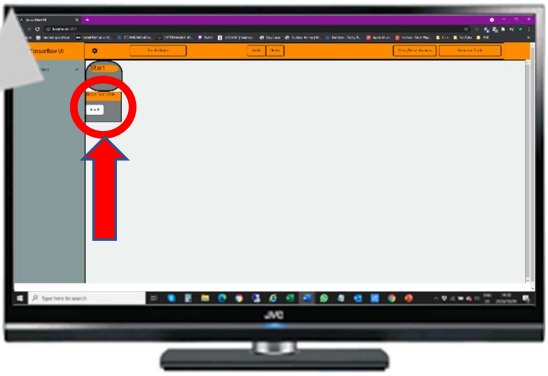
4.1. Tensor Node

Move the mouse pointer over the Tensor Node option to view the different Tensor Nodes that can be created.



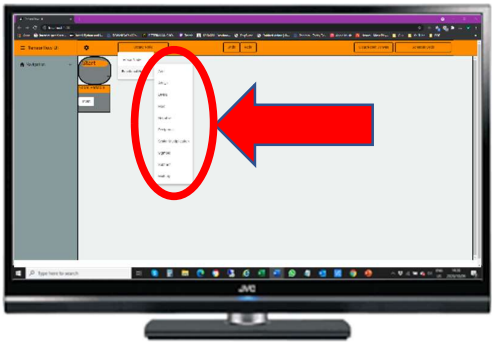


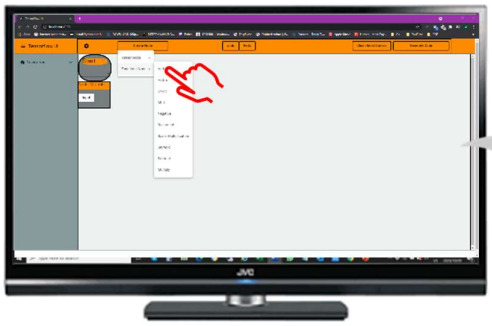
Click on one of the options to create and add that node to the project.



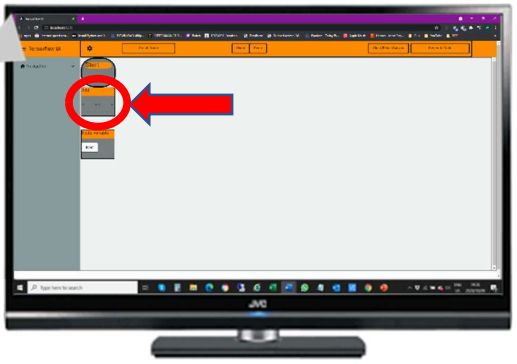
4.2. Functional Node

Move the mouse pointer over the Functional Node option to view the different Tensor Nodes that can be created.



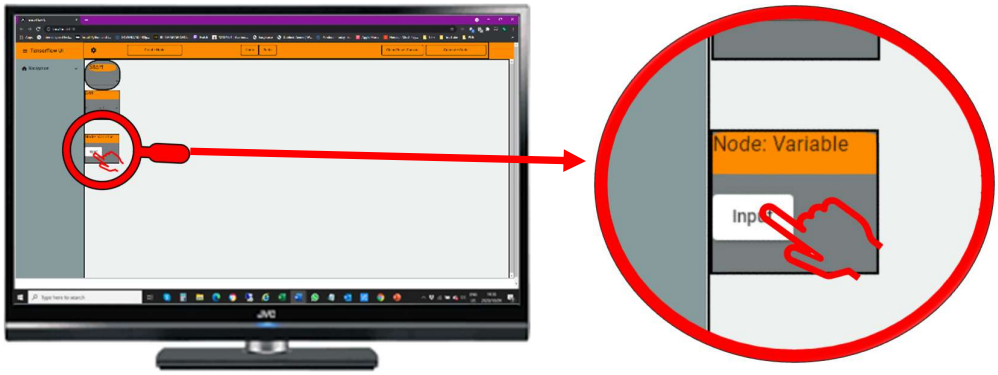


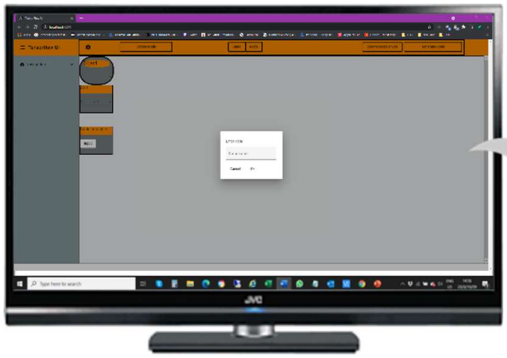
Click on one of the options to create and add that node to the project.



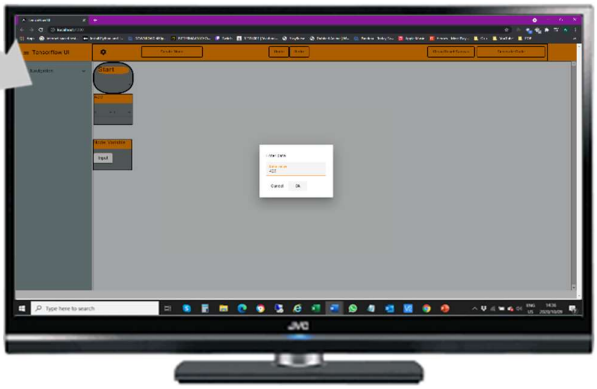
5. Add Values to Constant/Variable Nodes

- Click on the Input button on a node of this type to input values.



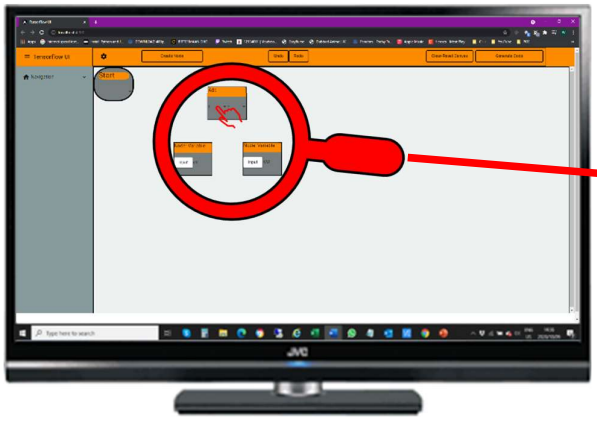


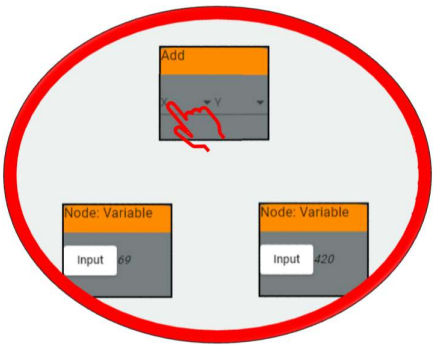
- Click in the space provided and insert a value.
- Click the okay button to save the value

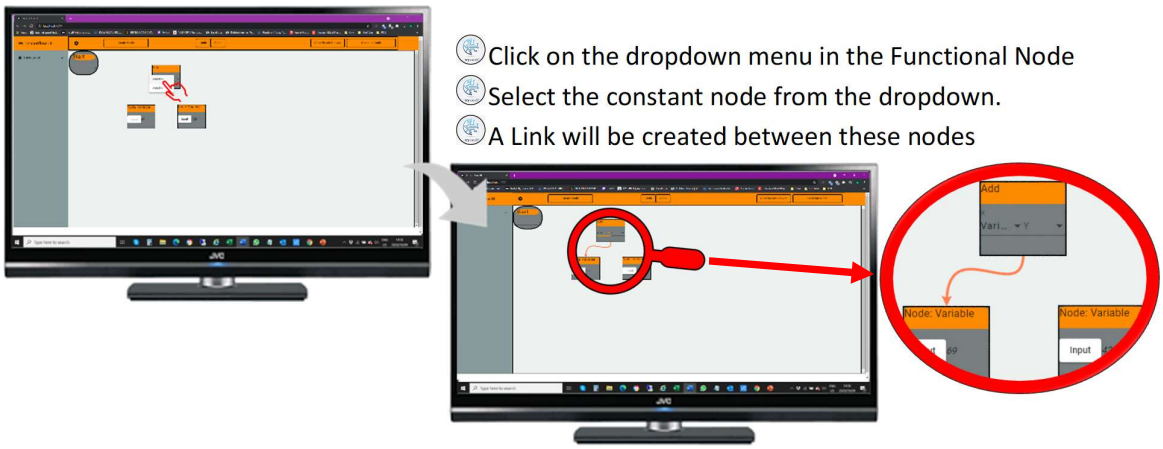


6. Link nodes

- Functional nodes contain two dropdown menus that are used to select which node one would like to link to the Functional Node in question.
- Create a Variable Node and a Functional Node (as specified in the previous section of this document)







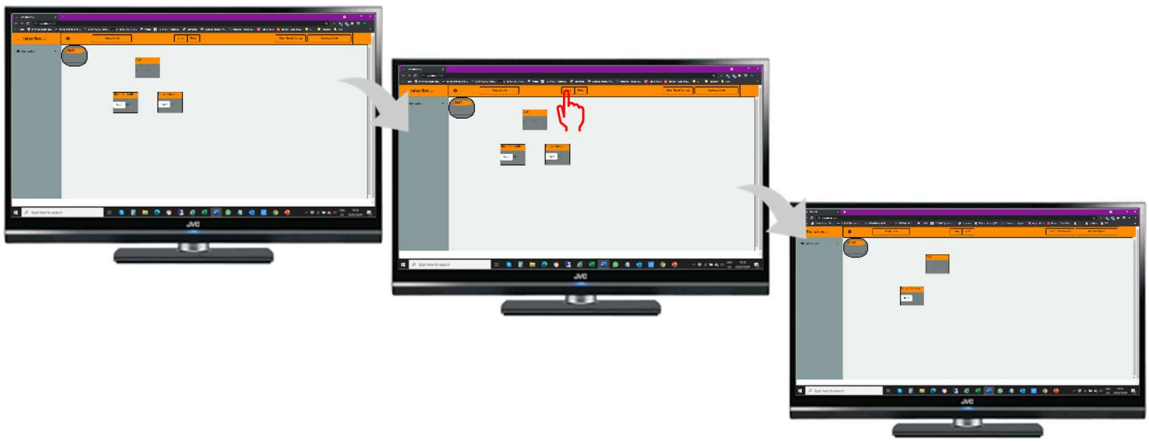
- Click on the dropdown menu in the Functional Node
- Select the constant node from the dropdown.
- A Link will be created between these nodes

7. Undo/Redo

These buttons do exactly what their names imply:

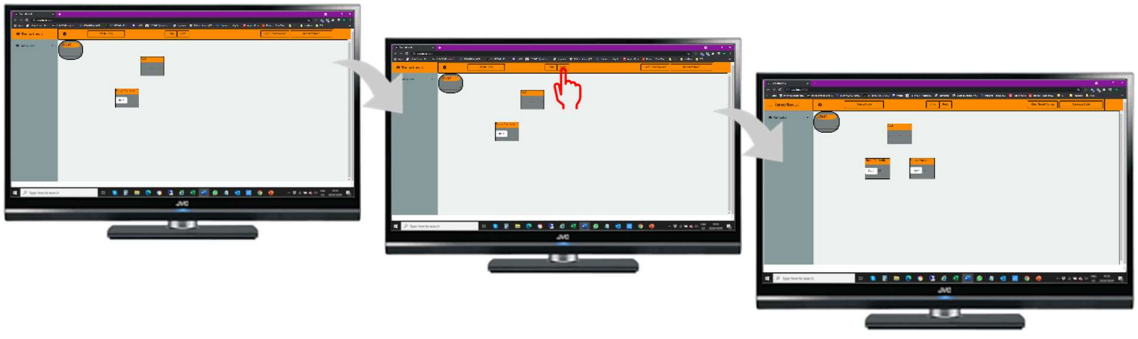
7.1. Undo

- If the last node that was added was created with the wrong type, or the user simply does not want it in the project, simply click this button to remove it.



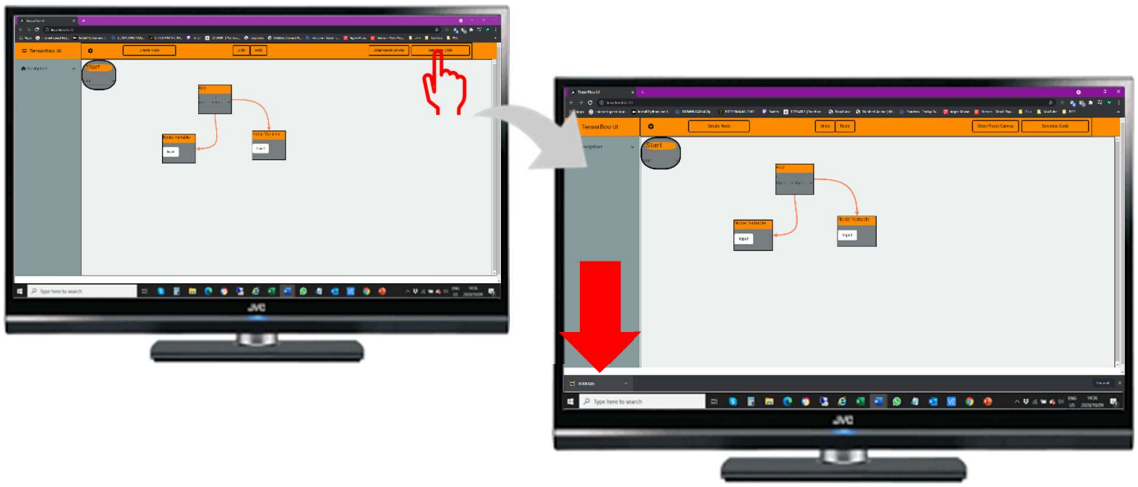
7.2. Redo

- If the user clicks the undo button and then decides that it was a mistake, he/she should simply click on the redo button to reverse the effect the undo button had. (Adds nodes and lines that was removed by the undo button)



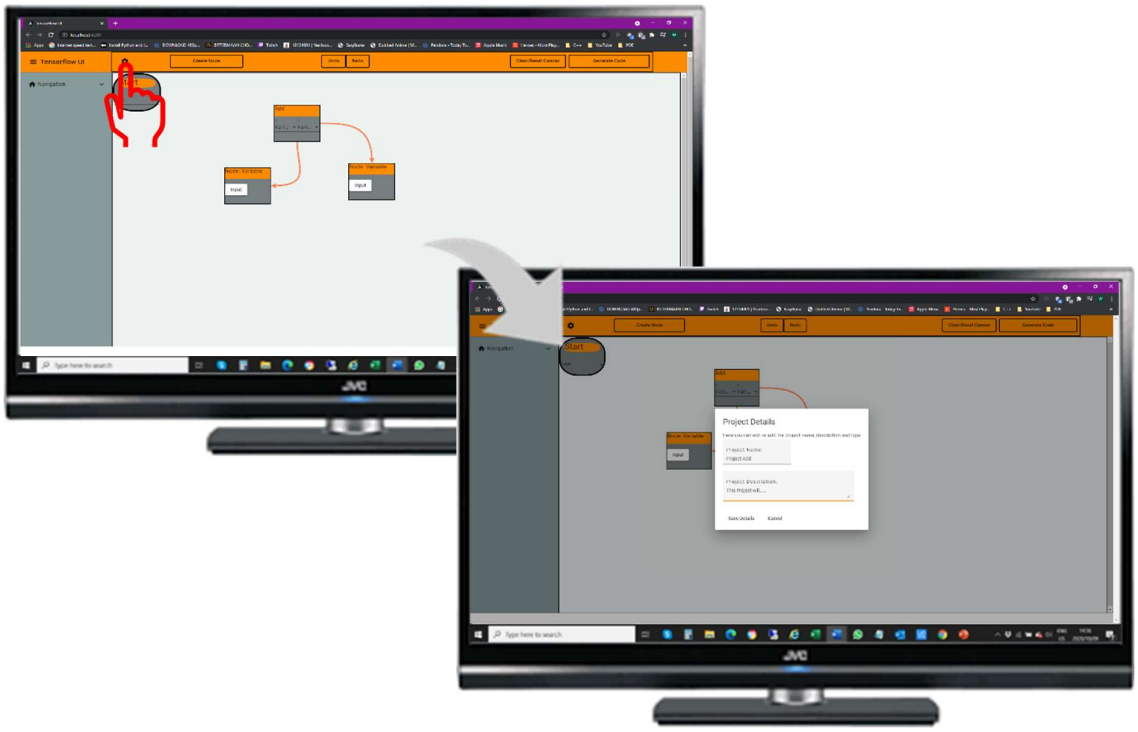
8. Generate Code

- Ensure that the web browser does not block popups.
- After a project was created and a model built, this button will write the python code depicted by the visual project on the screen.
- Click this button to generate and download the code.

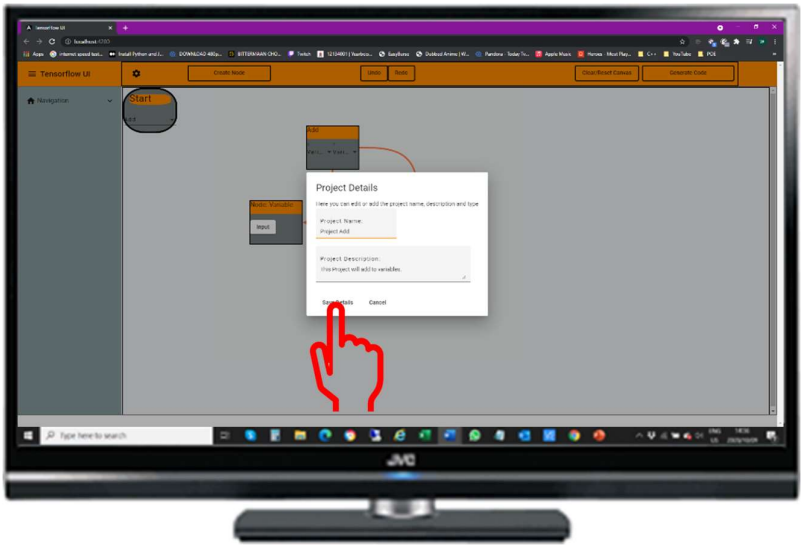


9. Add a Name and Description to the project.

- Click on the gear icon at the top left of the screen (Right next to 'Tensorflow UI')
- This action will show a form where a project Name and a description of the project can be added.

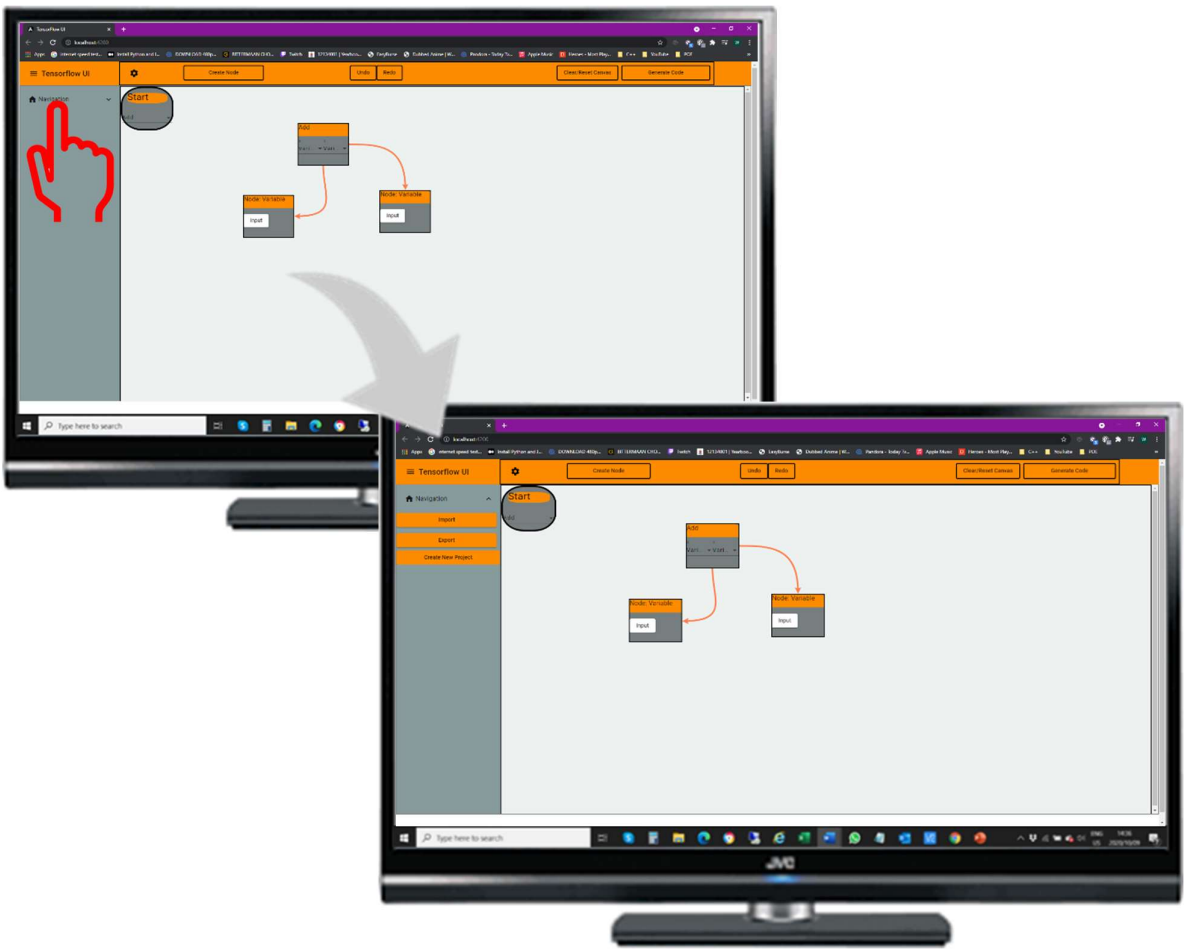


When this form is completed, click the Ok button to save the project name and description.

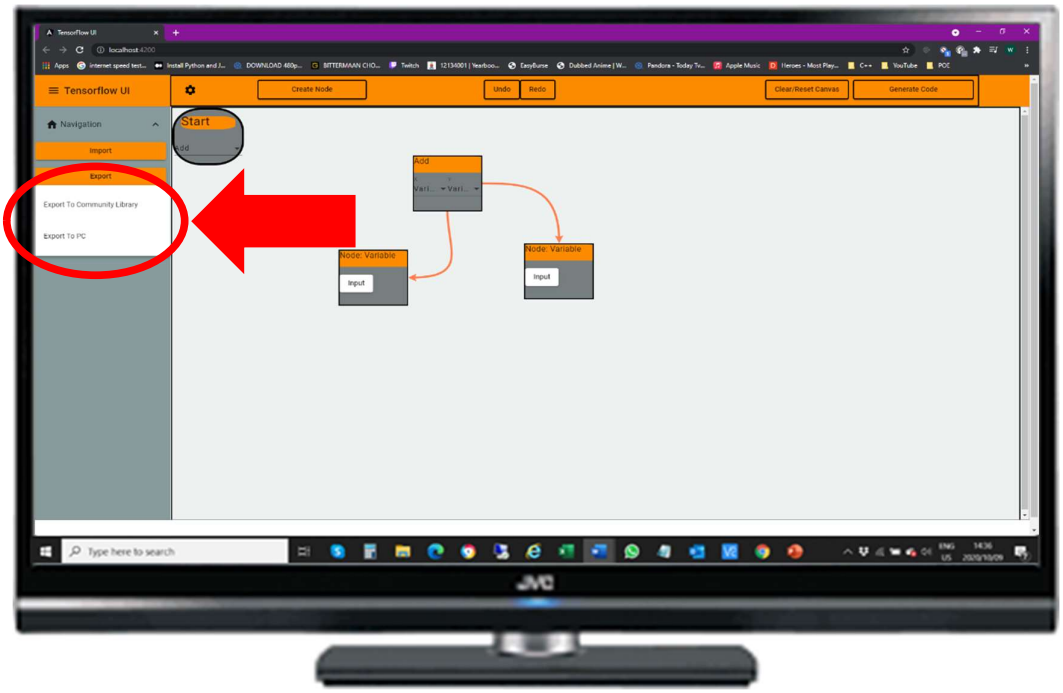


10. Export the Project

Click on the navigation dropdown button to reveal extra buttons.

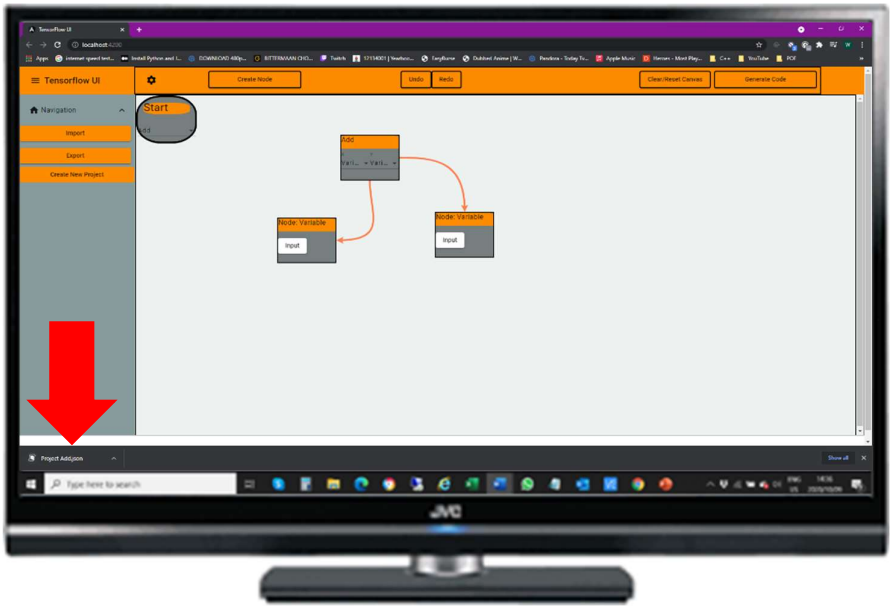


- Click on the export button which will open a list with two options:



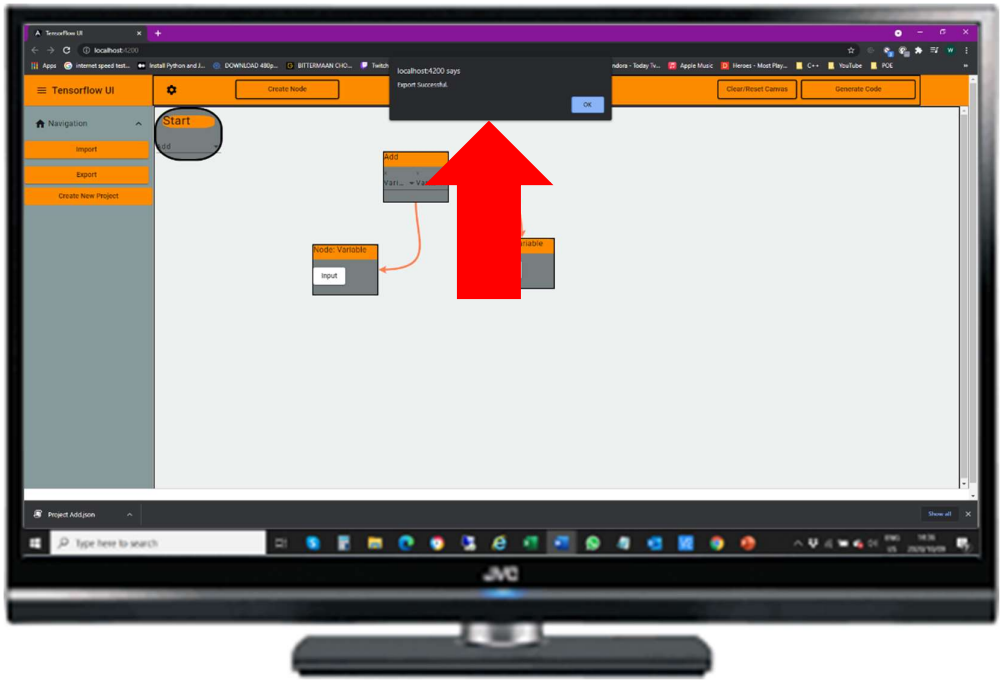
10.1. Export to PC (Personal Computer)

- This button will only work after step 8 was completed
- Ensure that your web browser does not block popups
- Click this button to download the project and save it in the default download location of the browser.



10.2. Export to Community Library

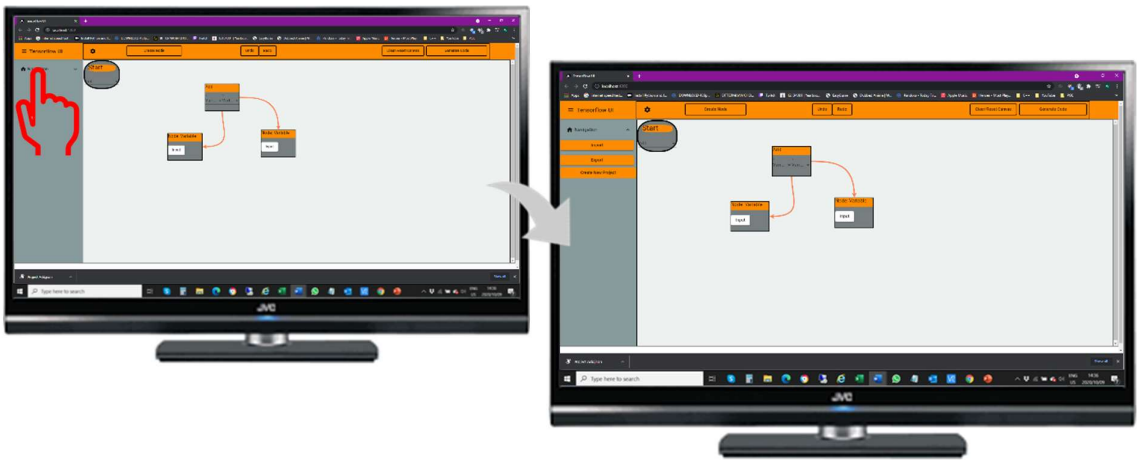
- This button will only work after step 8 was completed
- Click this button to store the project in the Community Library which is available to all Tensorflow UI users.



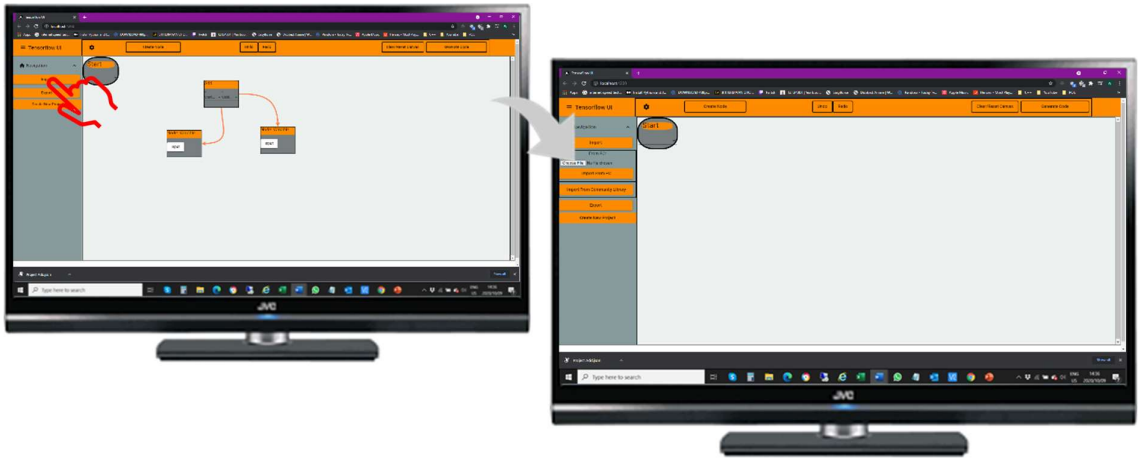
- If the name of the project is the same as the name of a project which is already stored in the Community Library, then the export will fail and the user will be prompted to rename the project and try to export again.

11. Import a Project

- Click on the navigation dropdown button to reveal extra buttons.

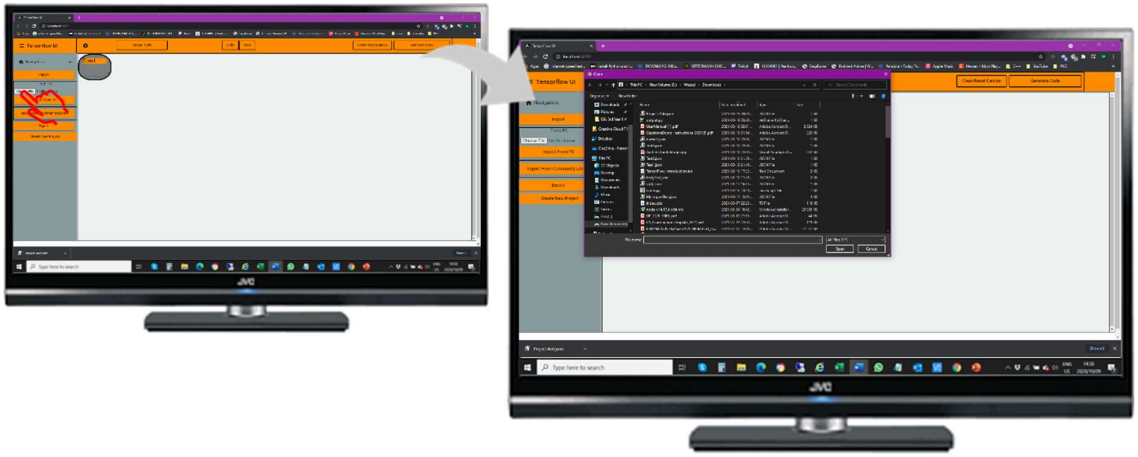


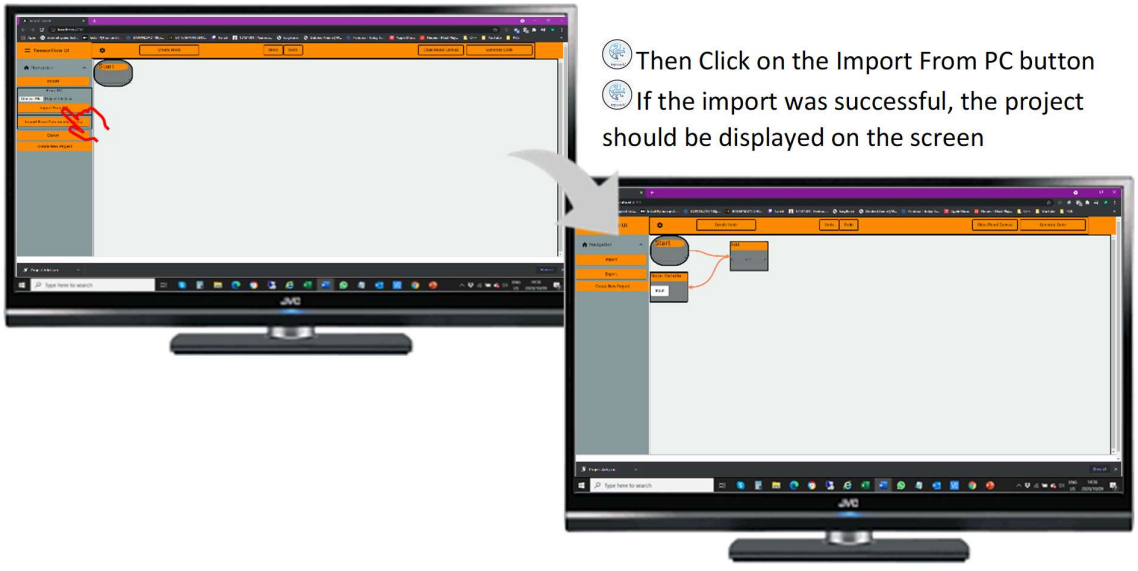
Click in the import button to view import options:



11.1. Import From PC(Personal Computer)

Click on the Choose File button to select a file from your personal computer.
(Please ensure that the file selected is a file that was exported from the Tensorflow UI)

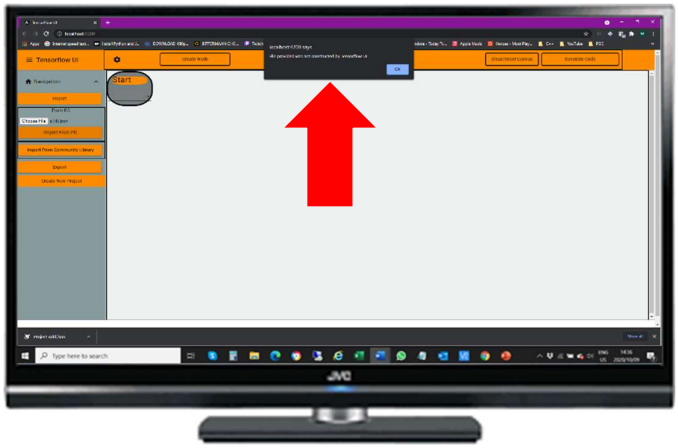




Then Click on the Import From PC button

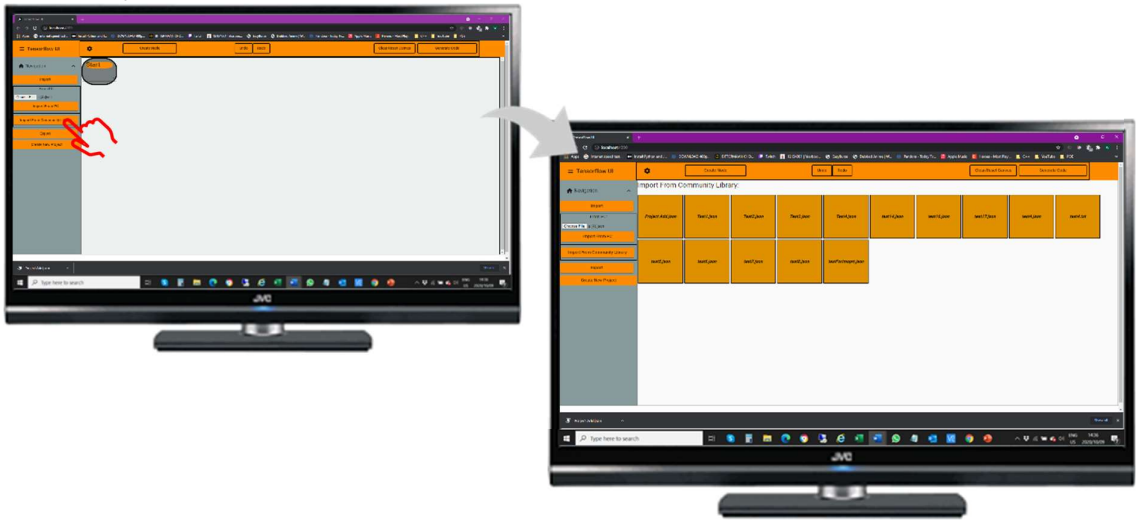
If the import was successful, the project should be displayed on the screen

- If the import was unsuccessful an error message will be displayed.

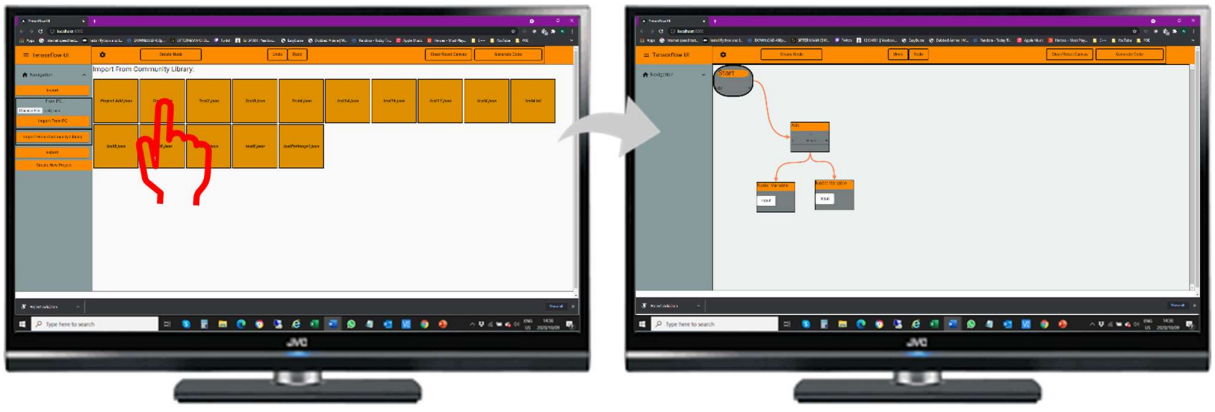


11.2. Import From the Community Library of projects.

- Click on the Import From Community Library Button To view the list of projects that one can import.

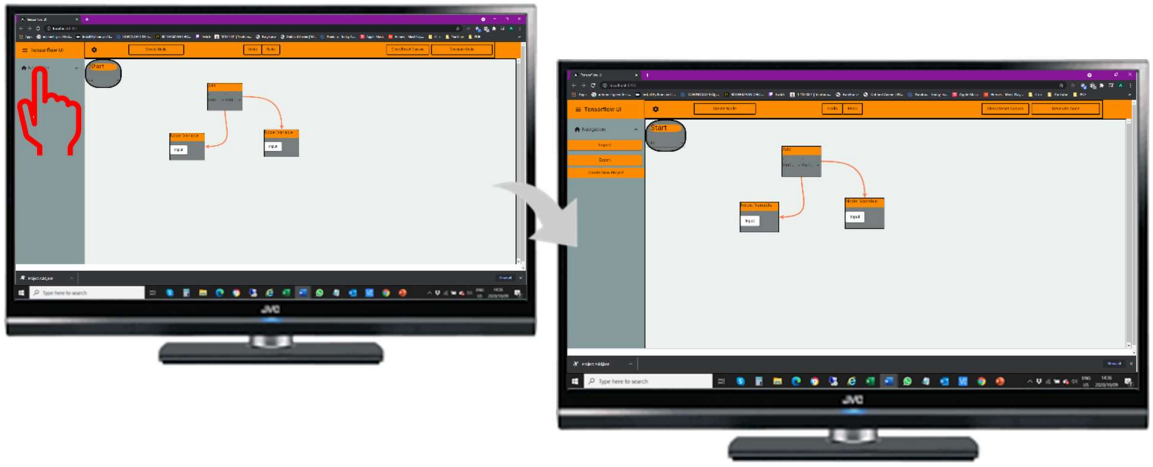


- Click on any of the projects to import that project.

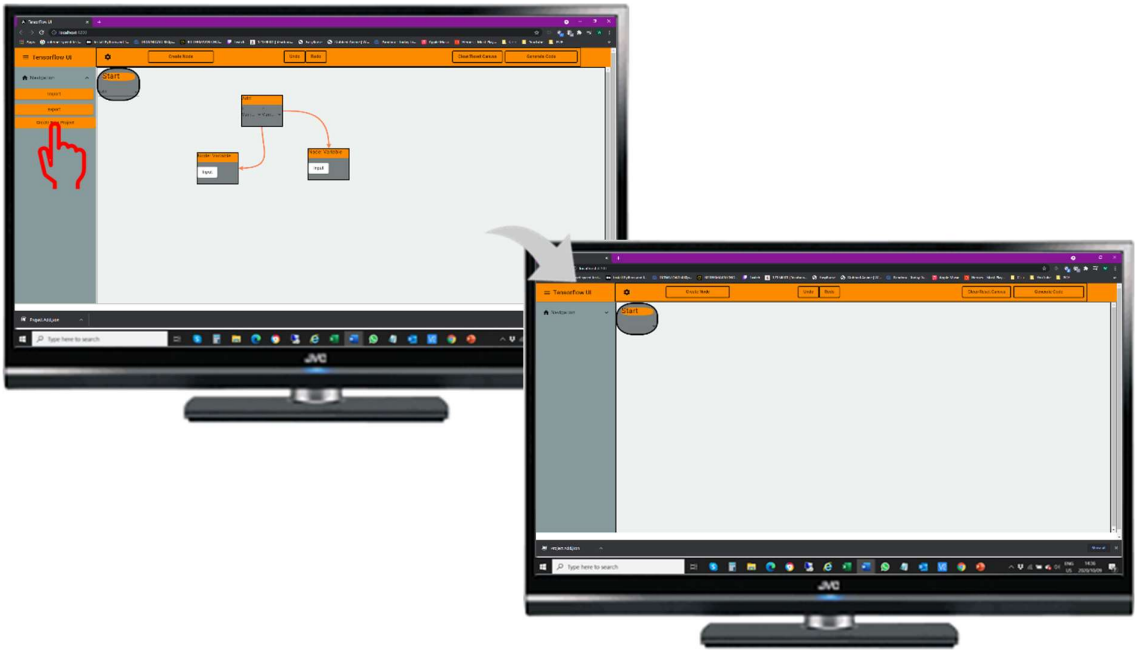


12. Create a New Project

- Click on the navigation dropdown button to reveal extra buttons.



- Click on Create a new project.
- The project page will be cleared as well as the project name and description.



13. Clear/Rest Canvas

Click on this button to clear all nodes and lines from the screen.