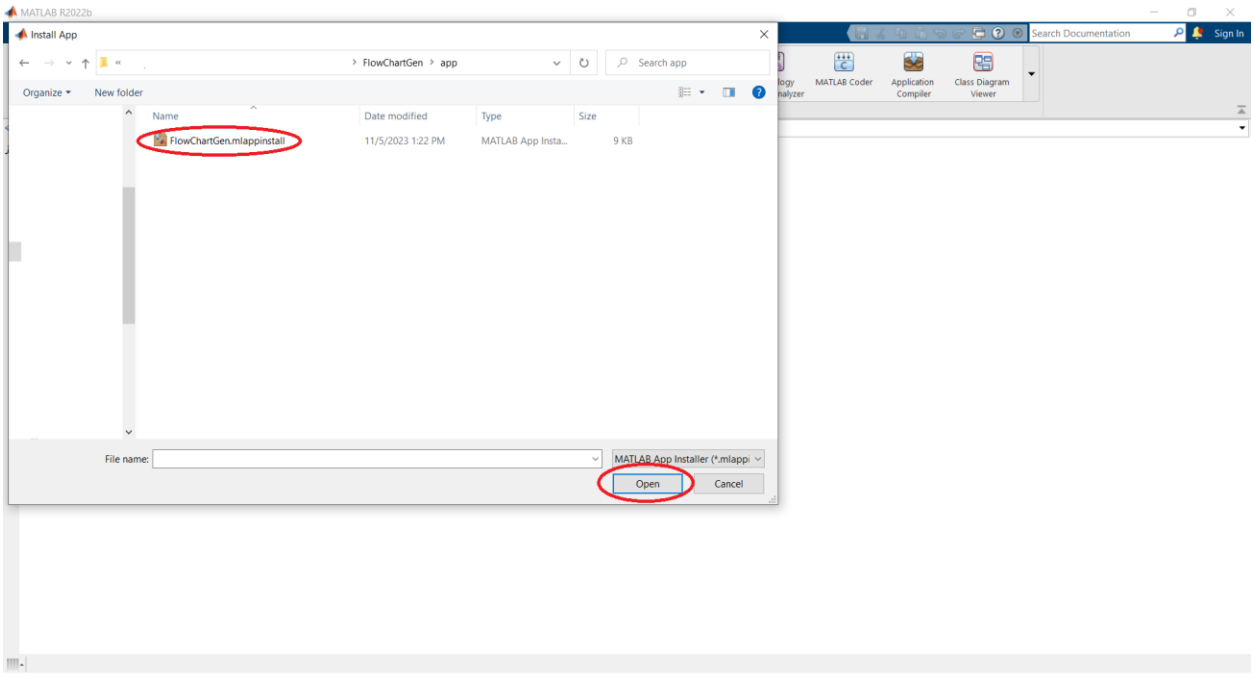
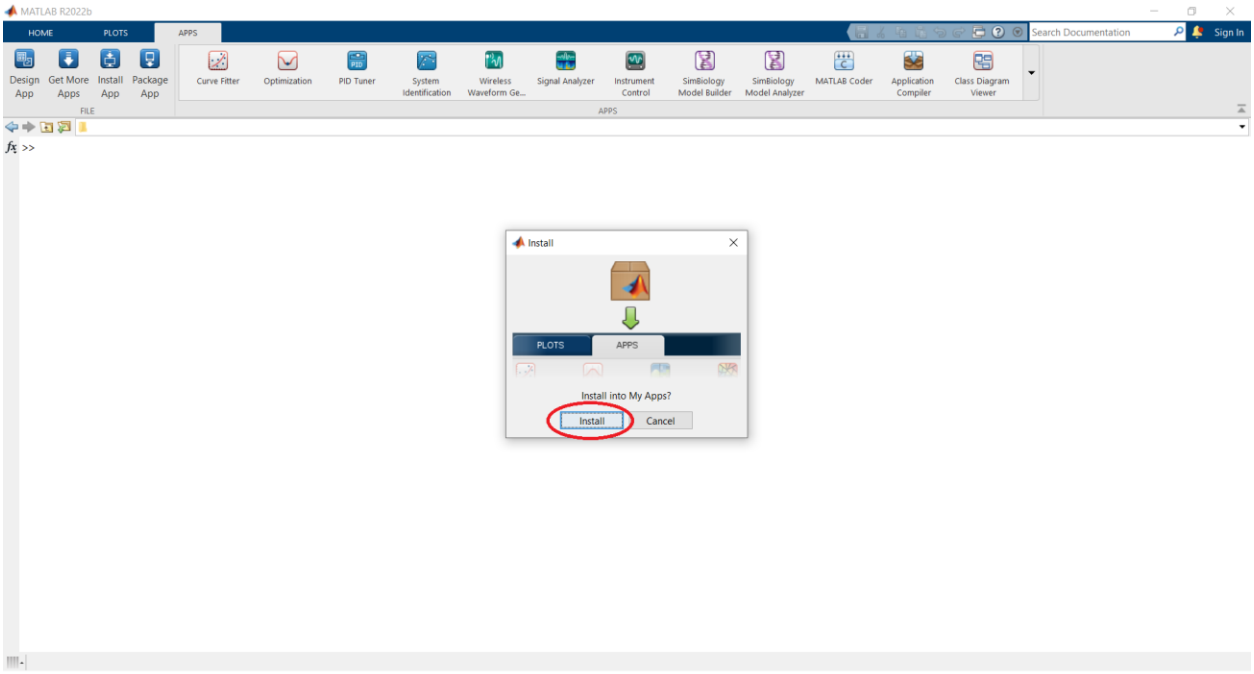
FlowChartGen

By George Papazafeiropoulos

This application generates a flowchart which follows a format similar to that of the Matlab “Publish” functionality. More specifically, it can accept any Matlab script and some user specifications regarding the desired size and shape of the flowchart that will be generated through a GUI window, and plots the flowchart as a Matlab figure. The aforementioned procedure is illustrated through this example, which includes the following steps:

1) Install the FlowChartGen application:

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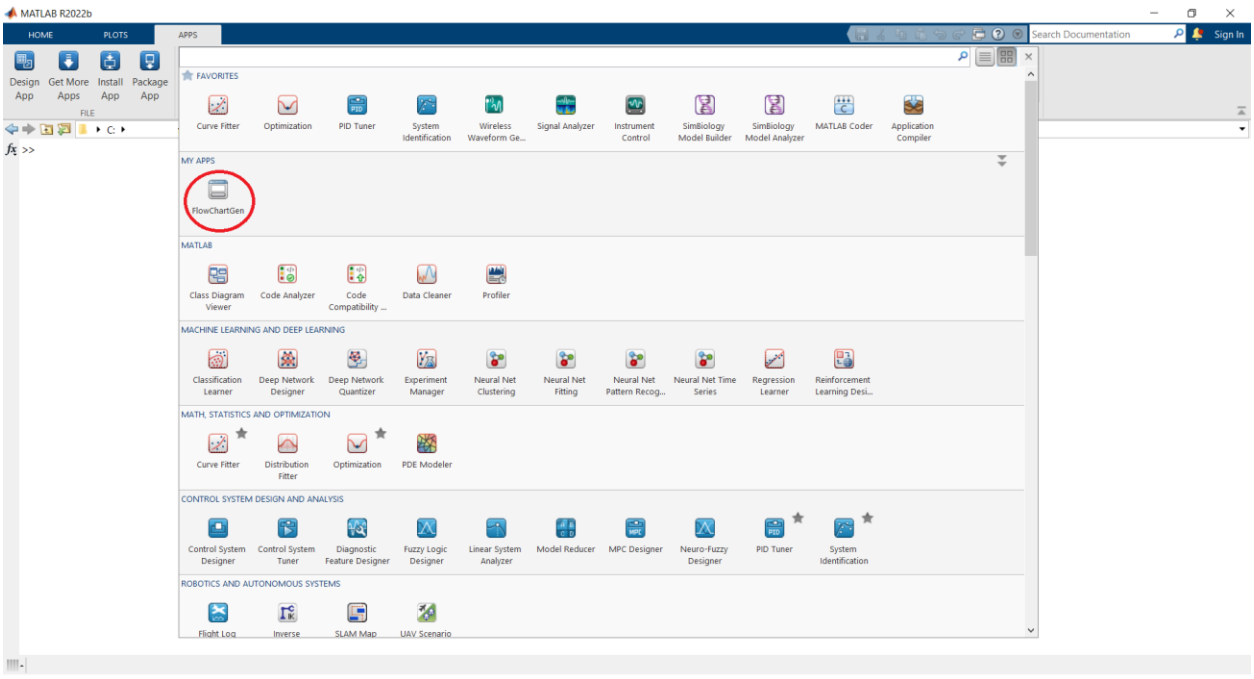
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Application Compiler
MY APPS
FlowChartGen
MATLAB
Class Diagram Viewer
Code Analyzer
Code Compatibility ...
Data Cleaner
Profiler
MACHINE LEARNING AND DEEP LEARNING
Classification Learner
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Experiment Manager
Neural Net Clustering
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Neural Net Pattern Recog...
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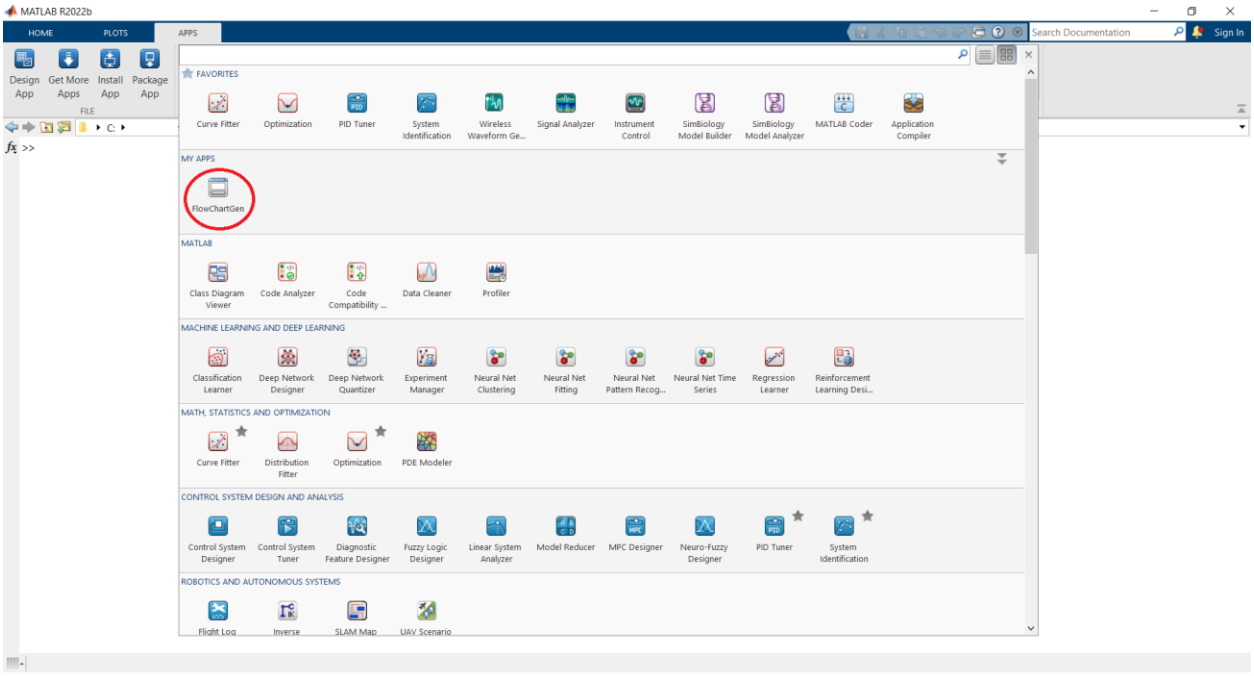
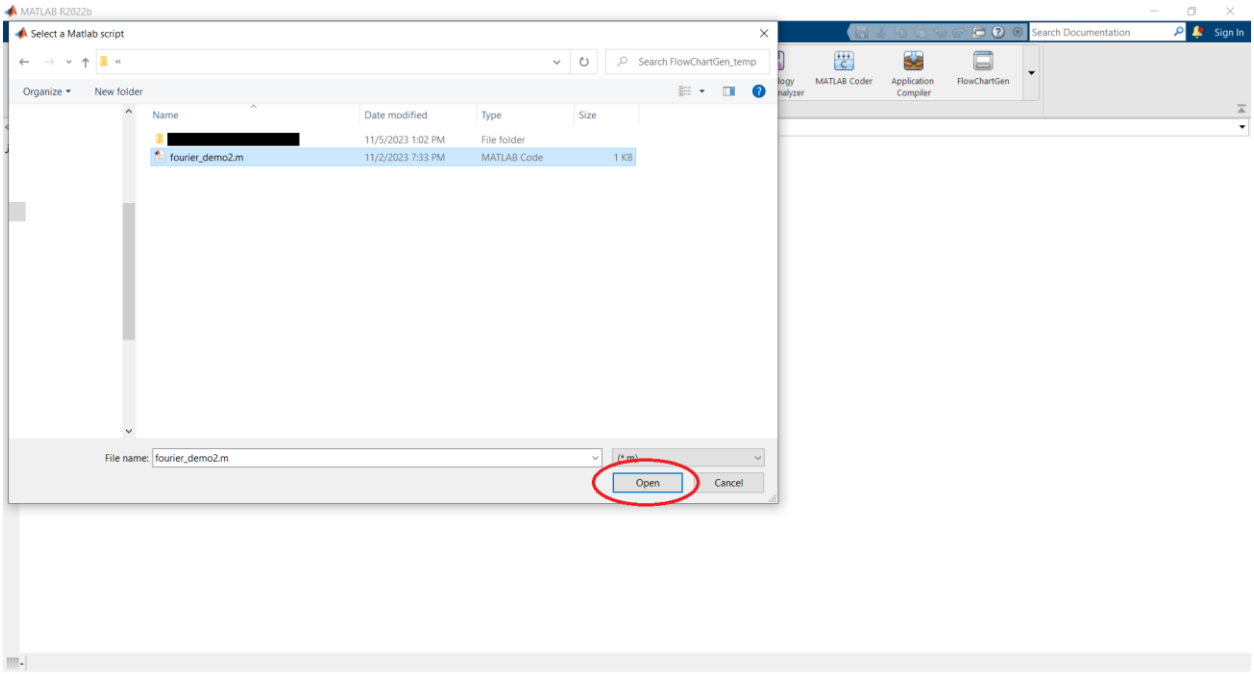
Reinforcement Learning Desi...
MATH, STATISTICS AND OPTIMIZATION
Curve Fitter
Distribution Fitter
Optimization
PDE Modeler
CONTROL SYSTEM DESIGN AND ANALYSIS
Control System Designer
Control System Tuner
Diagnostic Feature Designer
Fuzzy Logic Designer
Linear System Analyzer
Model Reducer
MPC Designer
Neuro-Fuzzy Designer
PID Tuner
System Identification
ROBOTICS AND AUTONOMOUS SYSTEMS
Flight Log
Inverse
SLAM Map
UAV Scenario

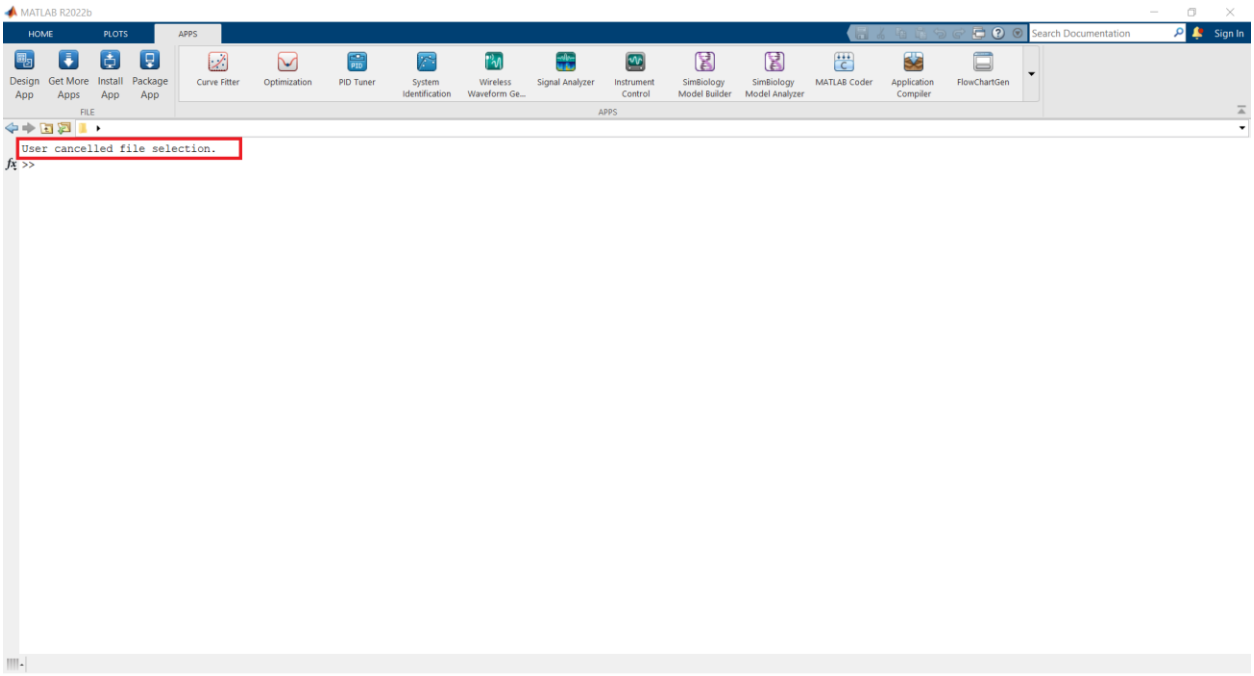
2) Open the FlowChartGen application:



3.1) Select the Matlab script from the browsing window:



3.2) If no file is selected, then a message stating “User cancelled file selection” appears in the Matlab command window:



4) Select the following:

- Radius of flowchart junctions (R), must be larger than zero

- Font size of the text inside the textboxes of the flowchart (F), must be larger than zero

- Distance of leftmost side of 1st textbox (from top to bottom, i.e. textbox 1)

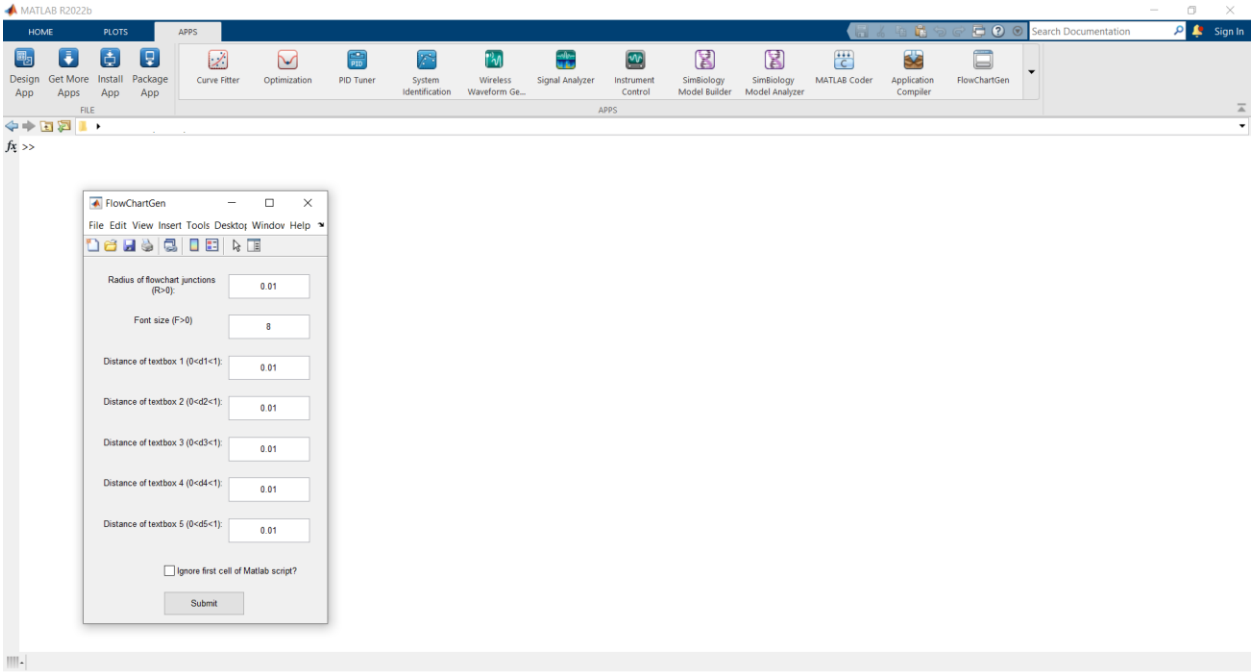
- Distance of leftmost side of 2nd textbox (from top to bottom, i.e. textbox 2)

- …

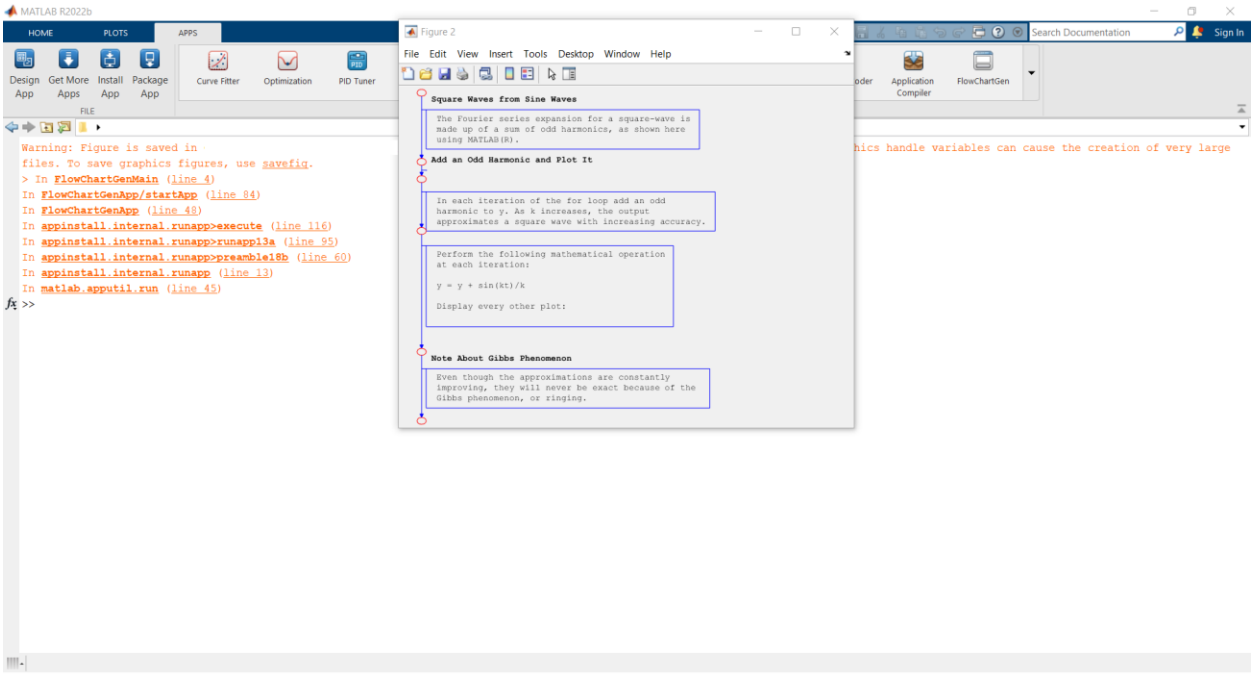
- Distance of leftmost side of nth textbox (from top to bottom, i.e. textbox n)

- Checkbox for ignoring the 1st code cell of the Matlab script or not. A code cell is considered as the segment of the Matlab script between two successive double percent signs (“%%”). If the Matlab script does not begin with a “%%” sign, then all comments included before the 1st occurrence of the “%%” sign are considered as a cell. If the Matlab script begins with a “%%” sign, then the comments contained between the 1st occurrence and the second occurrence of the “%%” sign are considered as the 1st code cell. If the 1st code cell of the Matlab script is ignored, then the value of the distance of leftmost side of 1st textbox (d1) is ignored.

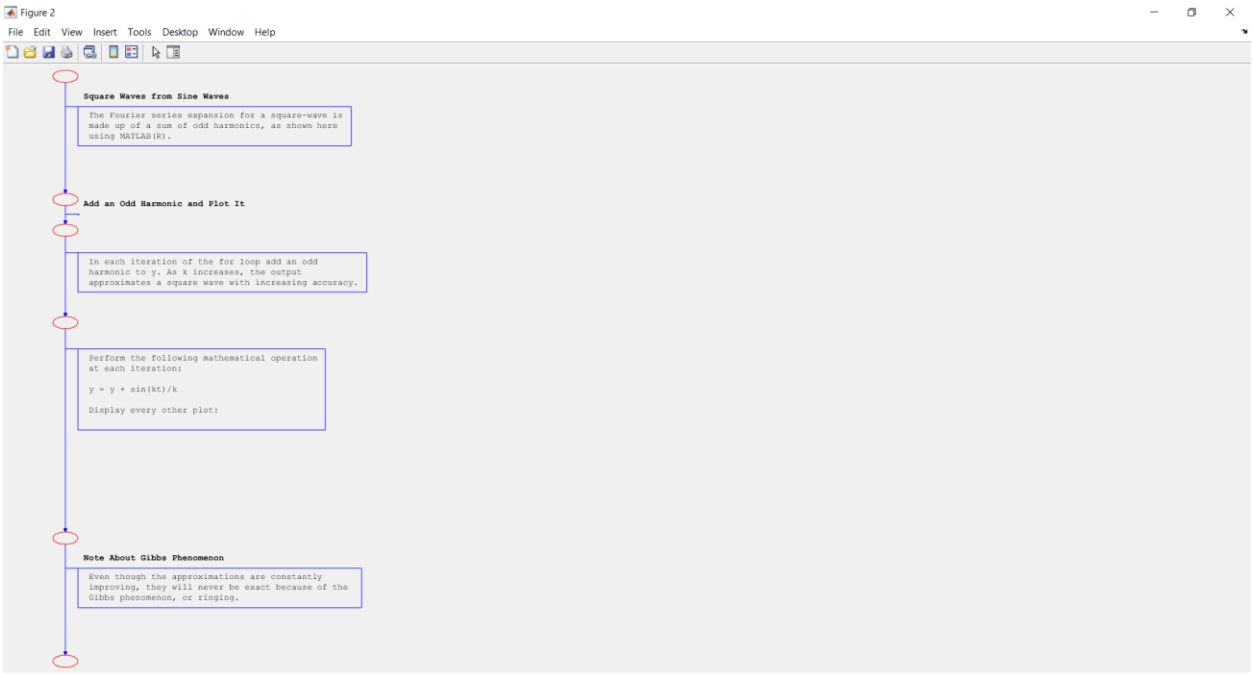
After the above selections, press the “Submit” button at the bottom of the popup window.



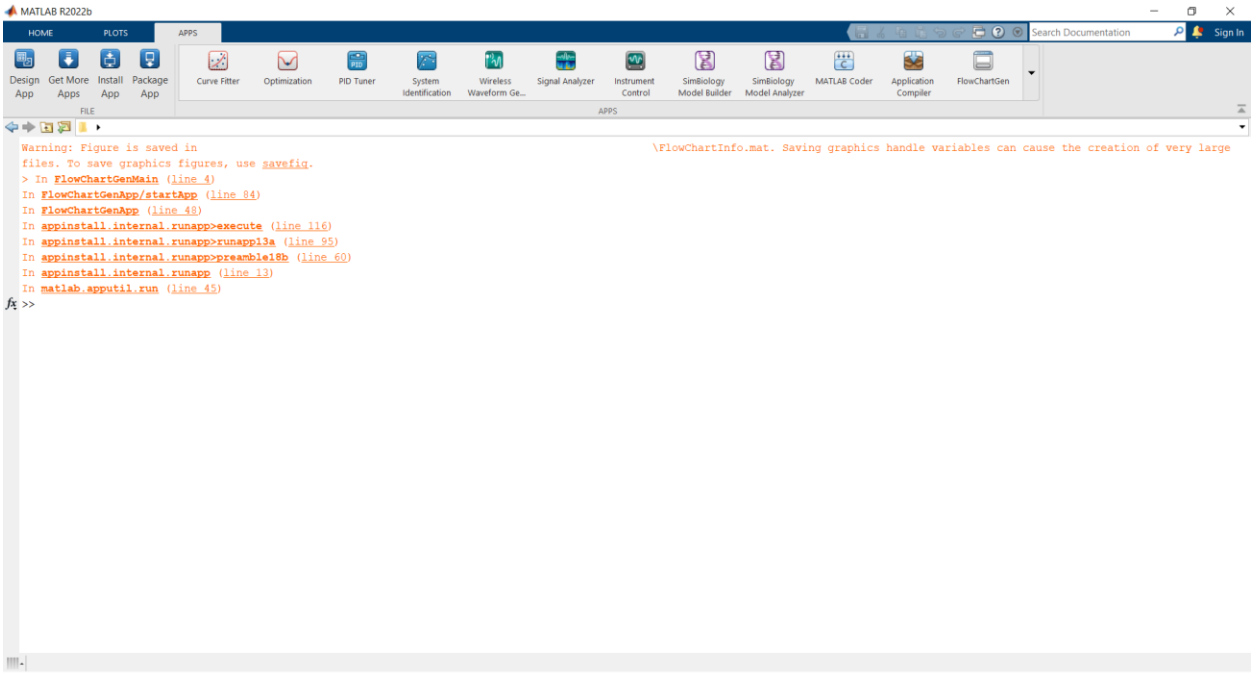
5) The flowchart is generated as a Matlab figure:



6) You can maximize the figure window for a better view of the flowchart:



7) After the flowchart is generated, the various results of the process (i.e. the figure handle, the axis handle, the titles of the code cells of the script and the contents of the code cells of the script) are saved as variables in the file FlowChartInfo.mat, which is saved in the same folder from where the Matlab script was loaded in step 2 of the present guide. You may encounter various warnings like the one shown in the screenshot below, which you can safely ignore:



8) You can retrieve all results of the flowchart generation by typing

“**load FlowChartInfo.mat**”

in the Matlab command window.

Notes about the FlowChartGen application:

1) Any code which is contained in the selected Matlab script is completely ignored.

2) Each step of the generated flowchart corresponds to a code cell of the selected Matlab script, and is comprised by a textbox and a title. The textbox includes all text beginning with a “%” sign inside the code cell, and the title includes the text after the “%%” sign at the beginning of the code cell. The title is placed above its corresponding textbox

3) The user can feel free to place any notes or comments that he/she does not want to include into the generated flowchart just before the first code cell of the Matlab script. In this case the checkbox “Ignore first cell of Matlab script” must be ticked before pressing the “Submit” button.

4) Avoid placing many “%%” signs inside the Matlab script which is selected for flowchart generation. This will result in a large flowchart which may be cumbersome and difficult to understand.

5) Any comments after Matlab code placed in the same line of a script are ignored by FlowChartGen and do not appear in the generated flowchart.