TENSORFLOW UI USER MANUAL

VERSION:2.0

Contents

1. Terms of Use of this Manual

Terms of use of this Manual Copyright and all intellectual property rights in relation to this Tensorflow User Manual (this “Manual”), including in all materials, texts, drawings and graphics and any content made available in this Manual are owned by Try Catch Degree as the author of this Manual. The information in this Manual is confidential and you may only use this Manual or any component thereof for your own information and training purposes. Accordingly, any unauthorised sharing of this Manual, copying, reproduction, reverse engineering of the application, retransmission, distribution, dissemination, sale, publication, broadcast or other circulation or exploitation of this Manual or any component of this Manual will constitute an infringement of such copyright and other intellectual property rights. The information and content contained in this Manual are provided “AS IS” without warranty of any kind, either expressed or implied. Try Catch Degree makes no warranties, nor shall Try Catch Degree be liable, for any claims related to or arising from any distributing, training or other use of this Manual. Try Catch Degree will not be liable for any direct or indirect loss or damage arising out of or in connection with the distributing, training or other use of this Manual. The user of this Manual hereby indemnifies and holds Try Catch Degree harmless from and against any claims, costs, damages, expenses, and liabilities arising out of or in connection with the distributing, training or other use of this.

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.

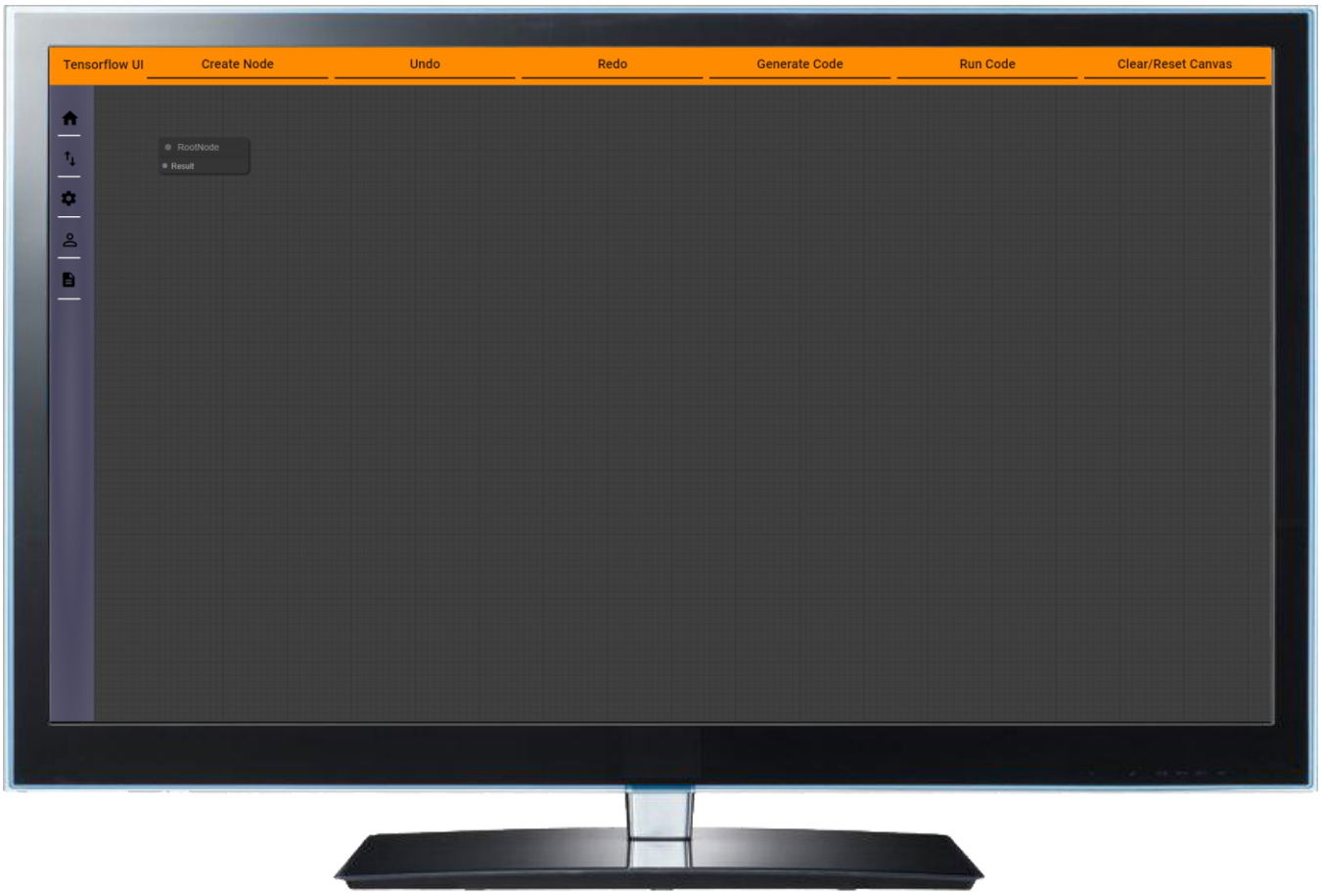
All technical terms will be clarified at the end of this document. If anything in this document or on the website itself is unclear, see the Frequently Asked Questions (FAQ) section in this document.

Contact us (The Try Catch Degree team):

Email: trycatchdegree@gmail.com

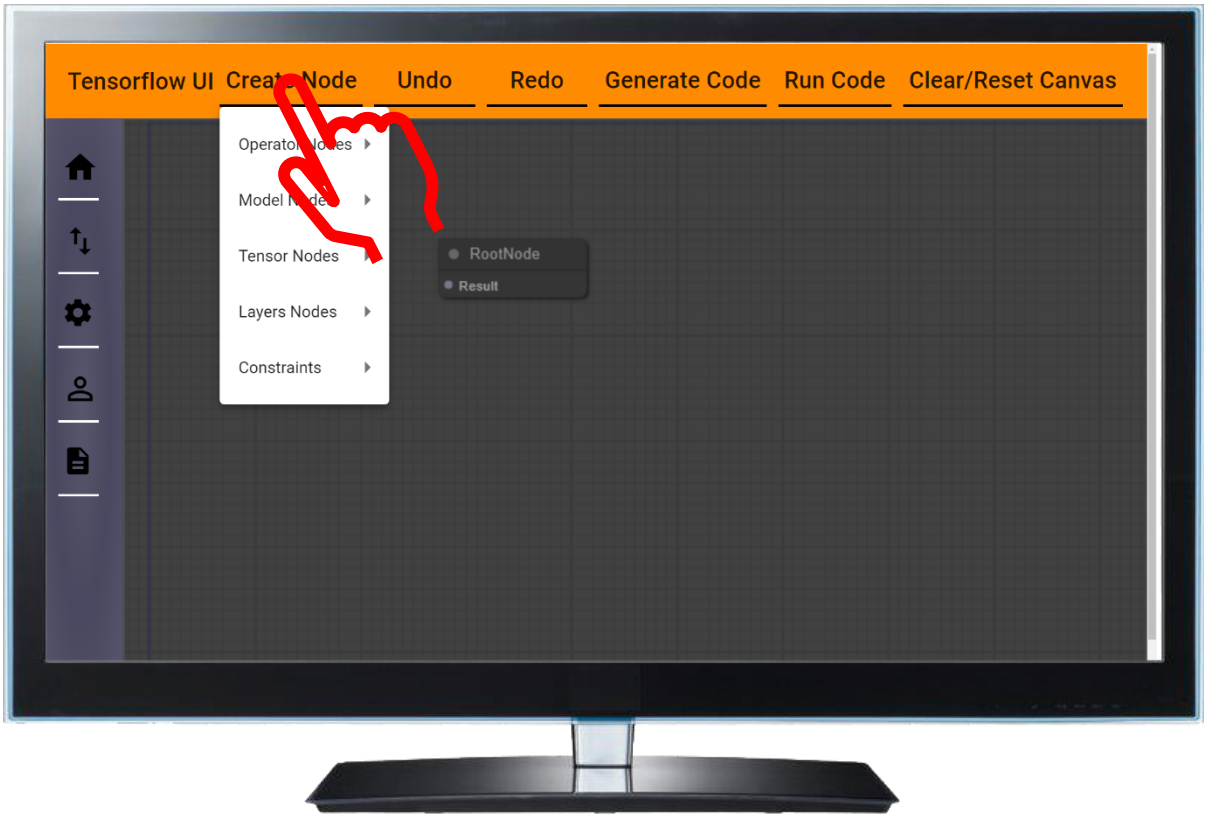
3. Accessing the web app

- For a full insatallation guid to install our system on your computer, please see the Installation manual.
- Or use our website by going to the following url: https://tensorflow-ui.web.app/
- This usermanual was done usint the Tensorflow UI website that was mentiones above.



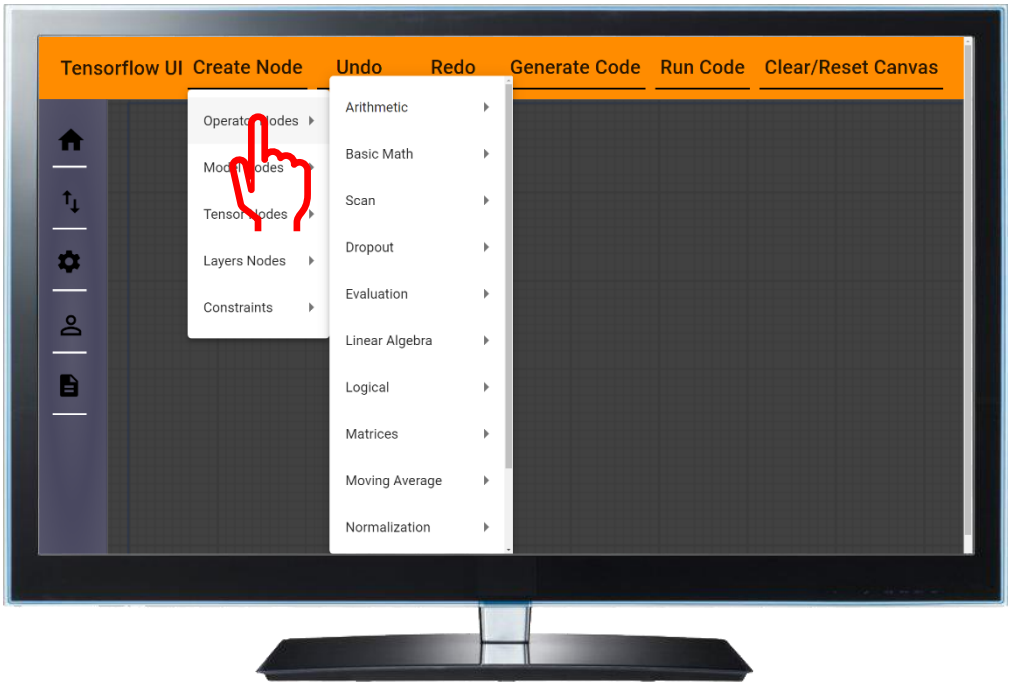
4. Create a Node

Click on the create node button at the top of the screen to reveal the various categories of nodes that can be added to a project:

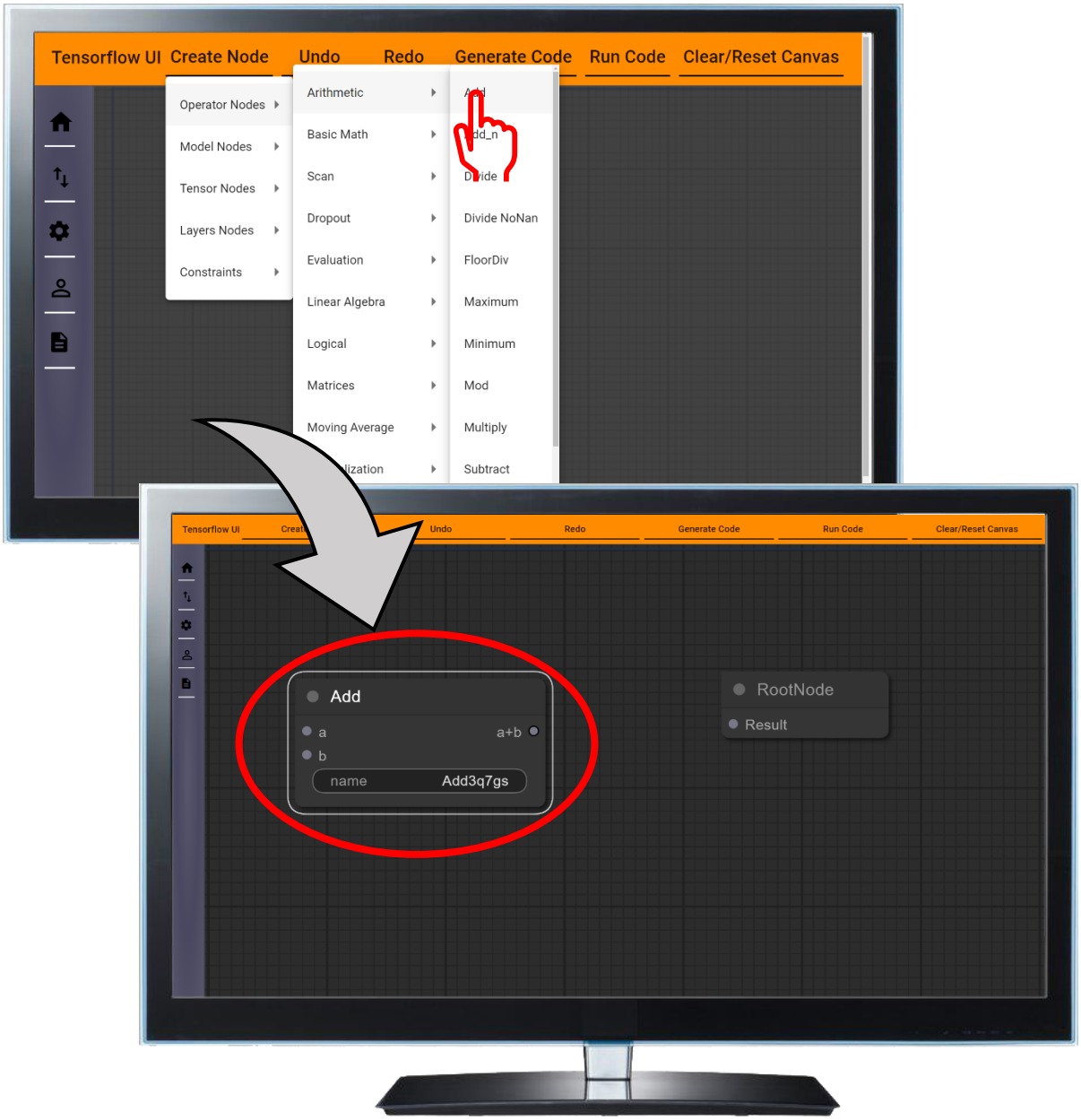


4.1. Node Categories

Each node category includes sub categories. Move the mouse pointer over one of the categories to open the subcategory(s).



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

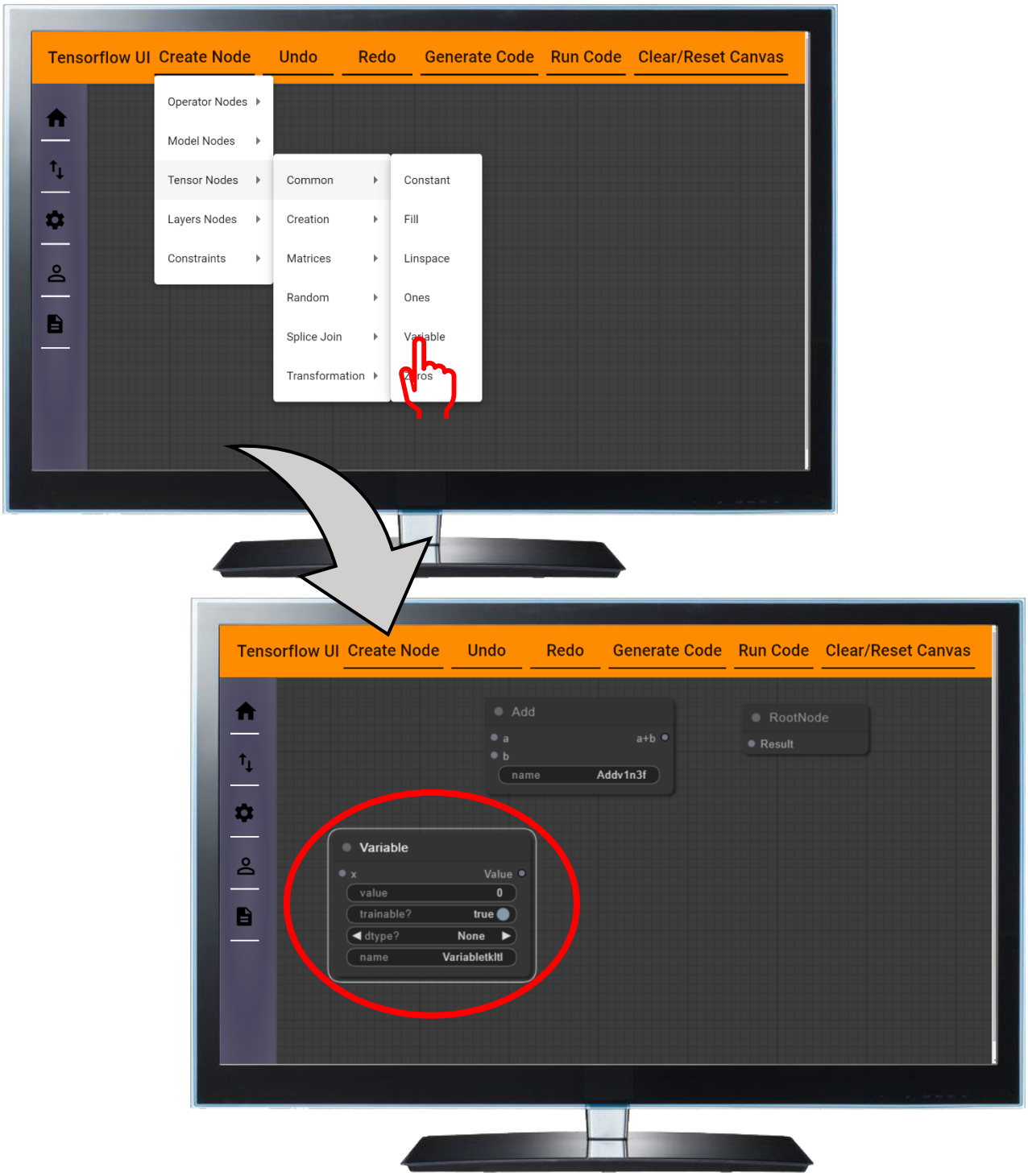


All nodes are created using this method. Nodes are in the different categories to make it easier to find the different types of nodes.

The root node is the beginning of your graph and will be always be added to the canvas automatically.

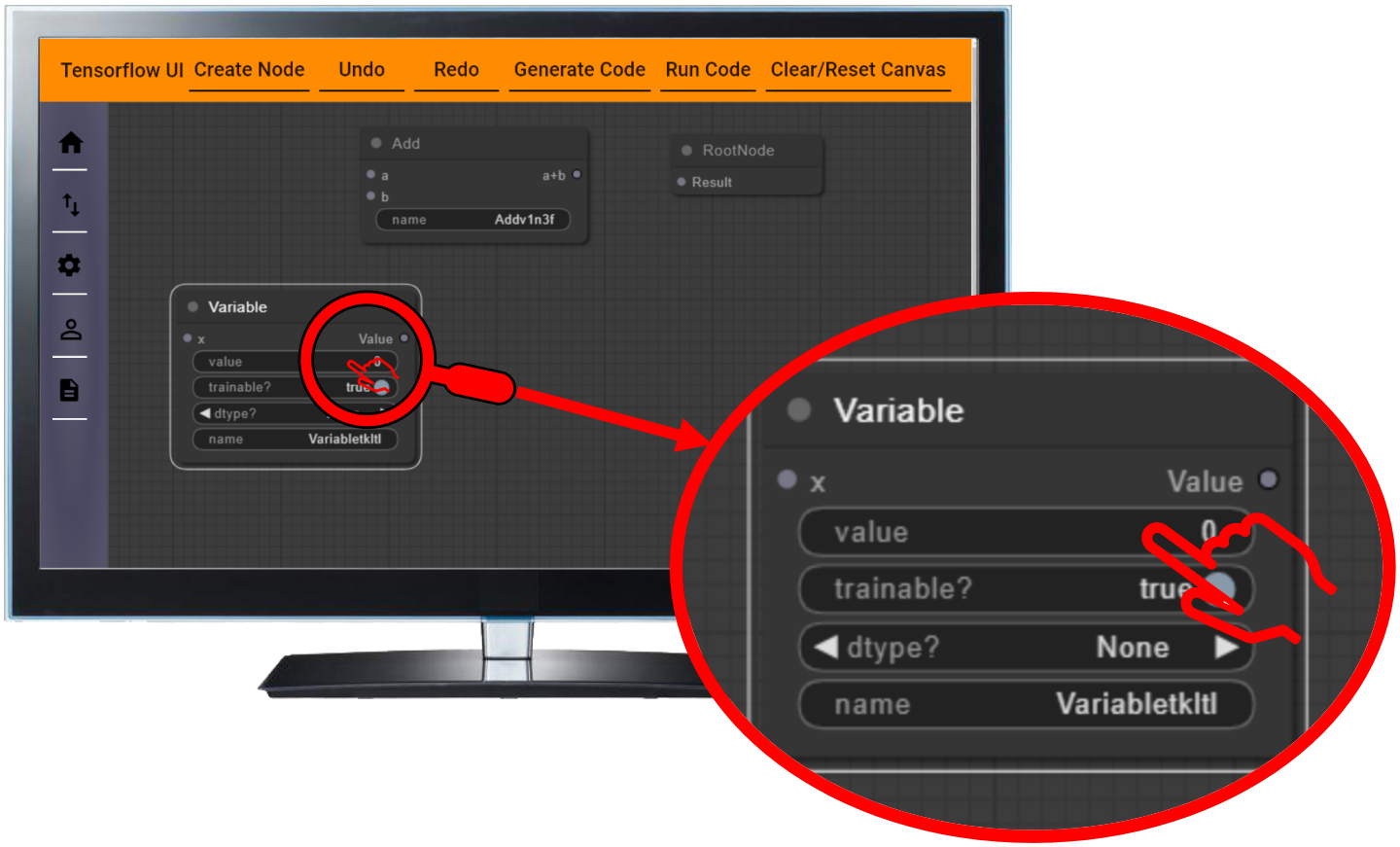
4.2. Add Constant or Variable nodes

- Click on the create Node button.
- Move the mouse pointer over the Tensor Node option to view the different Tensor Nodes that can be created.
- Move the mouse over the Common option.

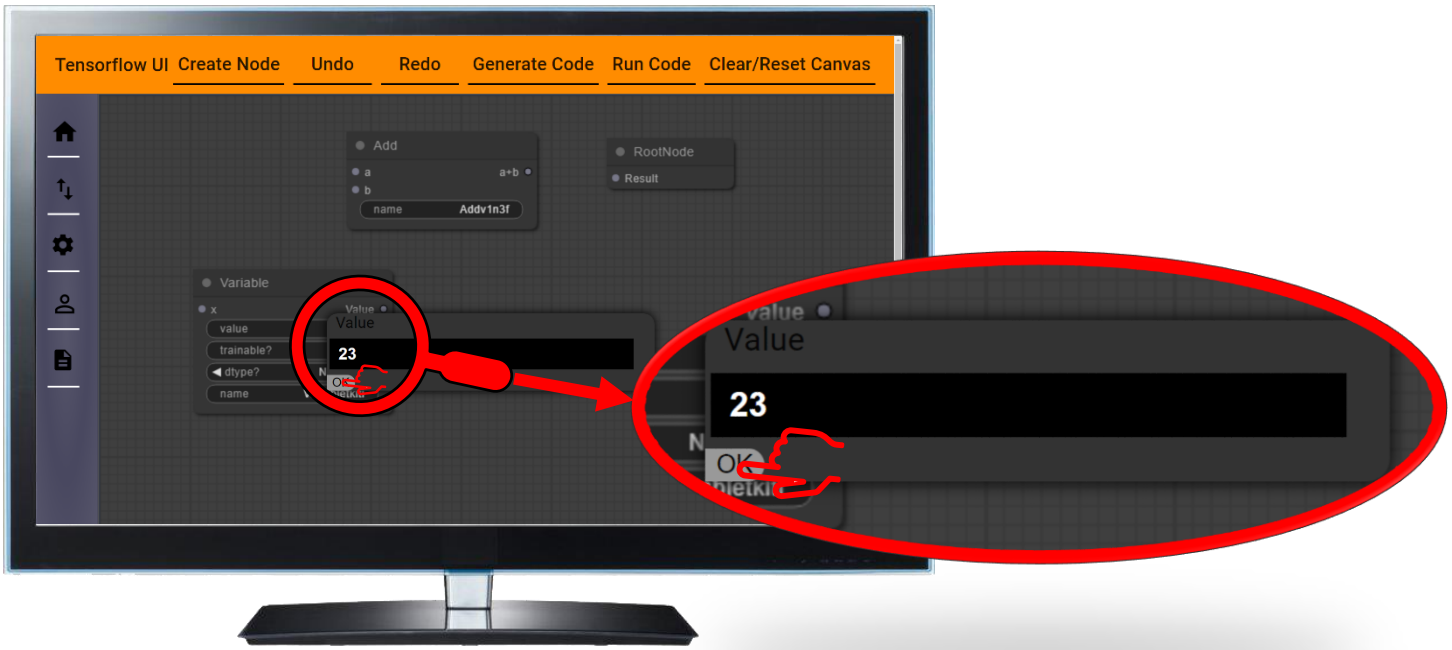


5. Add Values to Constant/Variable Nodes

- Click on the value field on a node of this type to input values.

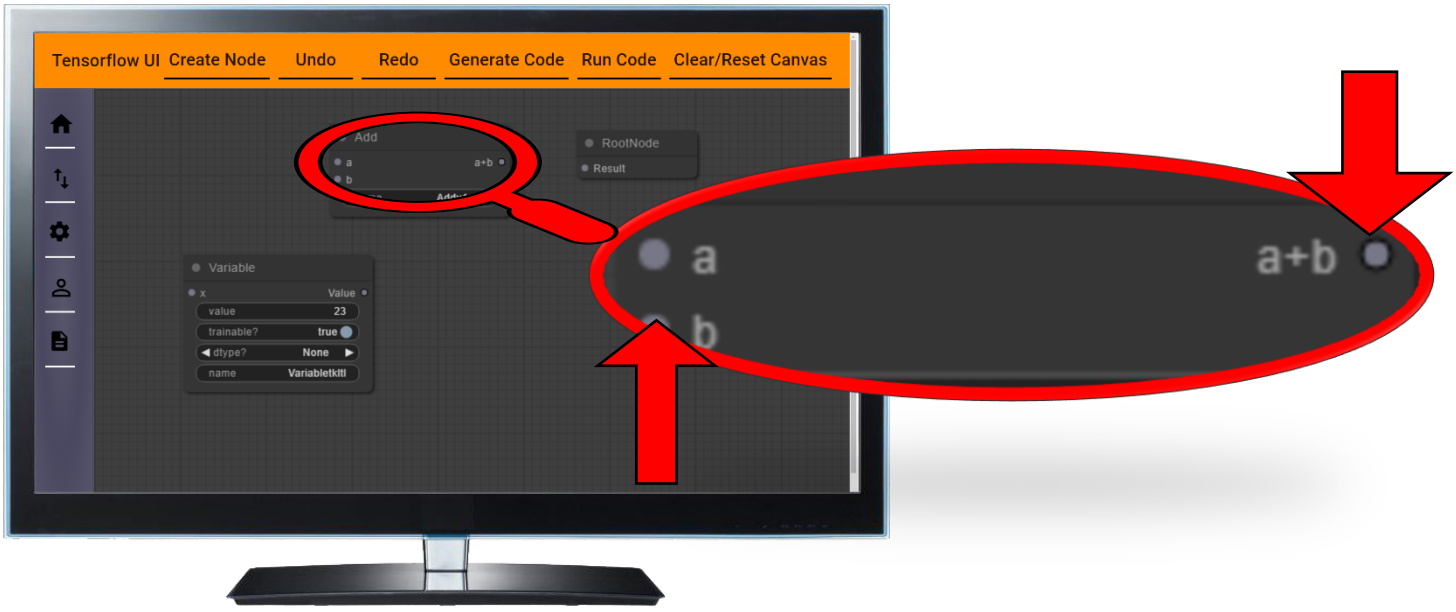


- Click in the space provided and insert a value.
- Click the okay button to save the value



6. Link nodes

- (Most) Nodes contain little circles at their left and right edge. These circles are used to draw lines between nodes (in other words, to connect nodes to each other)



- The abovementioned circle on the right side of the node is used to create a line to a circle on the left-hand side of the next node. You do this by following these steps:
- Click (left mouse button) and hold the circle on the righthand side of the node.
  (While holding the left mouse button down, move the mouse across the screen to the right-hand circle of another node.
- While the mouse pointer is on the right-hand circle of a node, release the left mouse button and a link will be created. (The above-mentioned steps can be considered a click and drag motion)
- A Link will be created between these nodes

7. Undo/Redo

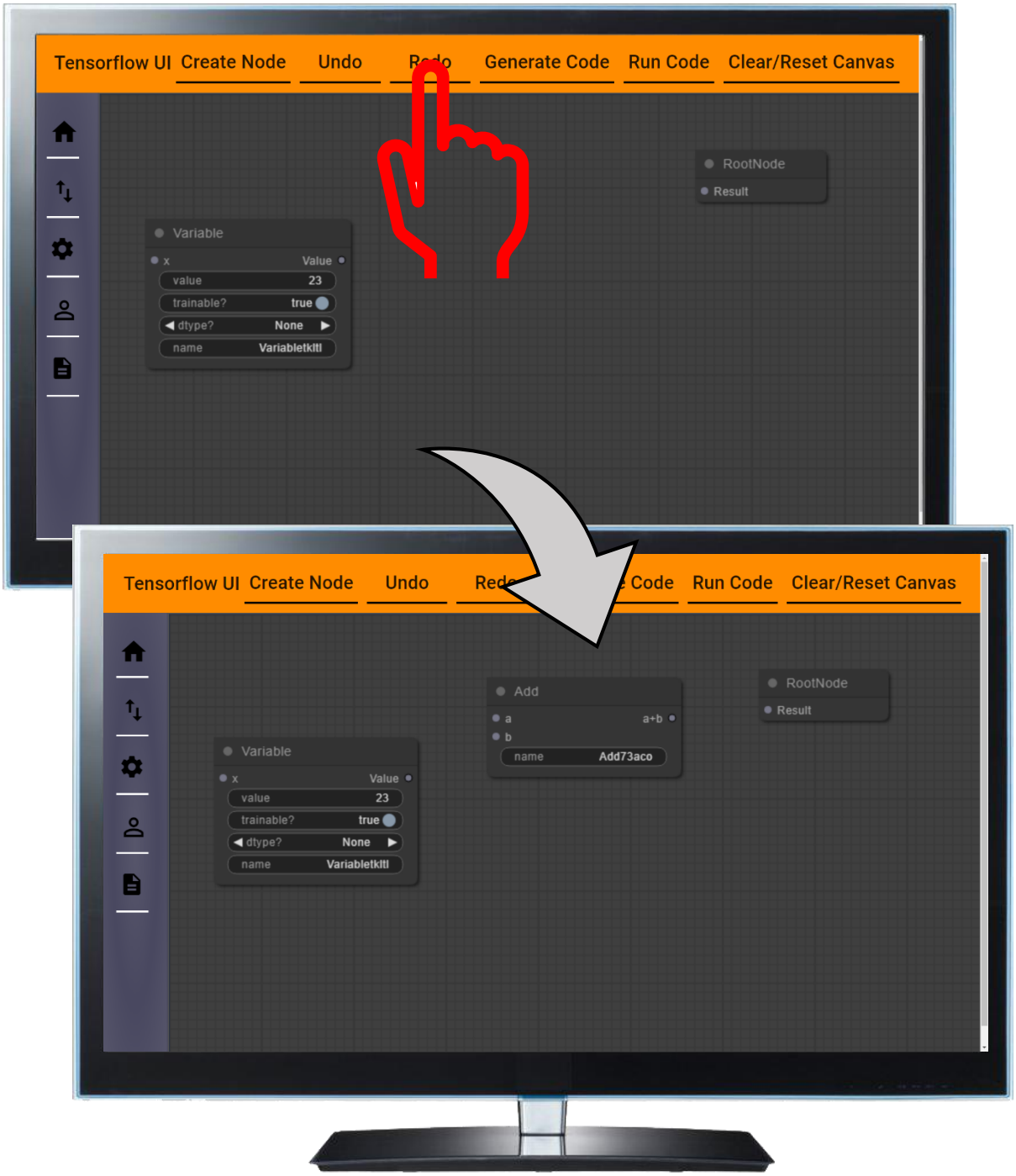
These buttons do exactly what their names imply:

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.
- The same will happen for any action the user takes(i.e. creation of nodes, deletion of nodes, clearing the canvas, etc.)
- In the case below, the add node was the last node to be created.

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.
- In the example below, we will redo the undo that occurred on the previous page of this document.

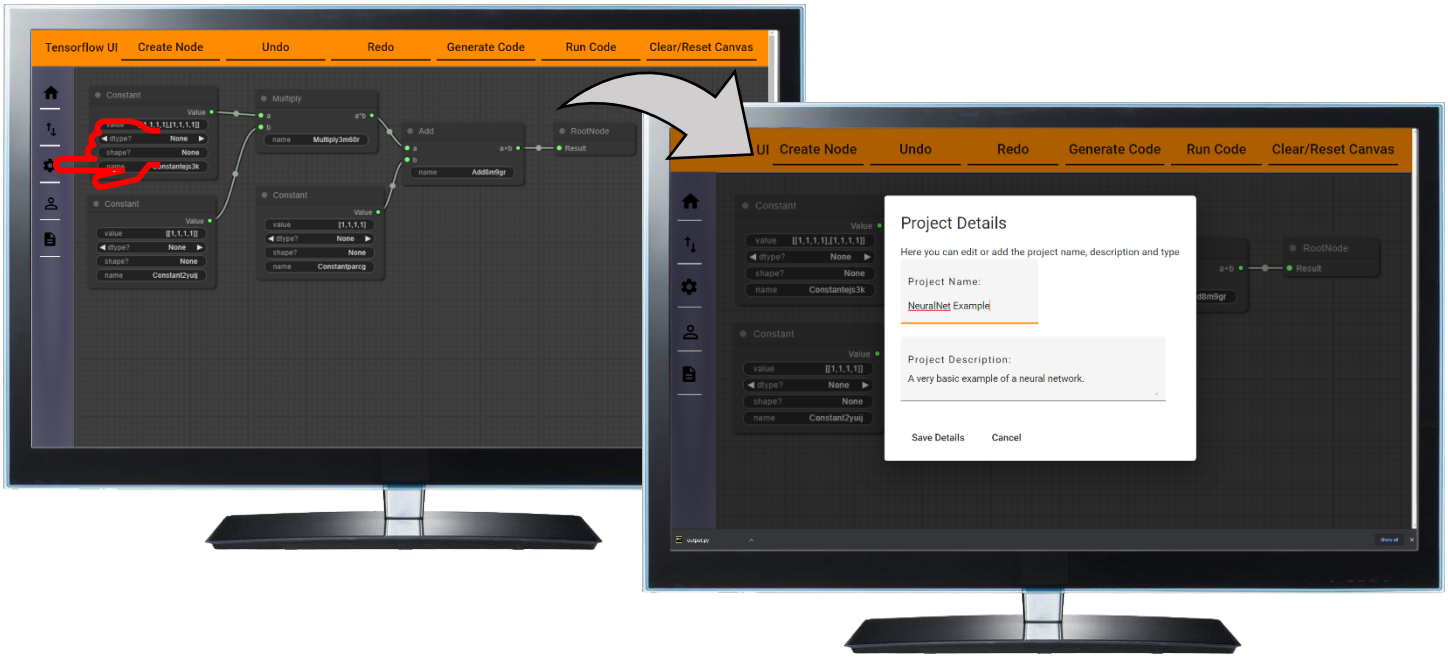


8. Generate Code

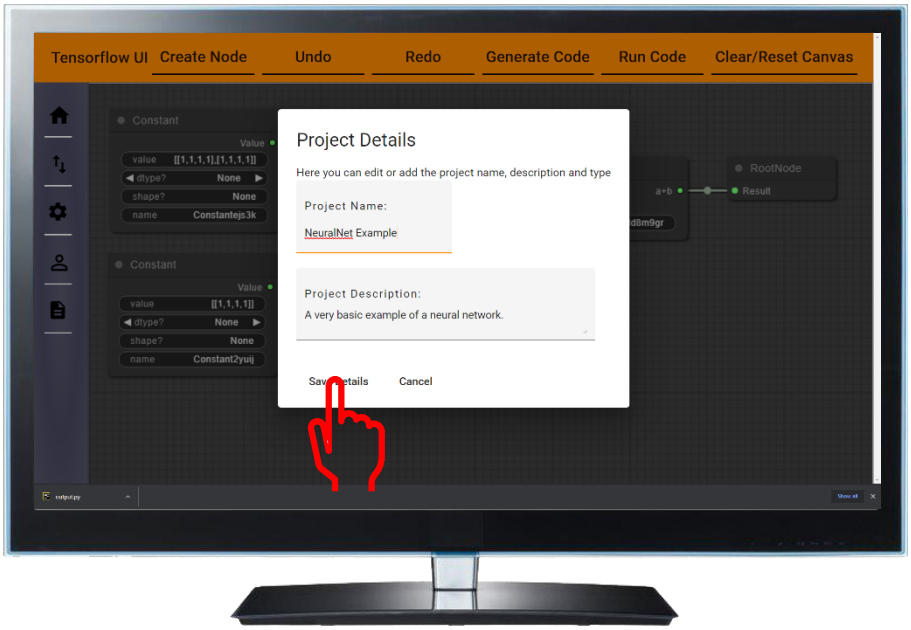
- To use this functionality, please ensure that your web browser does not block popups.
- After the desired project(graph) was created, this button will write the python code depicted by the graph on the screen.
- Make sure the graph is connected to the root node, otherwise code generation is not possible.
- Click the button as showed in the image below to generate and download the code.

9. Add a Name and Description to the project.

- Click on the gear icon on the left of the screen.
- This action will show a form where a project Name and a description of the project can be added.



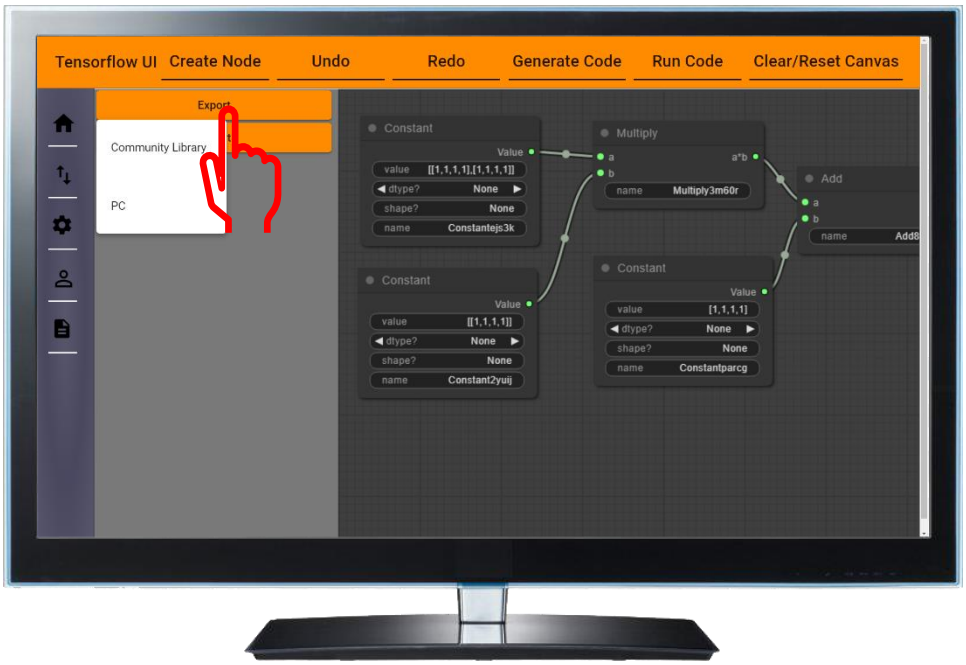
When this form is completed, click the Ok button to save the project name and description.



10. Export the Project

Click on the Import/Export button () which will open a menu with two options:

Click on the Export button and choose one of the options.

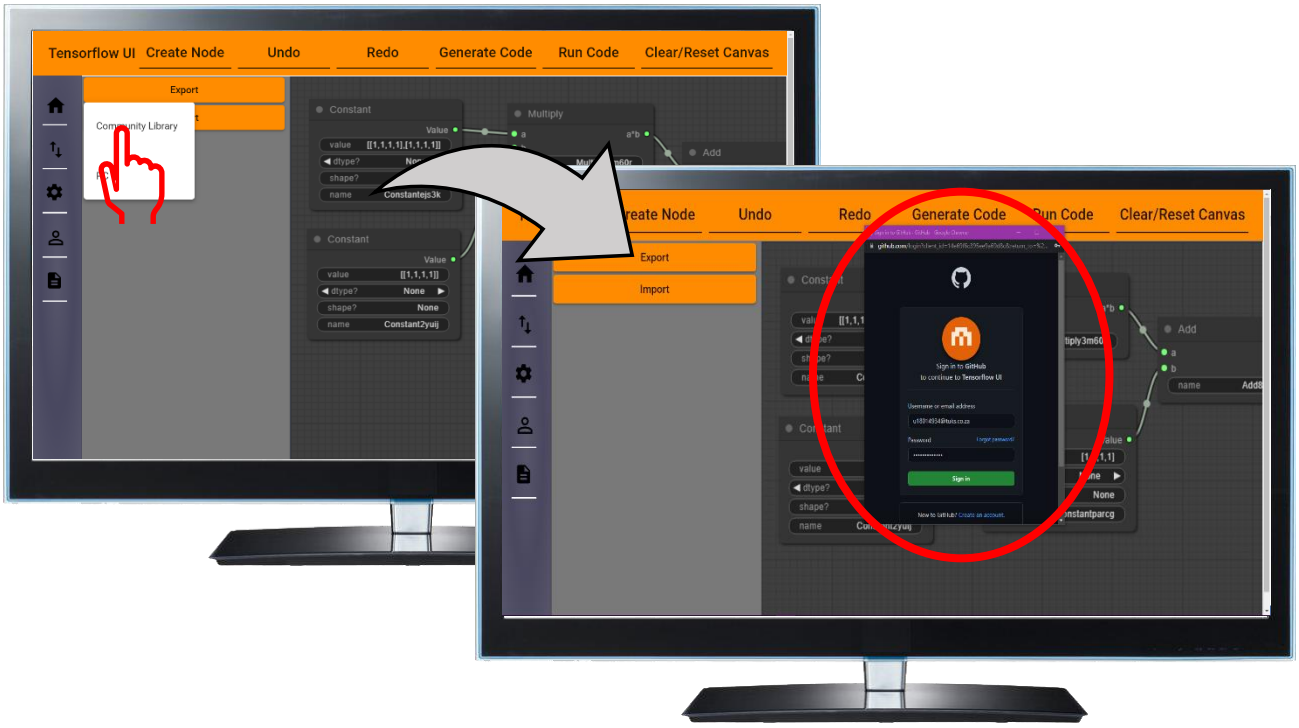


10.1. PC (Personal Computer)

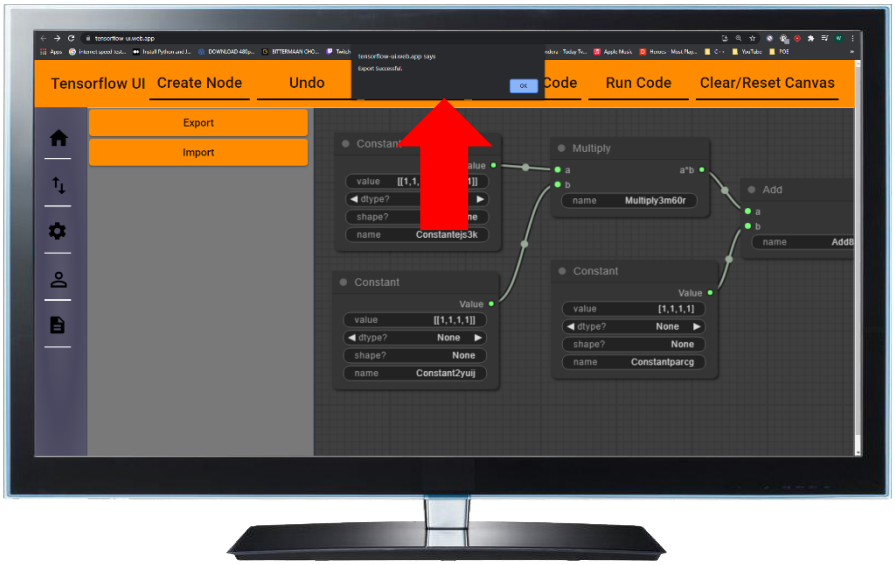
- This button will only work after step 9 was completed. (Every project deserves a name)
- Ensure that your web browser does not block popups.
- Click this button to download the project and save it in the default download location of the browser.

10.2. Export to Community Library

- This button will only work after step 9 was completed.
- Click this button to store the project in the Community Library which is available to all Tensorflow UI users.
- This button will ask the user lo log into their github profile. This required so that the Tensorflow UI users and the Tensorflow development team can see and possible monitor who exports projects to the community library.



- After a user signs in to Github and gives the Tensorflow UI the required permissions (using the onscreen instructions), the popup will automatically close and the project will be saved to the community library.



- 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. The user will then be prompted to rename the project and try to export the project again.

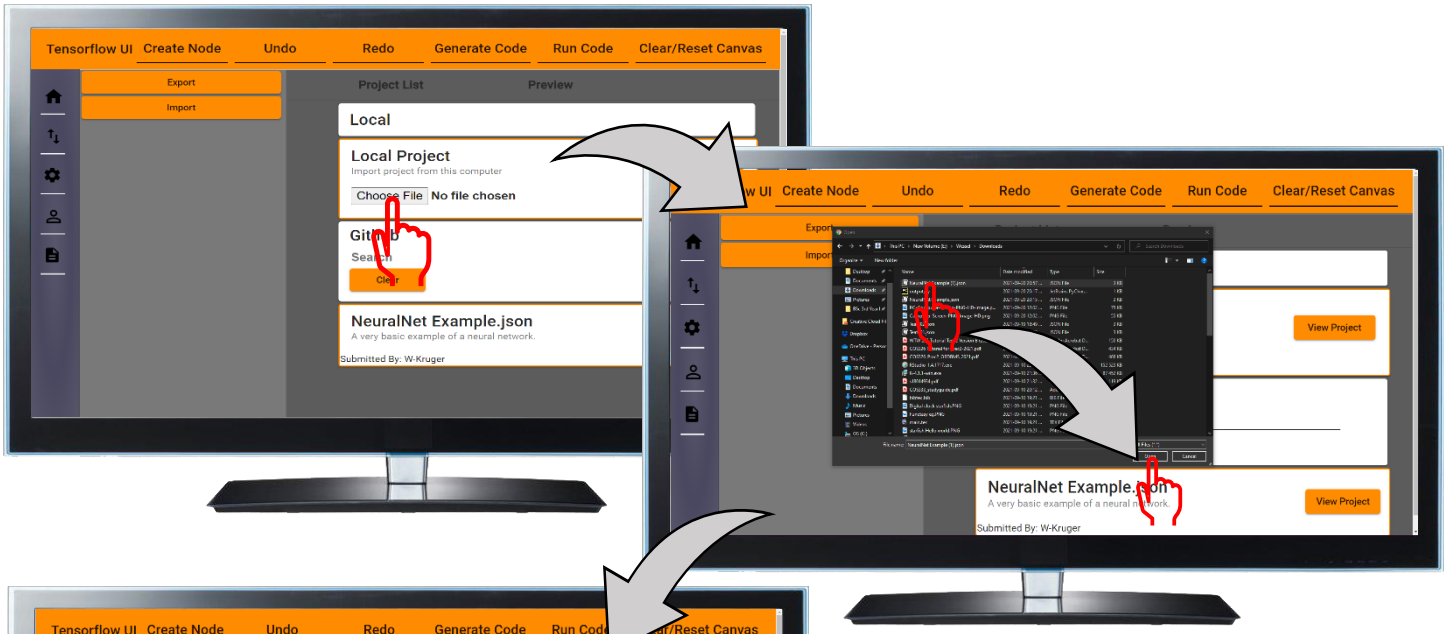
11. Import a Project

Click on the Import/Export button () which will open a menu with two options:

Click in the import button to view the list of projects that can be imported:

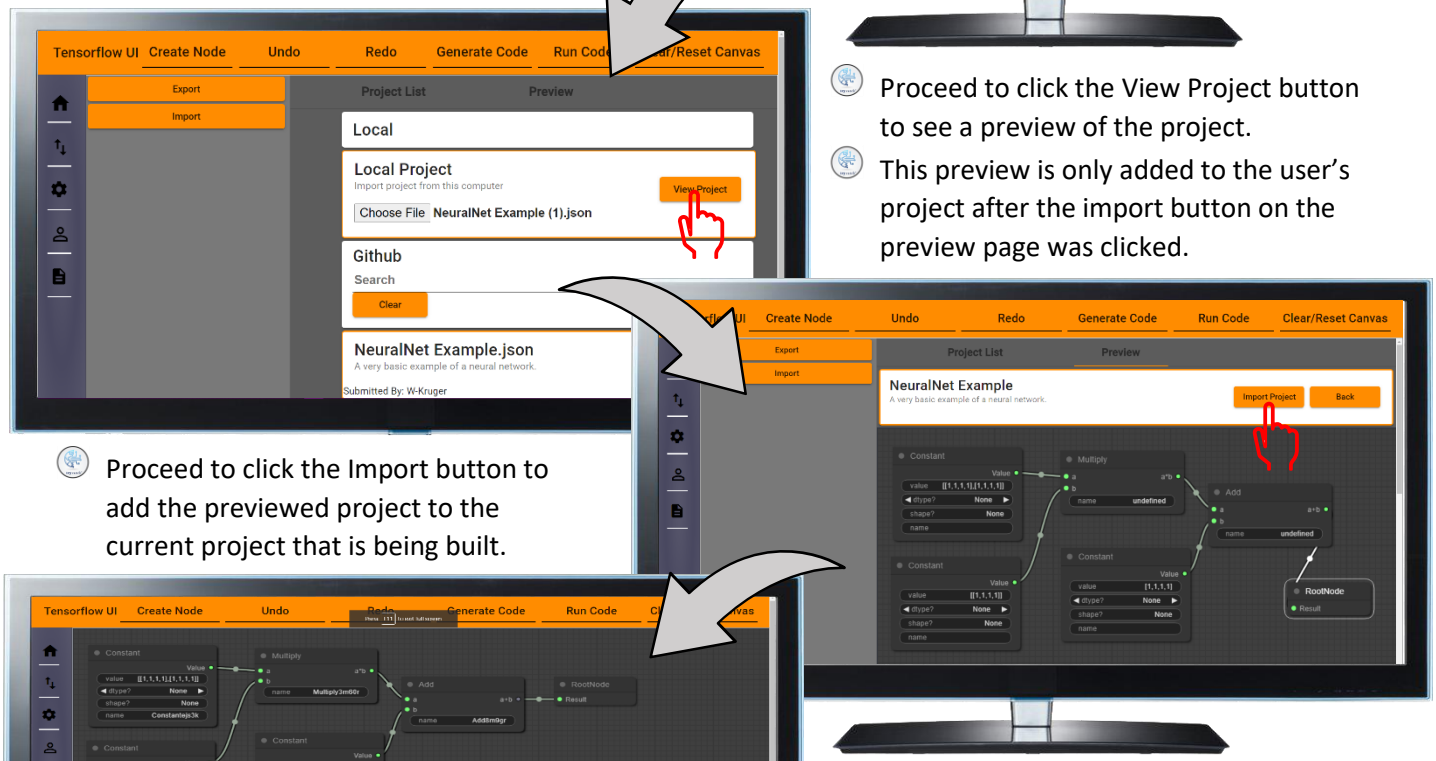
11.1. Import From PC(Personal Computer)

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)

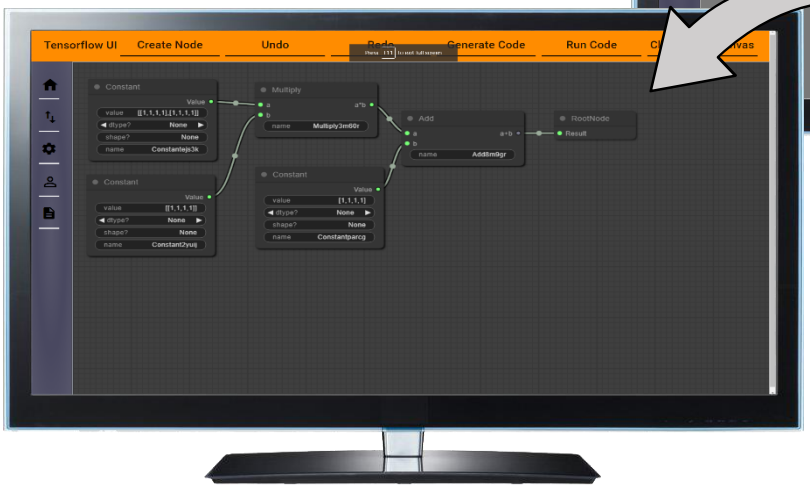


Proceed to click the View Project button to see a preview of the project.

This preview is only added to the user's project after the import button on the preview page was clicked.



Proceed to click the Import button to add the previewed project to the current project that is being built.



11.2. Import From the Community Library of projects.

Click in the import button to view the list of projects that can be imported:

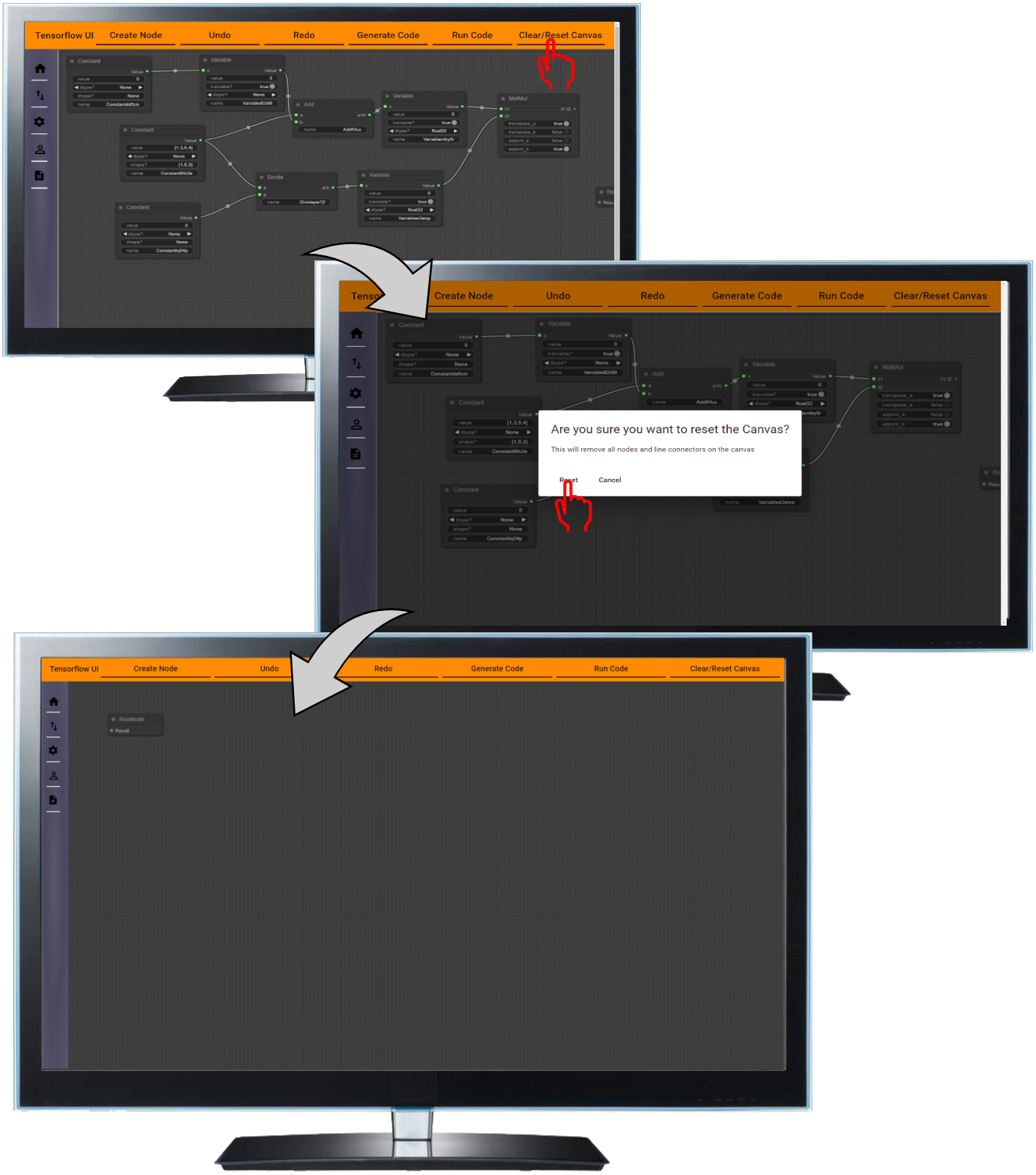
On this page a user can search for a project by typing in the search field provided.

When the user wants to preview a project, he or she simply clicks on the button to the right of the project name.

Proceed to click the Import button to add the previewed project to the current project that is being built.

12.Clear/Rest Canvas

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



13. Technical terms

Technical terms used in this document will be defined and clarified here:

- ***Node***: A visual representation of a unique and specific Tensorflow functionality in the form for a single object or entity.
- ***Constant***: An object that stores data, which stays the same throughout the use of your project.
- ***Variable***: An object that stores data, which can change and be used by other nodes.
- ***Root node***: The node which represents the base of the graph: this specific node offers an exit point for the model, meaning that the final output must be directed towards this node.
- ***Popup***: A box that appears on the screen (on top of the Tensorflow UI website) to either ask for information or provide it to you.
- ***Python code***: Computer runnable instructions which the program generates and can be run in an environment created to run scripts for the Python language.
- ***Community Library***: A library which consists of projects crated by users (made using the Tensorflow UI website. This library is available to all users of Tensorflow UI.
- ***Canvas***: The space where the graph is visually represented on the Tensorflow UI website
- ***Tensorflow UI***: The name of the website that is discussed in this document.
- ***Tensorflow***: TensorFlow is a powerful machine learning framework that allows developers to build and deploy machine learning projects.
- ***A project***: A set of instructions (or in our case nodes) that are connected to each other to achieve a particular goal.

14. Frequently Asked Questions (FAQ)

- *Who can I contact if I have a question that is not in the FAQ section of this document?*
  You can contact the Try Catch Degree team by sending an email to:
  trycatchdegree@gmail.com
- *Do I need to enable browser popups to properly run the interface?*
  Yes, browser popups need to be enabled. Please refer to this link for detailed instructions to enable popups:
  https://support.google.com/chrome/answer/95472?hl=en&co=GENIE.Platform%3DDesktop
- *Do I need a Github account in order to export and import to the Community Library?*
  Yes, you will need a Github account if you intend to export/save a project to the community library. This account is used to authorize us to save a project to the community library under your name. You will be asked to log in to your github acount when you try to export a project to the comjmunity library. This authentication is only for exporting to Community Library only and will not affect import.
- *Why am I getting a malicious code warning whenever I download the code?*
  Since you're downloading an executable file which contains python code, your browser will automatically warn you about potential malicious code inside the file downloaded. Rest assured, our project does not generate any extra malicious code whatsoever, it will only generate code based on the graph that was created on screen!

- *What happens if I import another project when I have nodes on my screen?*
  The imported project will be added to your current project without any issues! The imported project won't be connected to your existing project, not even the root node. Be sure to connect it to your current project! The imported nodes will be placed in the exact same position as the preview, which means that it will potentially put nodes on top of nodes that were already in your current project. Simply move these imported nodes to the desired location on screen.
- *What is GitHub?*
  GitHub is a provider of Internet hosting for software development and version control using Git. It offers the distributed version control and source code management functionality of Git, plus its own features. It can be accessed using the folowing link: https://github.com/