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COS301 Main Project

Flowchart Simulation Tool User Manual

ThinkTech

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Version 0.2
October 17, 2015

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1   System Overview

Flowchart Simulation Tool is an application which allows for designing and executing flowchart diagrams. This application is intended for academic purposes for students with basic knowledge of programming design and implementation. This is a platform where the students can construct their own flowcharts, test and use them as they would like.

Furthermore, this system is highly related to the already existing edition of JavaBlock. The idea behind this system and that of JavaBlock is the same, they both pursue the same purpose. However, they are different when it comes to the usability of the system. With Flow (this system) focusing more on the interaction the user has on the system. For example, with JavaBlock to place a block onto the canvas one requires a couple of operations but with Flow, drag-and-drop operation is used.

2   System Configuration

The flowchart tool is intended to operate on any Linux distribution. However, it can also be used on Windows and Mac OS. It is not a very sophisticated software and since the system is a minimal stand-alone application, not so many configurations required.

It is so far recommended that the computer in which the system will be executed have Java 7 and above installed to allow the successful execution of the program. Other versions might make the system have unseen bugs.

Also, on Windows...

3   System Installation

This system requires a complete installation in order to fully operate it. For different platforms, various installation files are required.

3.1   Windows

The image below shows the file that one requires for a complete successful installation of the program. Double-click the file to begin the installation process.

Figure: The file used to install 'Flow'

Next, follow the installation prompts and complete the installation.
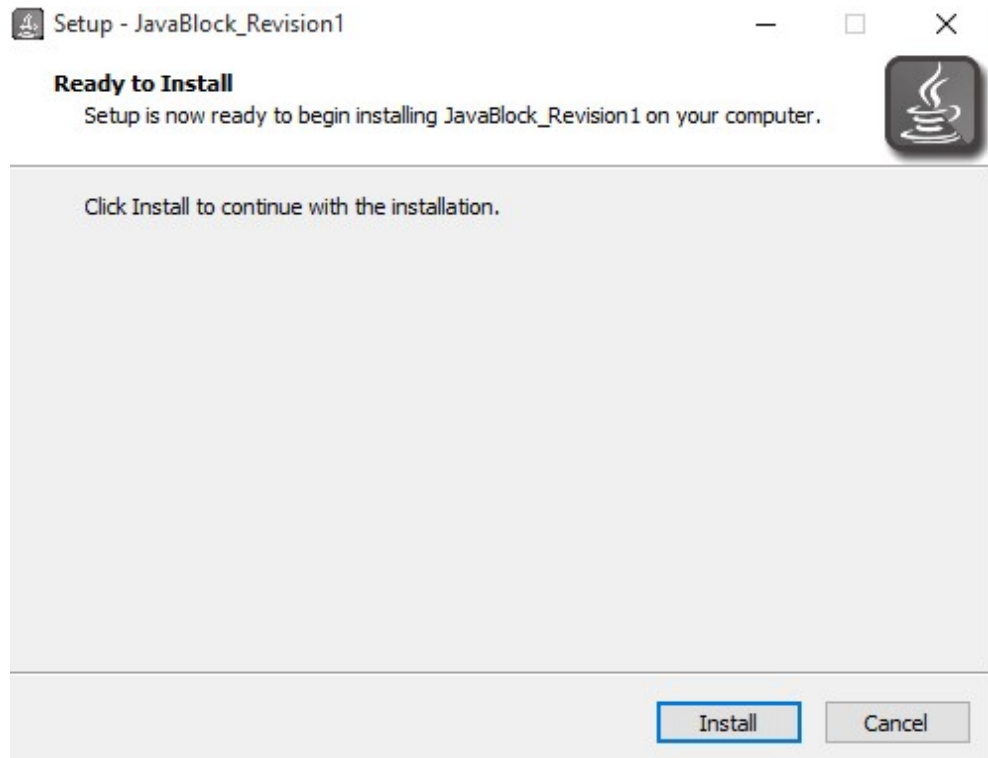
Figure: Complete installation

4 Getting Started

For one to get to use the system, that particular user must be registered at the University of Pretoria, and have access to the Linux platform which is granted by the Department of Computer Science. From Linux, the user must be able to access the application, without any further installation or signing-up required.

4.1 Running Software

The application will not require any installation. To run the application the user will only require the executable file which will be provided via the online University of Pretoria (Computer Science) website. With the executable file the user will only need to double click on the file, then the system will star-up.

For the time being an executable .jar file has been created to allow instant execution of the system without any installation. Below its a simple

outline which illustrate this, an executable is clicked on the top right of the screen and Flow appears instantly.
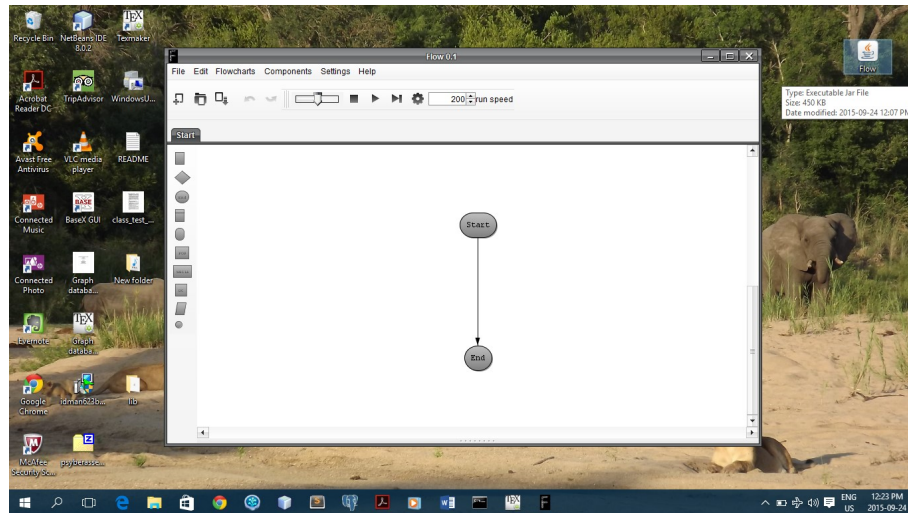

Figure: Starting the entire system.

4.2 Software Layout

The layout is composed of the canvas, flowchart tools and menu options. The figure below depicts the general layout of the entire system.
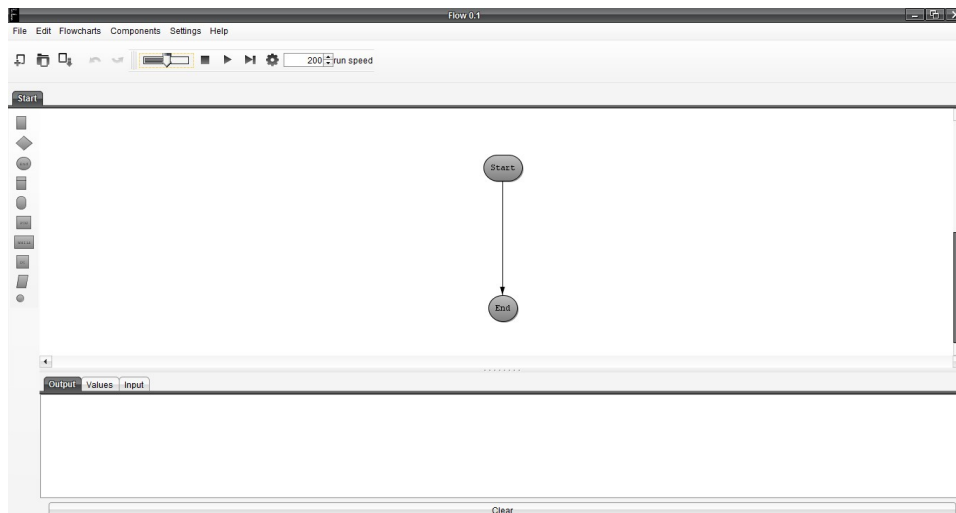

Figure: The General System Layout.

- **Canvas:** This space is provided to design a well-formed flowchart. Components will be dragged from the flowchart tools menu consisting of available components and dropped onto the canvas. See figure below.
  There are components which are already implemented at start of the system, the 'start' and 'end' blocks are initialised by default on the canvas.
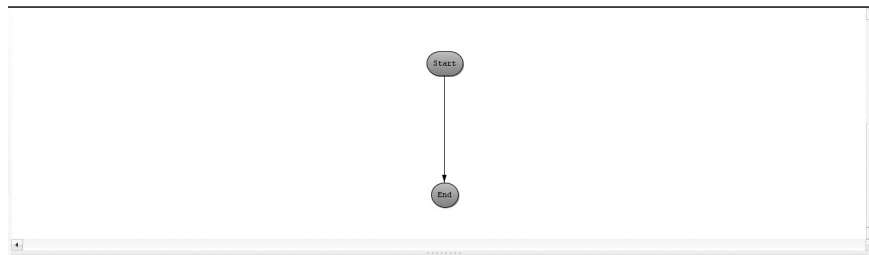

Figure: The Canvas.

- **Flowchart Tools:** This contains all the tools required to construct the flowchart. All the components will be dragged and dropped onto the canvas (as illustrated by the the figure below), with the tools on the left and the canvas on the right. All the necessary components to build a flowchart are listed on the left toolbar.

  The tools are draggable, i.e, from the toolbar hover over the block you want to use and drag it over to the canvas (the white plane on the left - as illustrated above). Under "using the system" is a detailed illustration on how to use these tools.
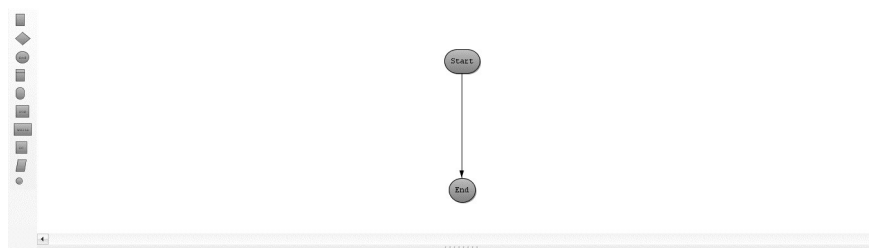

Figure: Flowchart Tool Components.

- **Menu Options -** The menu option provides options of creating, saving, deleting and loading projects onto the canvas. Also, this provides

the user with many more options which are accessible by hovering over the name of the option. The figure below shows the functionality of all this.

– Creating projects: The detailed description of this is given under "Creating projects" below.

– Saving projects: The detailed description of this is given under "Saving projects" below.

– Deleting projects: This will delete the entire project, from the main flowchart to the modules that the flowchart uses.

– Loading projects: The detailed description of this is given under "Opening existing projects" below.

Figure: Menu Bar.

5 Using the System

5.1 Creating New Project

When the application is opened for the first time, a default project is created with a default flowchart, which compiles and execute without any output generated. The user then will start his/her own building of the flowchart from already generated default flowchart. This is also demonstrated by the figure on general flowchart layout.

However, the user can create new project from the menu bar. To create a new project select "File" in the menu bar and a drop down menu will appear. Select the "New" option, a pop-up window will appear requesting the desired file name for the project. Enter the file name and press the enter key on the keyboard, then the new project with the default flowchart will be created.

5.2 Adding Components to Canvas

From the created project, construction starts with dragging the components from the tool bar to the canvas. Adding components to the canvas is quite simple, drag the desired component from the tool bar and drop it onto the canvas. The component will be locally saved on the canvas, continue doing so until the building is complete.

5.3 Editing Component

Editing the component entails manipulation of the features and adding code inside the component. To edit the component click on the component that you want to edit and the a pop-up window will appear on the far left side of the application with the options of changing features or adding code.

5.4 Removing Components from Canvas

To remove any component from the canvas right-click on the component and select delete component. To remove multiple components hold the "SHIFT" key and select the components and then right-click and select delete component.

5.5 Saving Project

To save your current progress go to "File" in the menu bar, in the drop down menu select "Save". Enter the name of the file and then the project will be saved in a directory for flowchart projects.

5.6 Run Simulation

To run the flowchart select the "Run" icon on the flowchart tools window
and the the whole flowchart will execute. To run the flowchart step-by-step
select the "Step" icon.

5.7 Opening Existing Project

To open an existing project go to the menu bar and select the "File" option
and then select the "Open" menu item. Search for an existing flowchart
project with the valid extention. The flowchart project will now be loaded
onto the canvas and should be able to be updated.

6 Troubleshooting

This system is not connected to any other external systems, this reduces the
amount of errors that might usually breakdown the system.