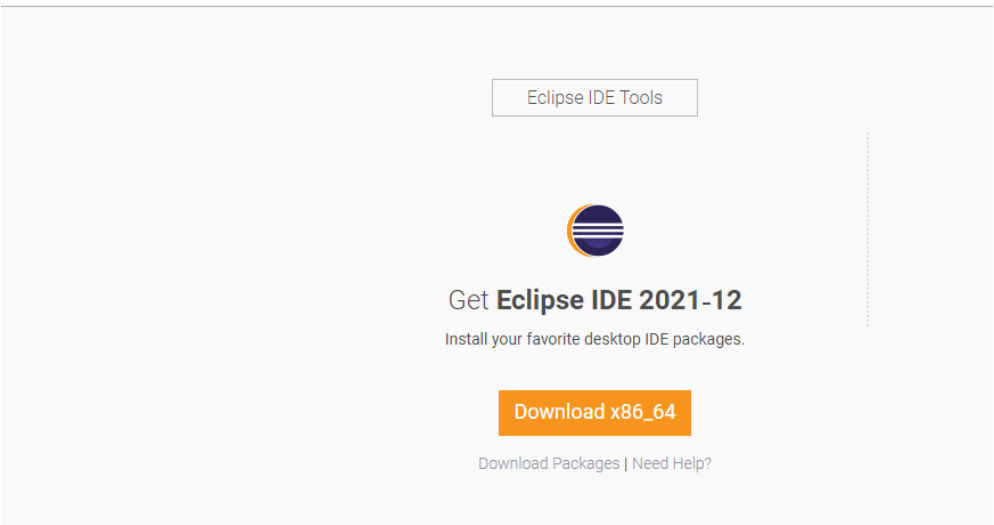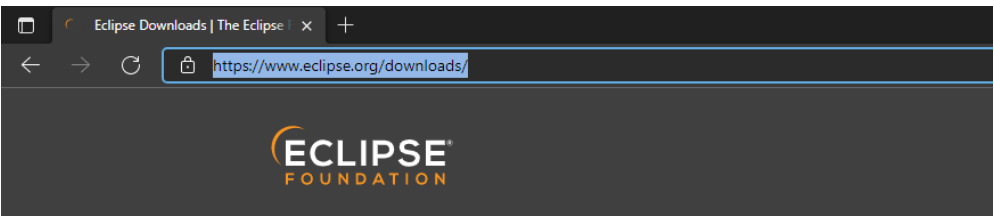# Reality Conforming Approach vs State of Art method for computing worst-case delays in AFDX.

Paper : [A Reality-Conforming Approach for QoS Performance Analysis of AFDX in Cyber-Physical Avionics Systems](#)

1. Download the Eclipse IDE from the Internet.

- *Download latest Eclipse IDE from the given link.*

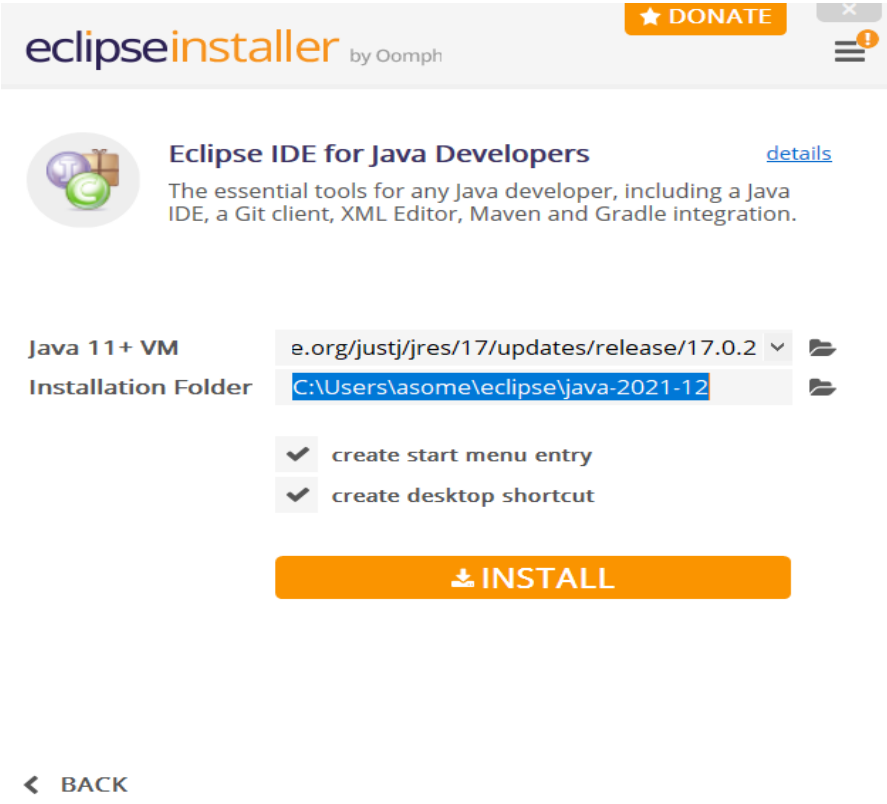   Link : [Eclipse Downloads | The Eclipse Foundation](#)

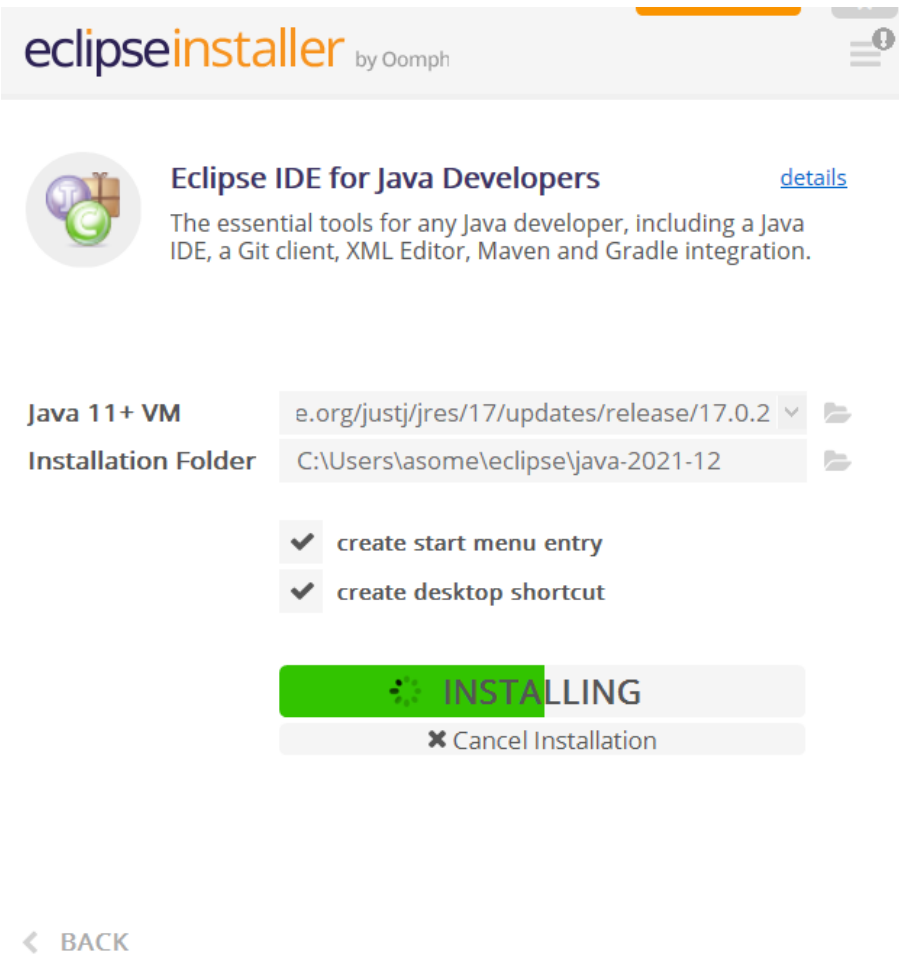## 2. Install the Eclipse into the desired directory.

- *Launch the Eclipse Installer.*
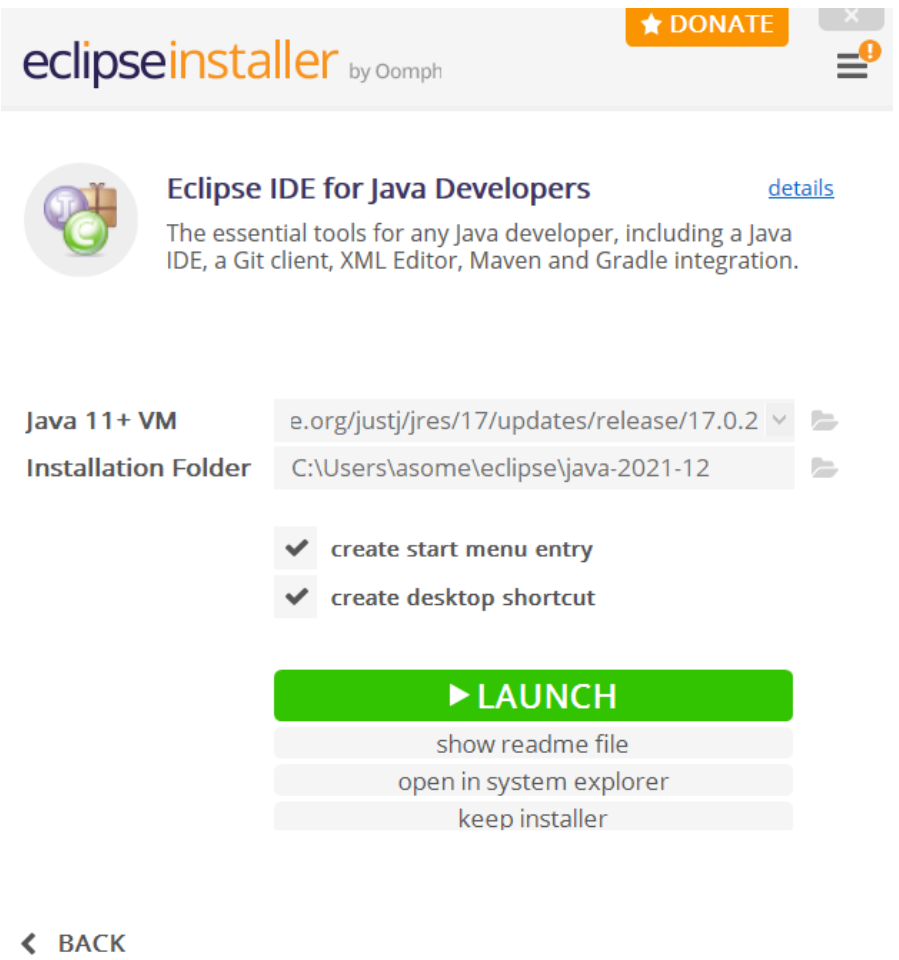- *Select **Eclipse IDE for Java Developers**.*

- *Select the directory where you want to install Eclipse.*
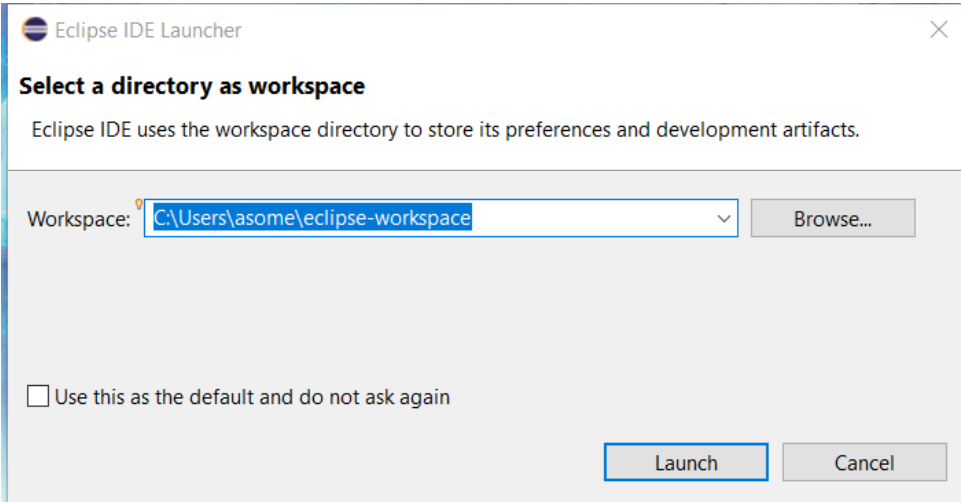
- *Click the **INSTALL** option*

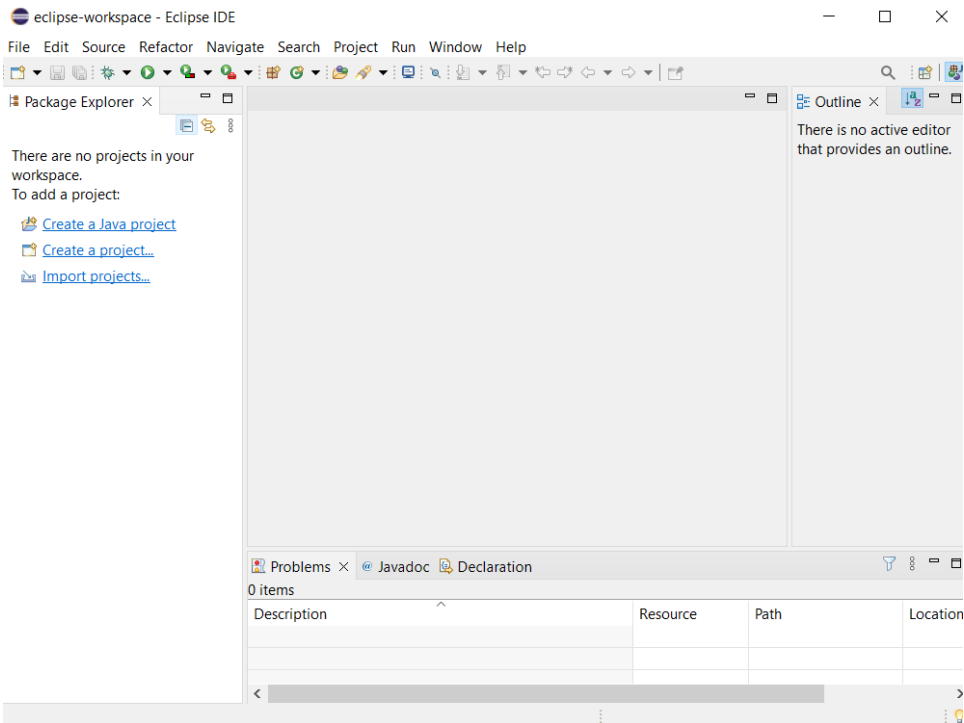- *After Installation is complete, Click on **LAUNCH** option.*

3. After Installation Launch the eclipse:

- *Select a directory as a workspace.*

- *Click on **Launch** Button.*
- *It will launch Eclipse Workspace.*

4. Download the AFDX Code

- *Download AFDX from the portal link given below.*
- *Link:*
- *Move the AFDX project to the working directory of your project.*

5. Import the AFDX folder into the Eclipse

- *Inside Eclipse Workspace. Go to **File**, then select **Import**.*
- *Then go to **General** folder under **Select an import Wizard** and select **Projects from Folder or Archive** option.*
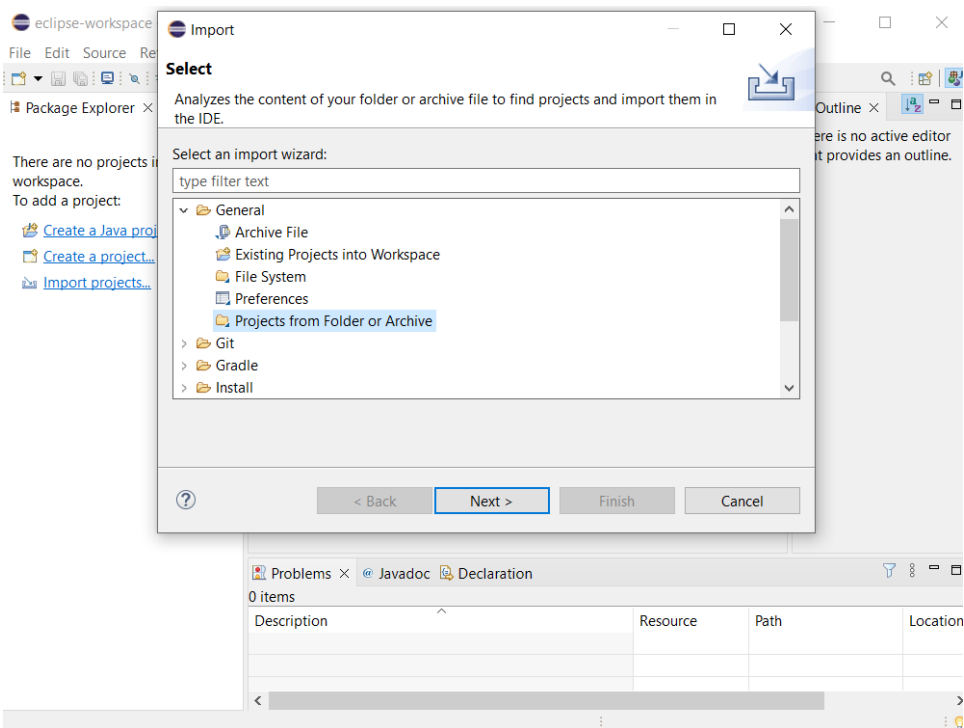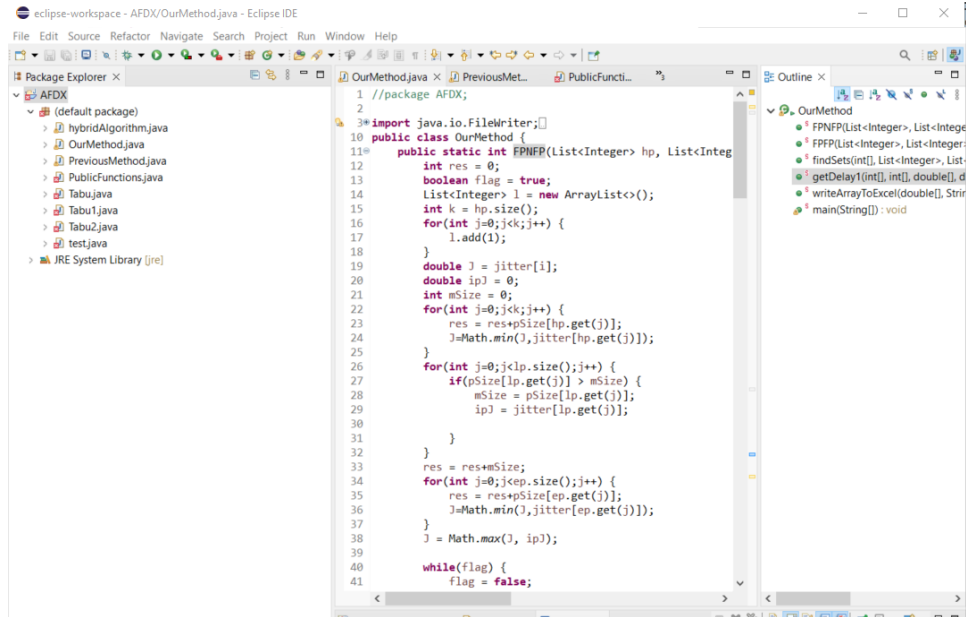

- *Then choose the directory where AFDX folder is located and import it.*
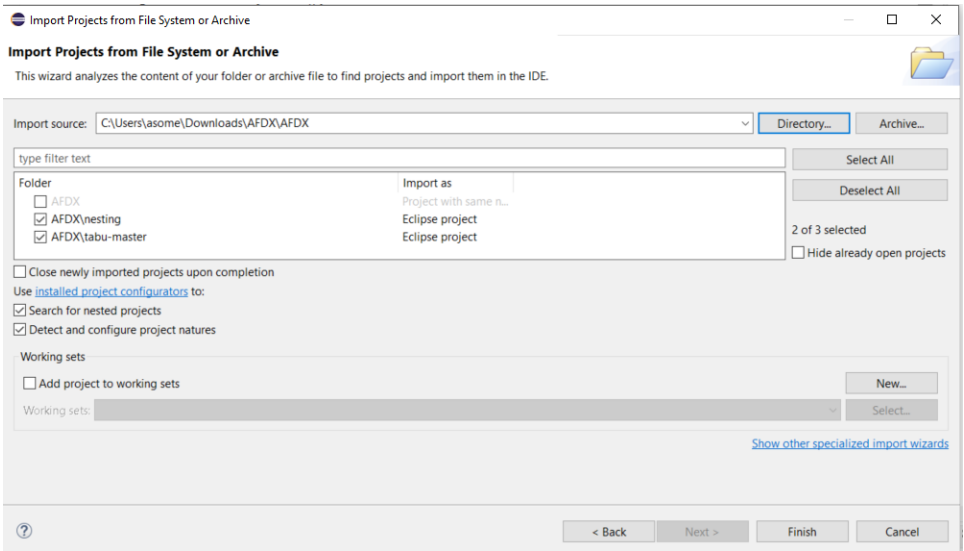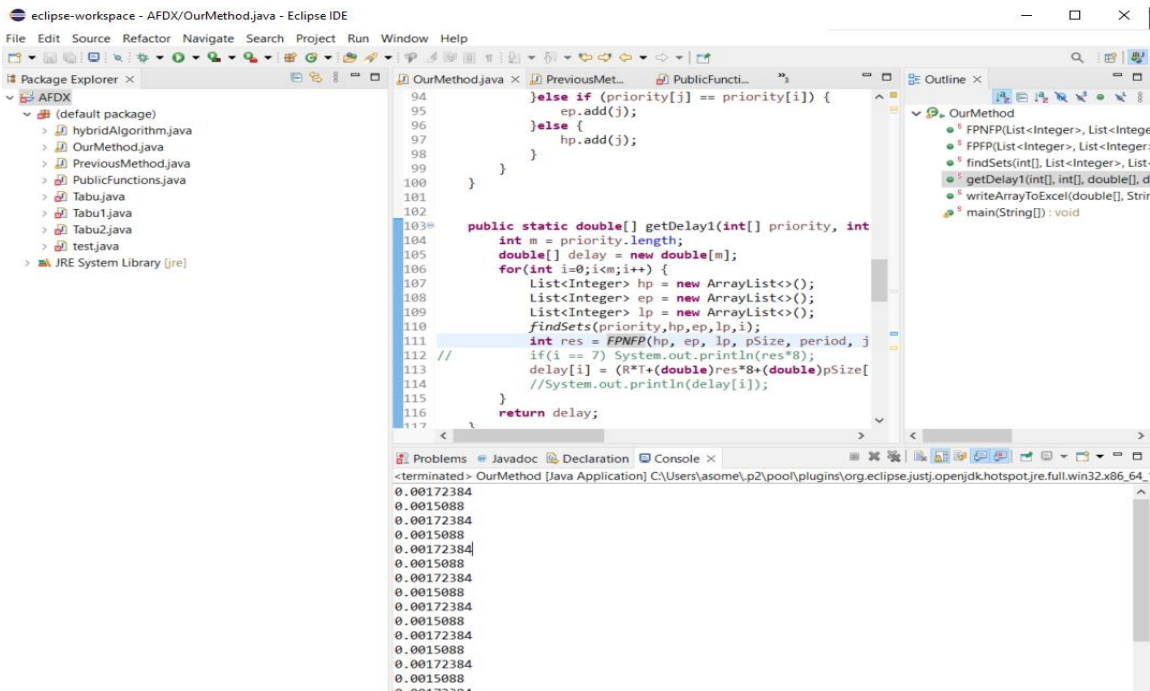

8. Running the Program.

- *Inside **AFDX**, go to **OurMethod.java** and **State_of_Art.java***

- Then run that file and record the result.

Inside **OurMethod.java and State_of_Art.java,** change the required parameters to get the values of delays for several scenarios such as: When all virtual links have the same priority, different priorities with or without frame preemption.

A. Get Delays for Reality Conforming method when all VLS have the same priority.

- Go to **OurMethod.java** file

- Inside **getDelay1** method, set **res = FPNFP** or **FPFP**

- In **main** method, set **numVL** (no of virtual links) to 20 or 100 depending upon no of VL's used.

- In **main** method, set **numP** (priority) to 1, indicate all VLs have same priority.

- Run the code and record the delay values to plot the graph.
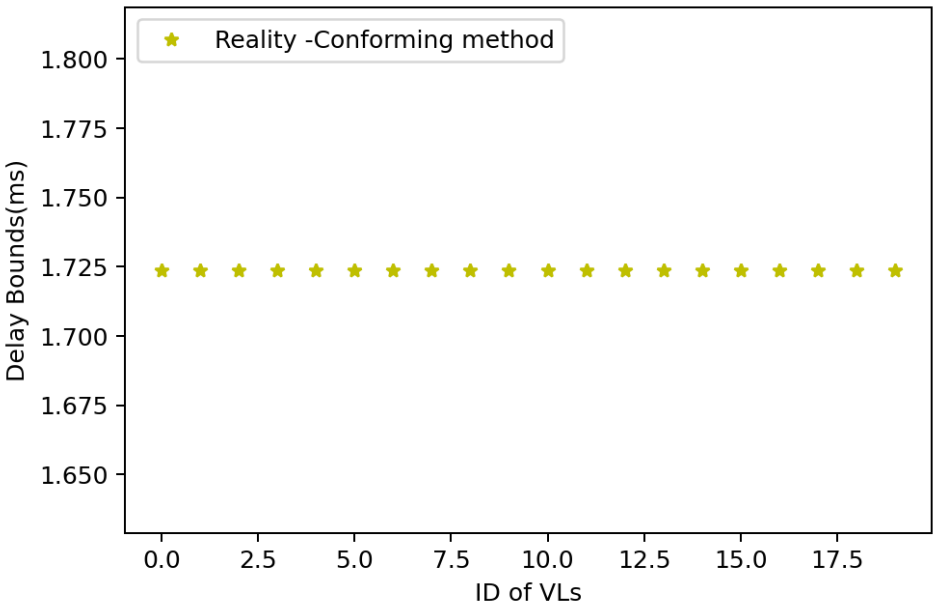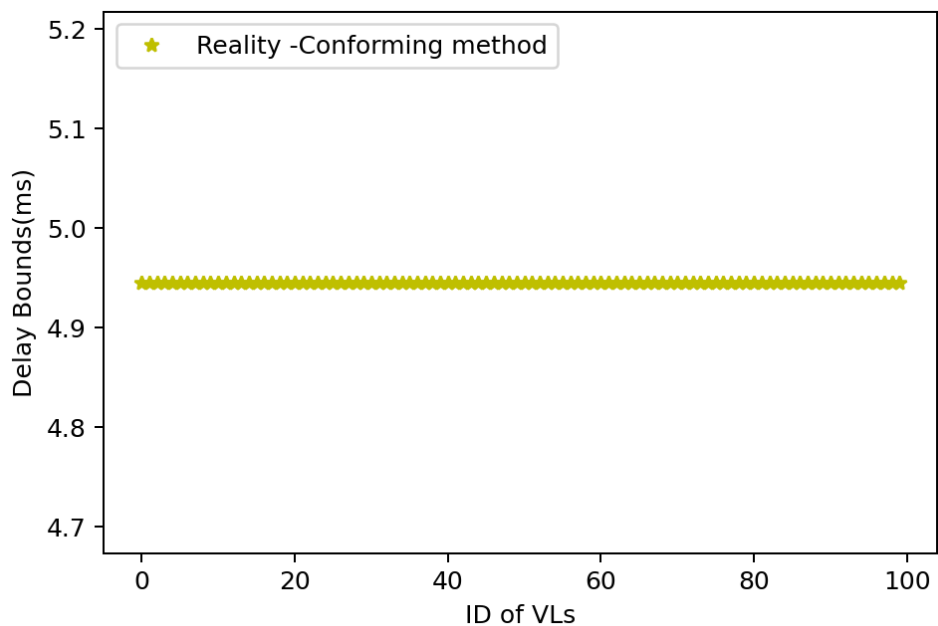
B. Get Delays for State of Art method when all VLS have the same priority.

  *- Go to **State_of_Art.java** file*

  *- In **main** method, set **numVL** (no of virtual links) to 20 or 100 depending upon no of VL's used.*
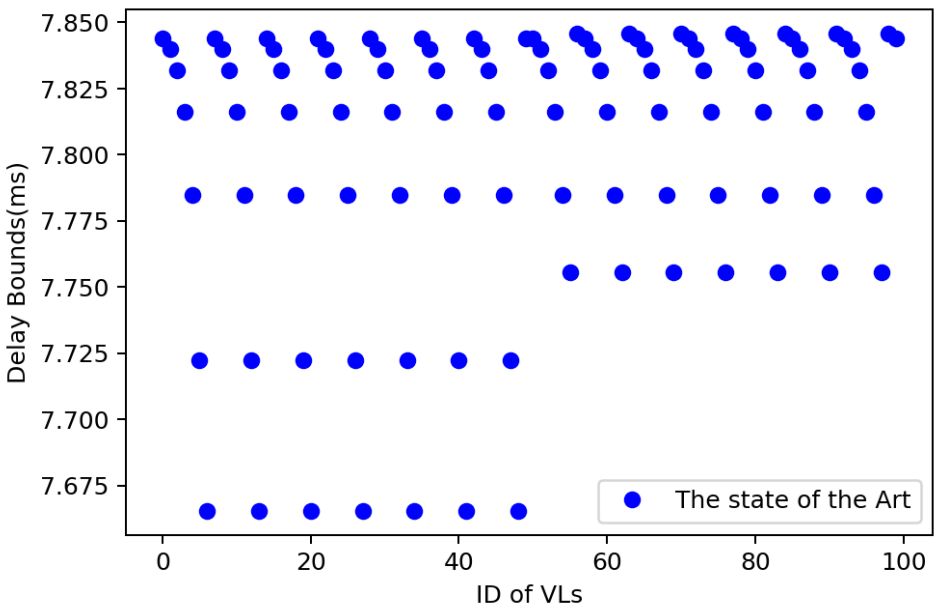
  *- In **main** method, set **numOfPriority** (priority) to 1, indicate all VLs have same priority.*

  *- In **main** method, at end of the method, set **delay** to **State_Of_ArtFP** or **State_Of_ArtNFP***

  - Run the code and record the delay values to plot the graph.

Plotting both State of the Art and Reality Conforming Method, we get following results:

C. Get Delays for Reality Conforming method when there are two priorities without frame preemption.
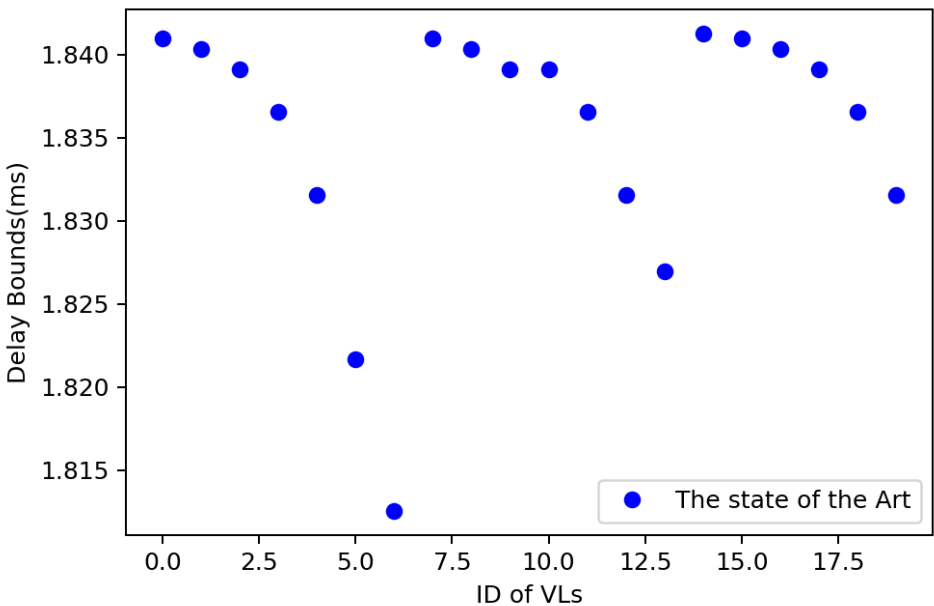
- Go to **OurMethod.java** file

- Inside **getDelay1** method, set **res = FPNFP**

- In **main** method, set **numVL** (no of virtual links) to 20 or 100 depending upon no of VL's used.

- In **main** method, set **numP** (priority) to 2, indicate VLs have different priority

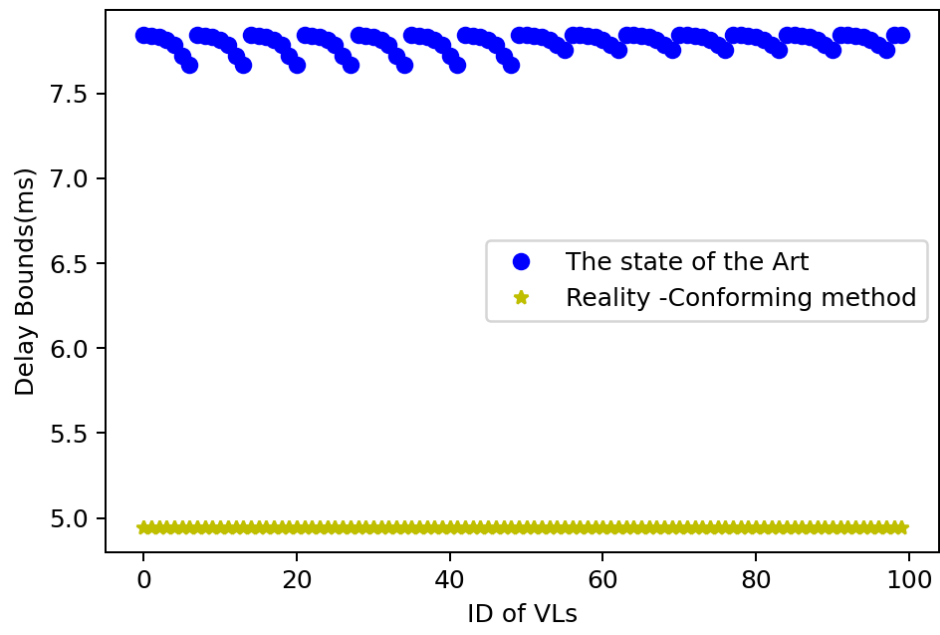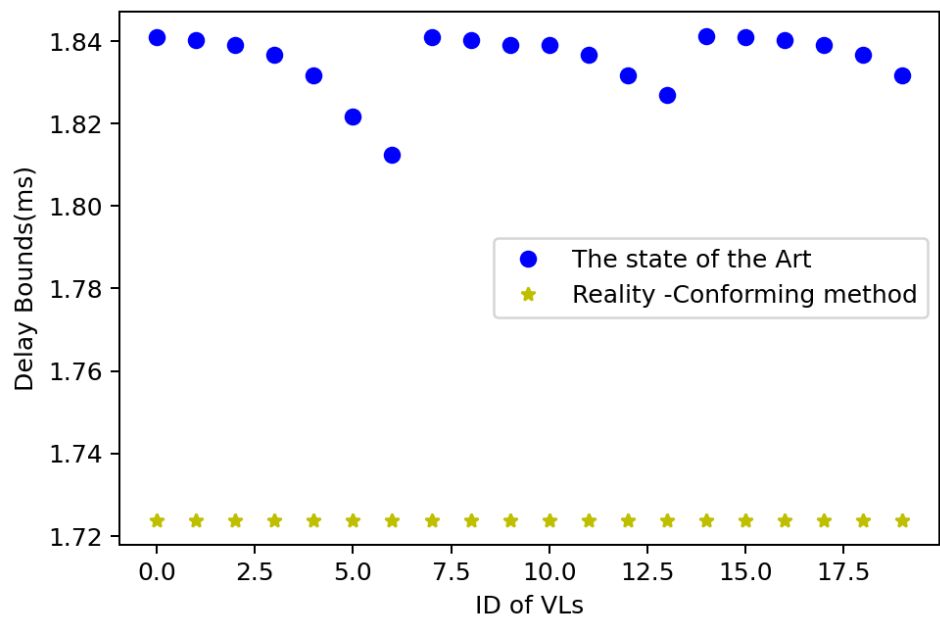- Run the code and record the delay values to plot the graph.

D. Get Delays for State of Art Method when there are two priorities without frame preemption.

- *Go to **State_of_Art.java** file*

- *In **main** method, set **numVL** (no of virtual links) to 20 or 100 depending upon no of VL's used.*

- *In **main** method, set **numOfPriority** (priority) to 2, indicate VLs have different priority.*

- *In **main** method, at end of the method, set **delay** to **State_Of_ArtNFP***

- *Run the code and record the delay values to plot the graph.*
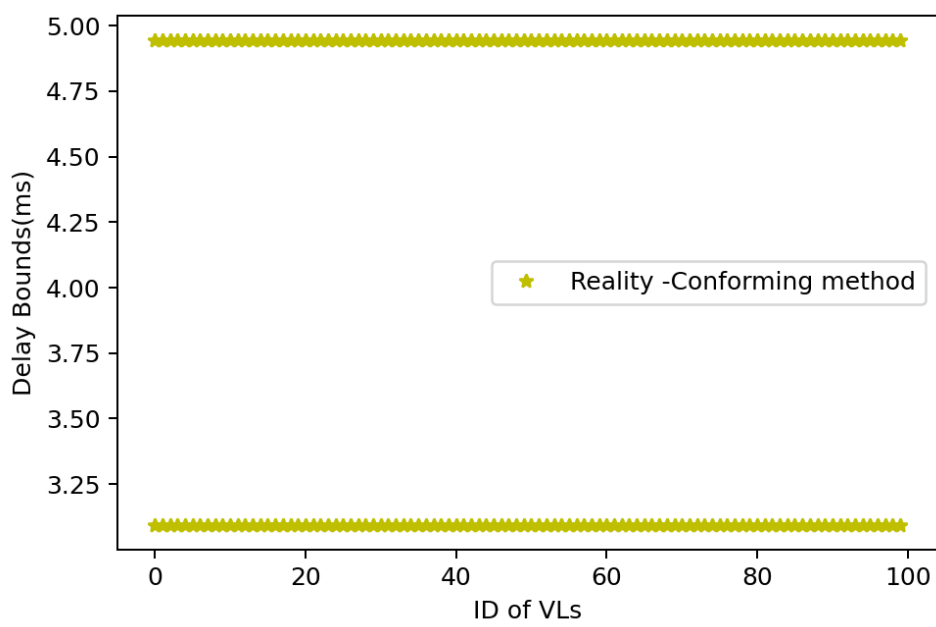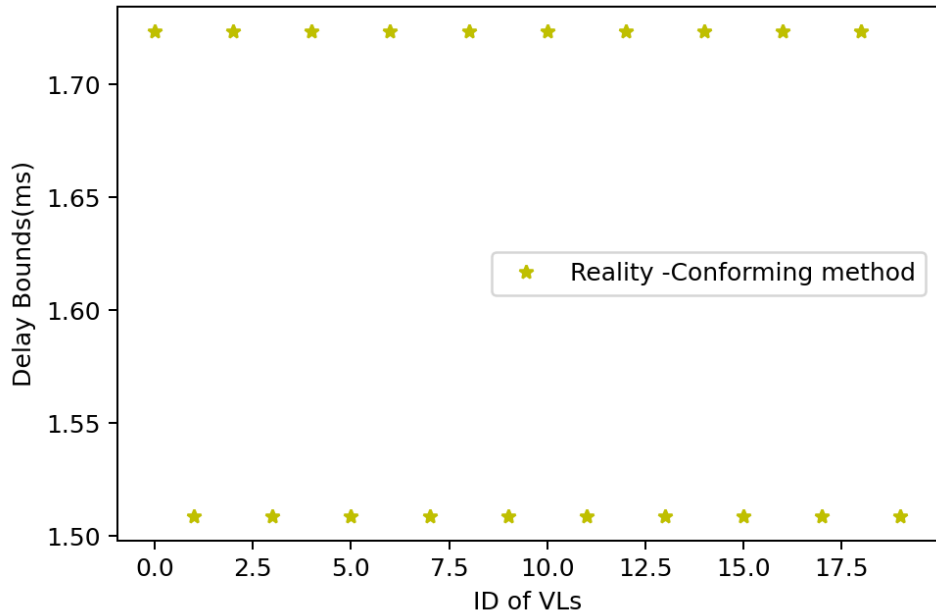

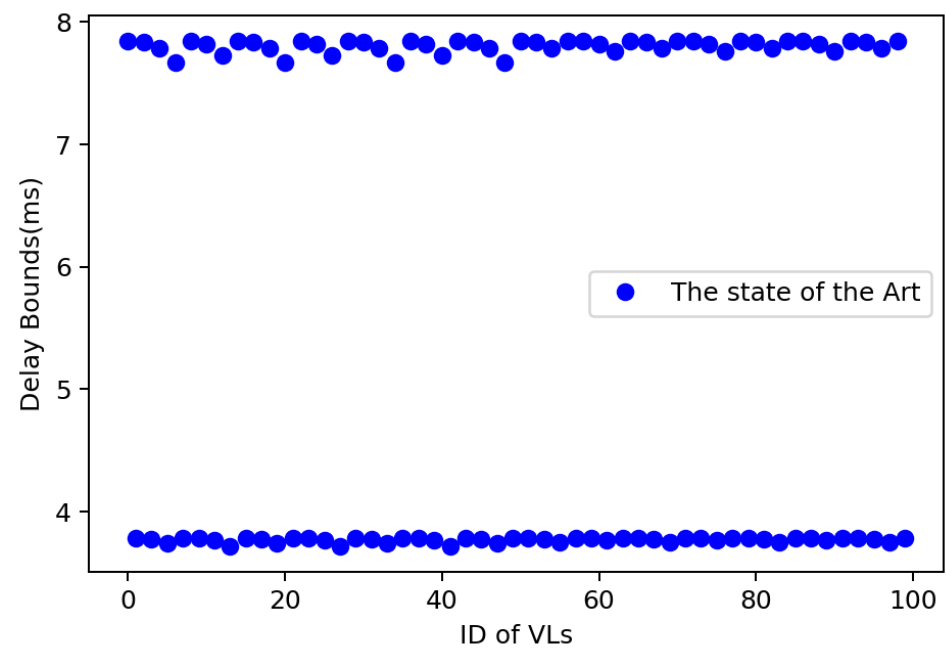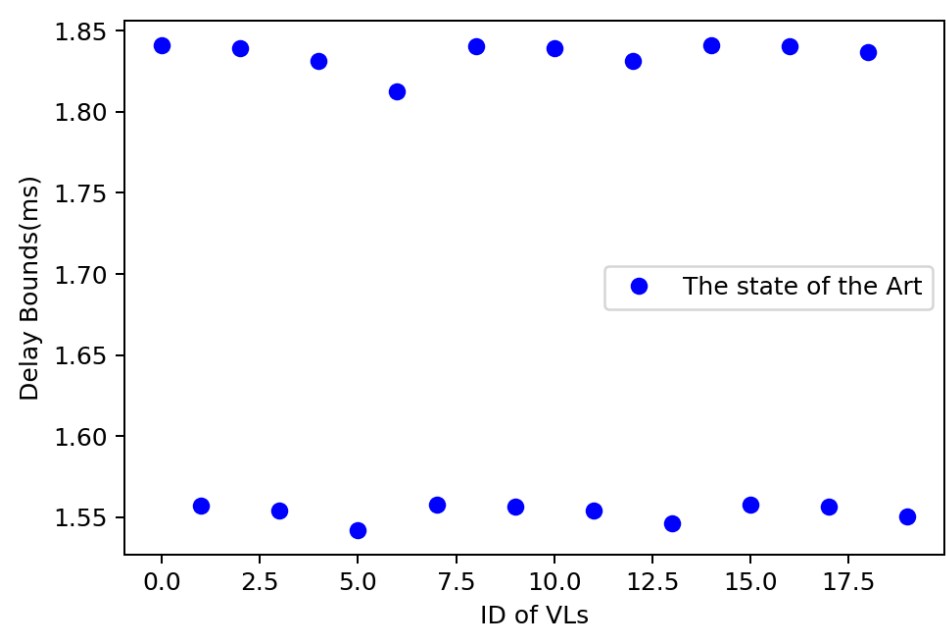**Plotting both State of the Art and Reality Conforming Method, we get following results:**

E. Get Delays for Reality Conforming method when there are two priorities with frame preemption.

- *Go to **OurMethod.java** file*

- *Inside **getDelay1** method, set **res = FPFP***

- *In **main** method, set **numVL** (no of virtual links) to 20 or 100 depending upon no of VL's used.*

- *In **main** method, set **numP** (priority) to 2, indicate all VLs have same priority*

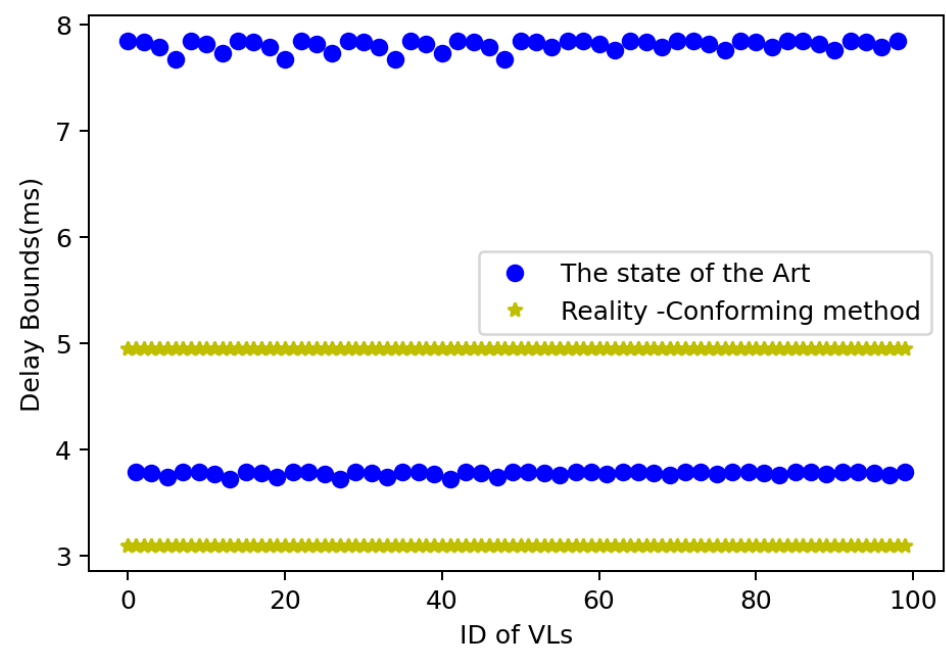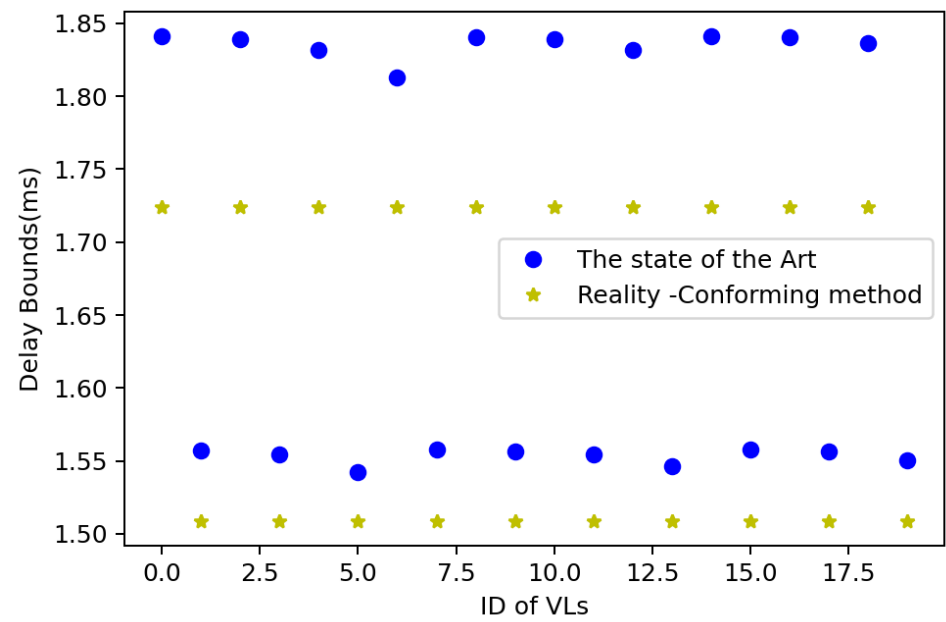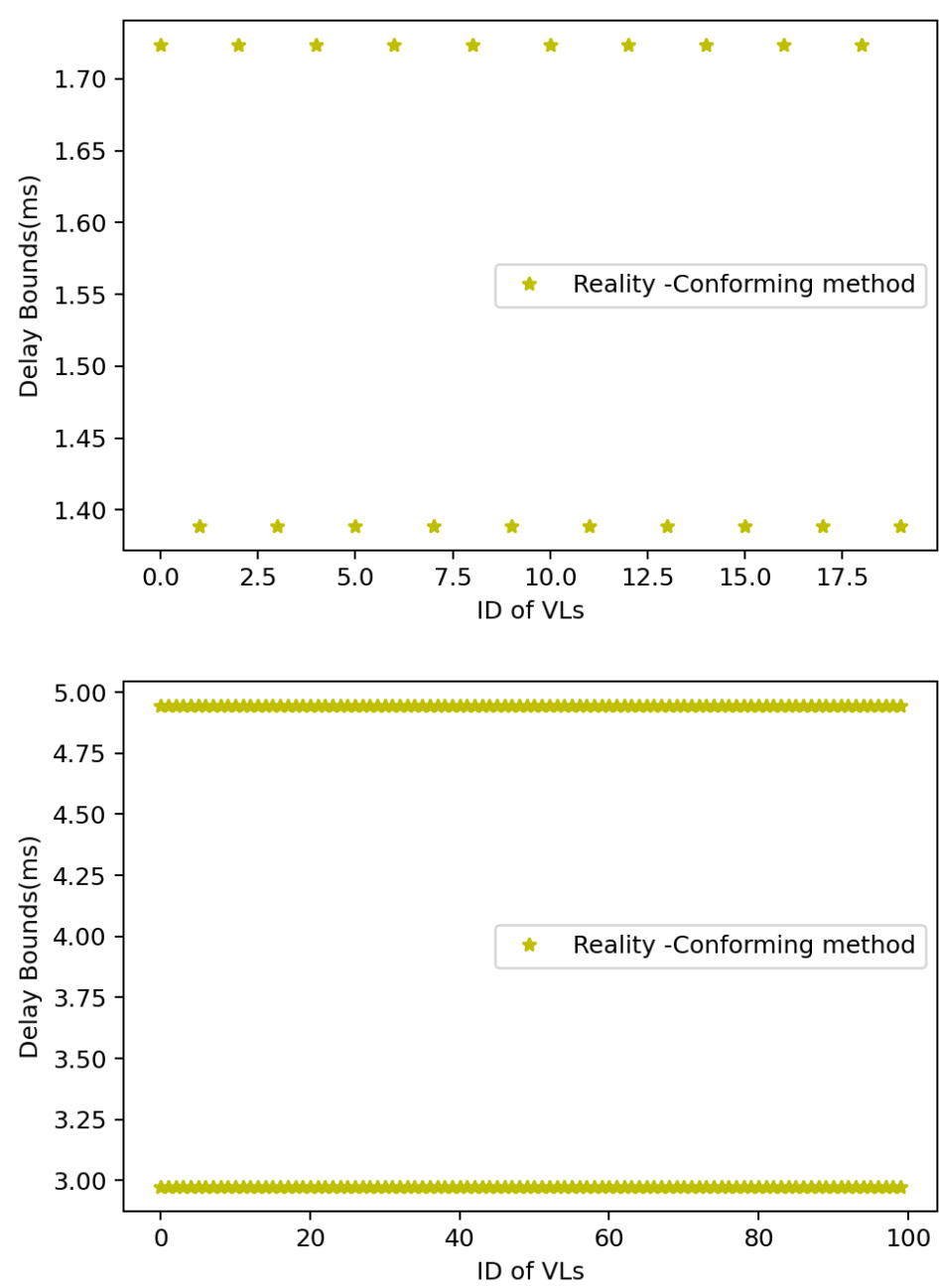- *Run the code and record the delay values to plot the graph.*

F. Get Delays for State of Art method when there are two priorities with frame preemption.

- *Go to **State_of_Art.java** file*

- *In **main** method, set **numVL** (no of virtual links) to 20 or 100 depending upon no of VL's used.*

- *In **main** method, set **numOfPriority** (priority) to 2, indicate VLs have different priority.*

- *In **main** method, at end of the method, set **delay** to **State_Of_ArtFP***

- *Run the code and record the delay values to plot the graph.*

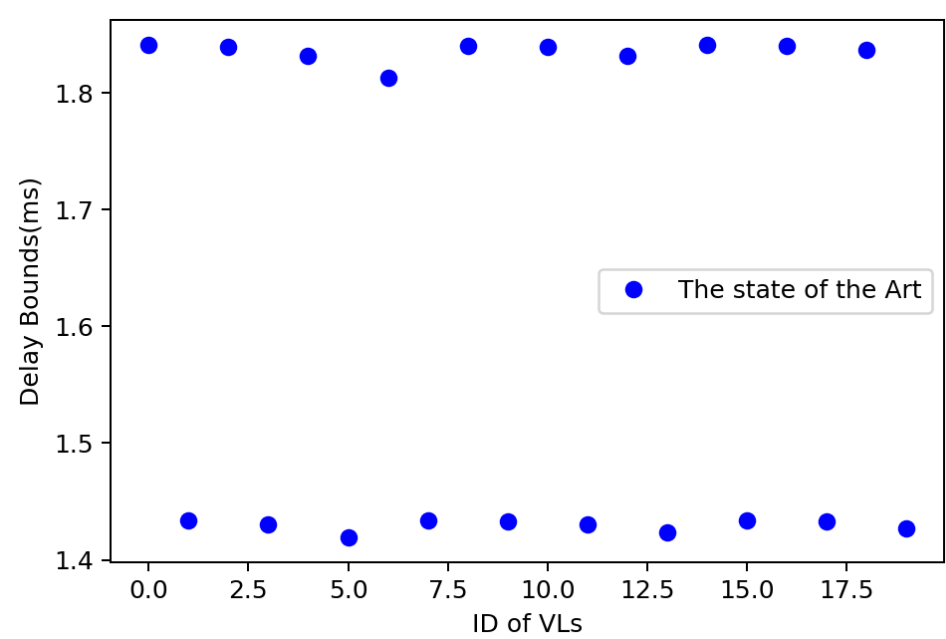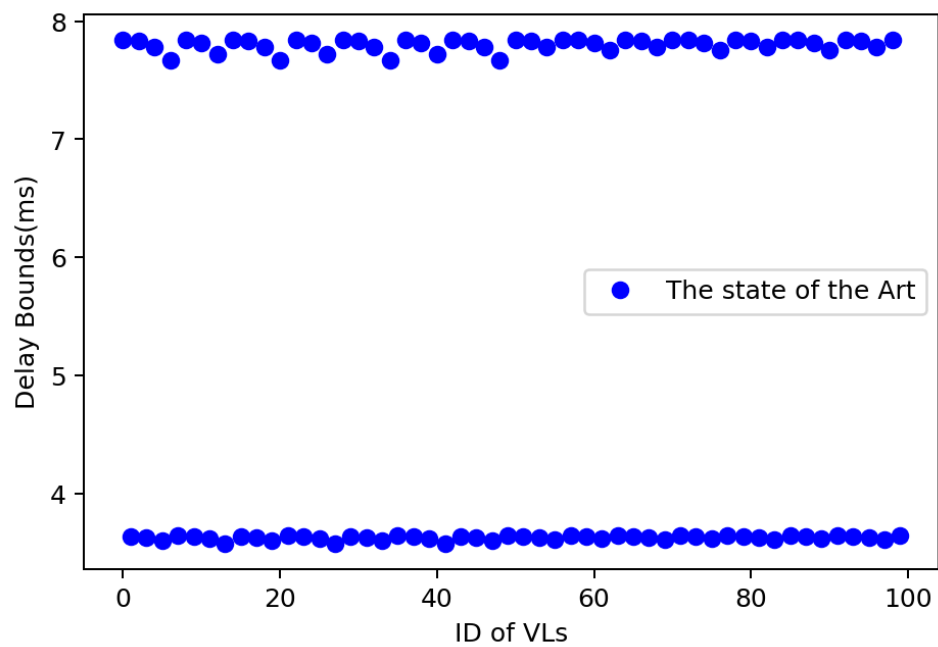**Plotting both State of the Art and Reality Conforming Method, we get following results:**