MDTU JAVA Workshop
Worksheet 05

Objective

The objectives of this worksheet are to:

(a) Create a working client-side application using JavaFX technology
(b) Connect to a third-party web-service using the Free Weather API
(c) Create a working server-side service using Java RESTFUL API
(d) Learn how to refer an online resource and complete the steps with minimal supervision

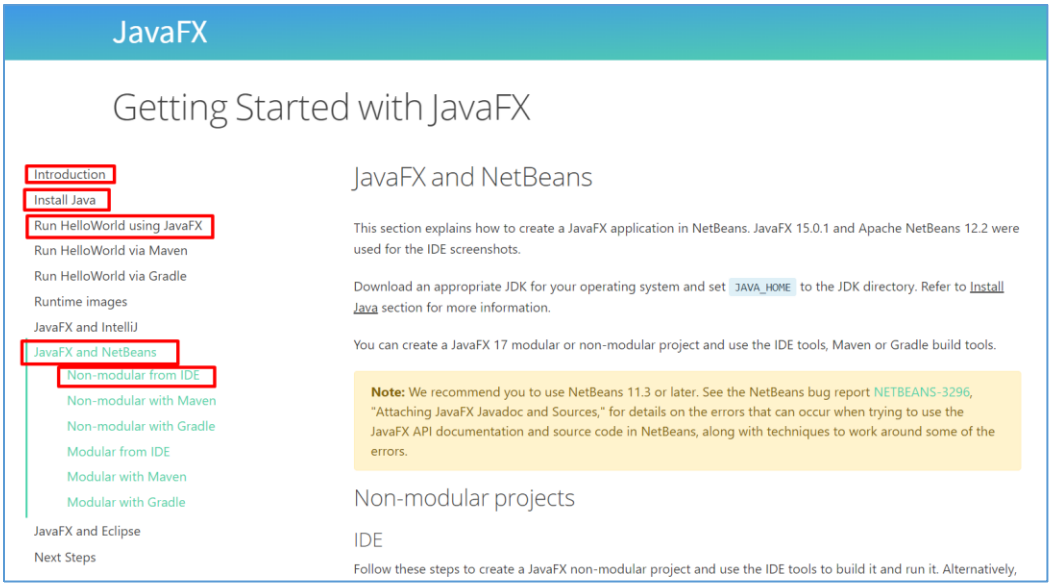
JavaFX

As specified above, you will learn how to:

(a) configure your programming environment for JavaFX
(b) Integrate JavaFX with NetBeans IDE
(c) Run a JavaFX application

Refer to the following web-URL for instructions:- https://openjfx.io/openjfx-docs/
You only need to follow these sections:

(a) Introduction
(b) Install Java (if you haven't installed Java Previously)
(c) Run HelloWorld using JavaFX
(d) JavaFX and NetBeans
- Non-modular from IDE



Getting Started with JavaFX

JavaFX and NetBeans

This section explains how to create a JavaFX application in NetBeans. JavaFX 15.0.1 and Apache NetBeans 12.2 were used for the IDE screenshots.

Download an appropriate JDK for your operating system and set `JAVA_HOME` to the JDK directory. Refer to Install Java section for more information.

You can create a JavaFX 17 modular or non-modular project and use the IDE tools, Maven or Gradle build tools.

Note: We recommend you to use NetBeans 11.3 or later. See the NetBeans bug report NETBEANS-3296, "Attaching JavaFX Javadoc and Sources," for details on the errors that can occur when trying to use the JavaFX API documentation and source code in NetBeans, along with techniques to work around some of the errors.

Non-modular projects

IDE

Follow these steps to create a JavaFX non-modular project and use the IDE tools to build it and run it. Alternatively,

Once you have completed setting up JavaFX, refer to the shared project on GitHub to create the client-side of an enterprise application using JavaFX.

Discover Your Future

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Connecting to Third Party Web Service

For this you must first create an account on - https://www.weatherapi.com/
And obtain an API key (similar to a password).
Once you have obtained it, you could use the API explorer service to find the weather in a given city in the world (provided that the city is listed on their database).

For example (replace KEY with the API key above):
http://api.weatherapi.com/v1/current.json?key=KEY&q=Trincomalee&aqi=no
would return:

{"location":{"name":"**Trincomalee**","region":"Eastern Province","country":"Sri Lanka","lat":8.57,"lon":81.23,"tz_id":"Asia/Colombo","localtime_epoch":1638780111,"localtime":"2021-12-06 14:11"},"current":{"last_updated_epoch":1638779400,"last_updated":"2021-12-06 14:00","**temp_c":30.2**,"temp_f":86.4,"is_day":1,"condition":{"text":"**Sunny**","icon":"//cdn.weatherapi.com/weather/64x64/day/113.png","code":1000},"wind_mph":7.6,**"wind_kph":12.2,**"wind_degree":73,"wind_dir":"ENE","pressure_mb":1009.0,"pressure_in":29.79,"precip_mm":0.0,"precip_in":0.0,"**humidity":68**,**"cloud":7**, **"feelslike_c":35.0**,"feelslike_f":95.0,"vis_km":10.0,"vis_miles":6.0,"uv":8.0,"gust_mph":8.7,"gust_kph":14.0}}

Developing our own Web Service

For this, you will need the following:

(a) Tomcat Server (already installed in previous days)
(b) Jakarta and JAX-RS libraries (provided with NetBeans)
(c) javax.json.jar – provided with the project

Refer to the following web-URLs for inspiration:-

(a) https://www.youtube.com/watch?v=ApI24WGnuGs
(b) https://www.youtube.com/watch?v=enZoyyfbBg8&t=10s

Please note that you will not be able to “directly apply” the instructions here, but you will need to “adapt” them to our version of Java, NetBeans, and Application Server (which is also the point of this exercise – you will not be able to directly apply code/instructions from the internet without adapting them first).

Some of these adaptations are (and not limited to):

(a) Using NetBeans 12.5 instead of NetBeans 8 or 11
(b) Using Java with Ant, instead of Java with Maven
(c) Using Tomcat instead of Glassfish
(d) Using JavaEE6 instead of JavaEE7

Once you have successfully created a web service, you can use the shared project on GitHub for further development.