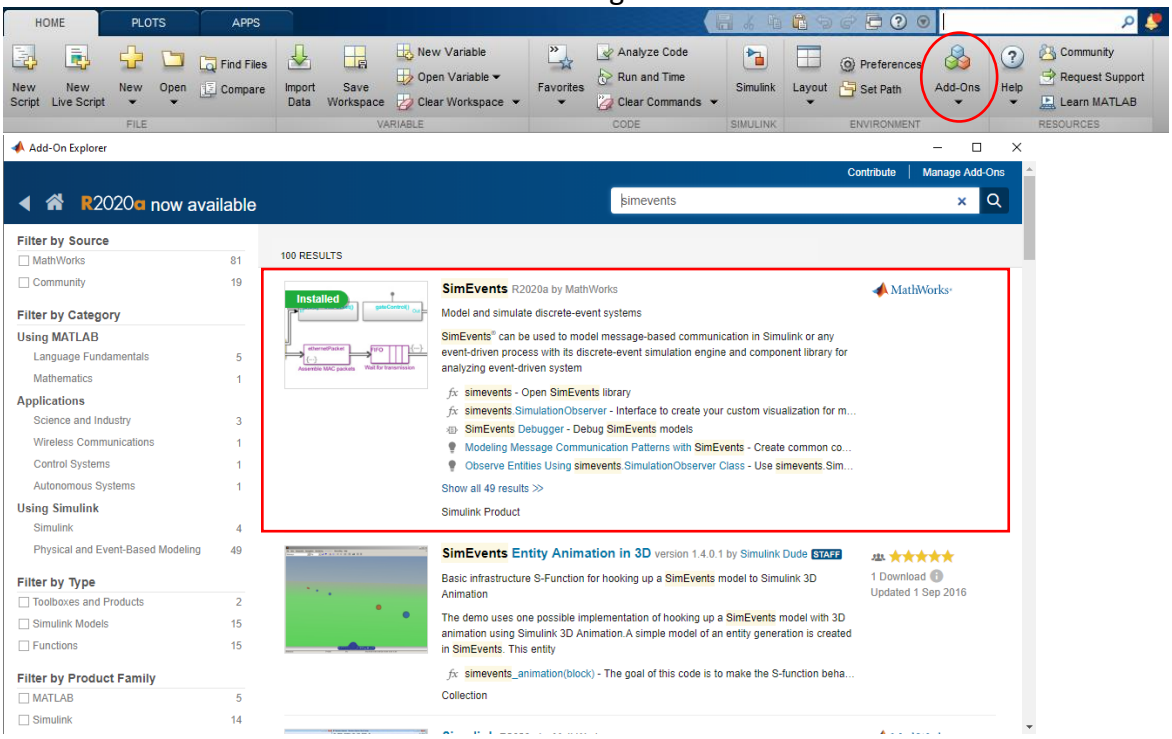
Instruction for SimEvents in Simulink

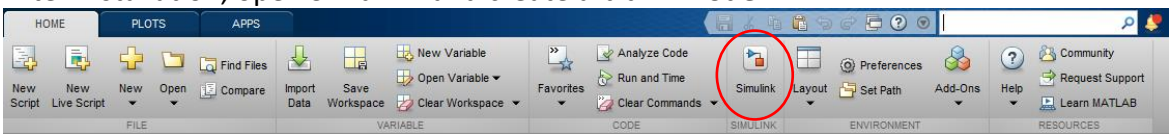
SimEvents is a Simulink toolbox that provides a discrete-event simulation engine. It has component library for analyzing event-driven system models and is used for evaluating/optimizing performance characteristics such as latency, throughput, and packet loss.

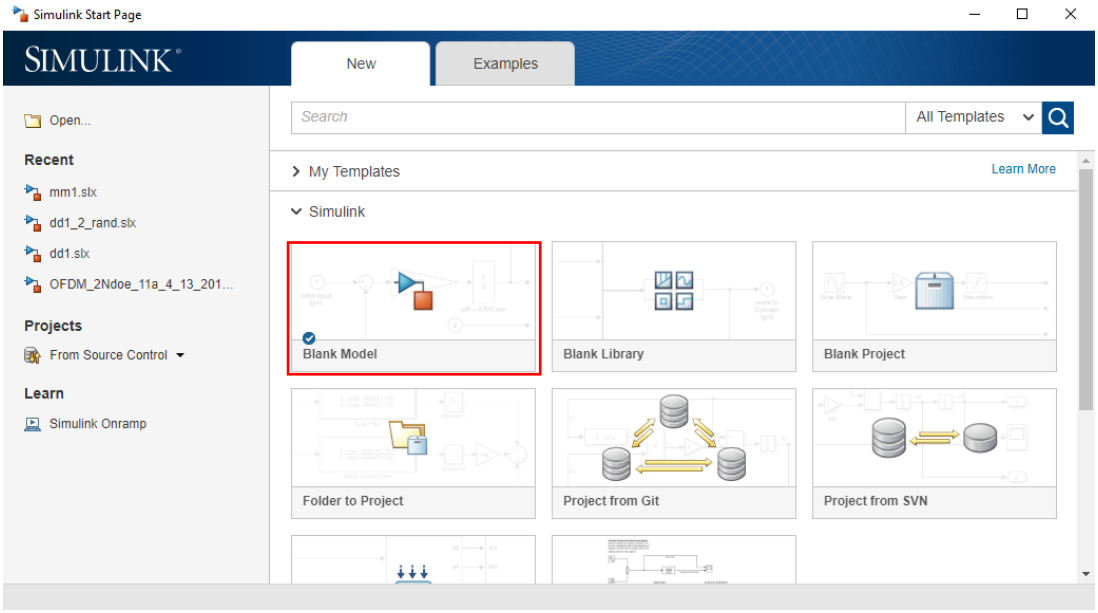
Please follow the steps below to get started

1. Search for **SimEvent** in MATLAB **Add-Ons** dialog and install it.

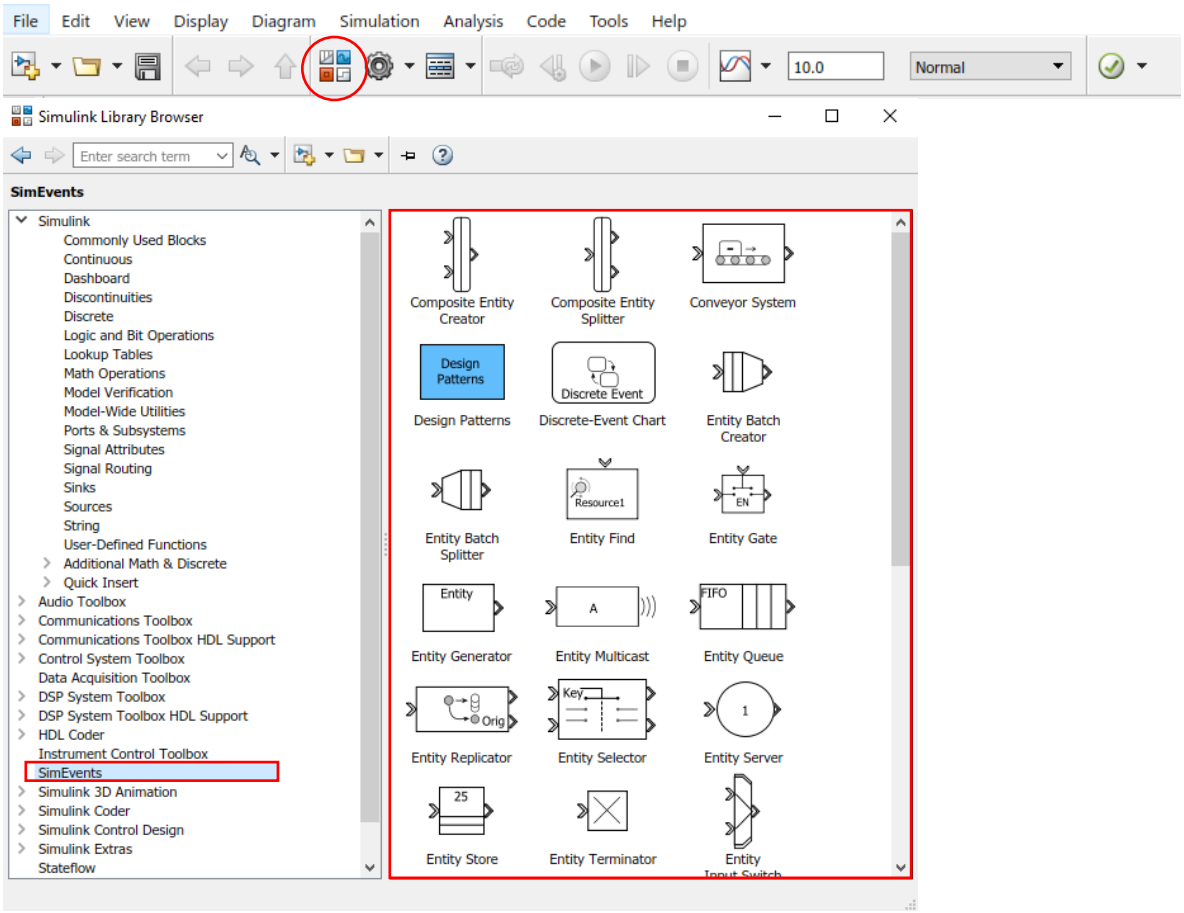


2. After installation, open **Simulink** and create a **blank model**.

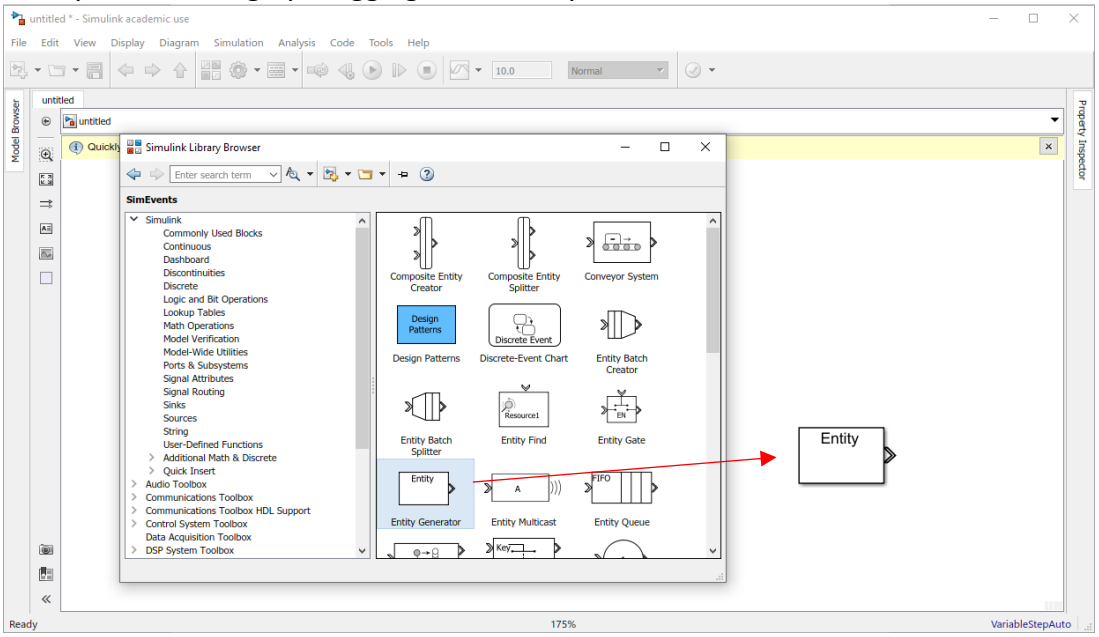




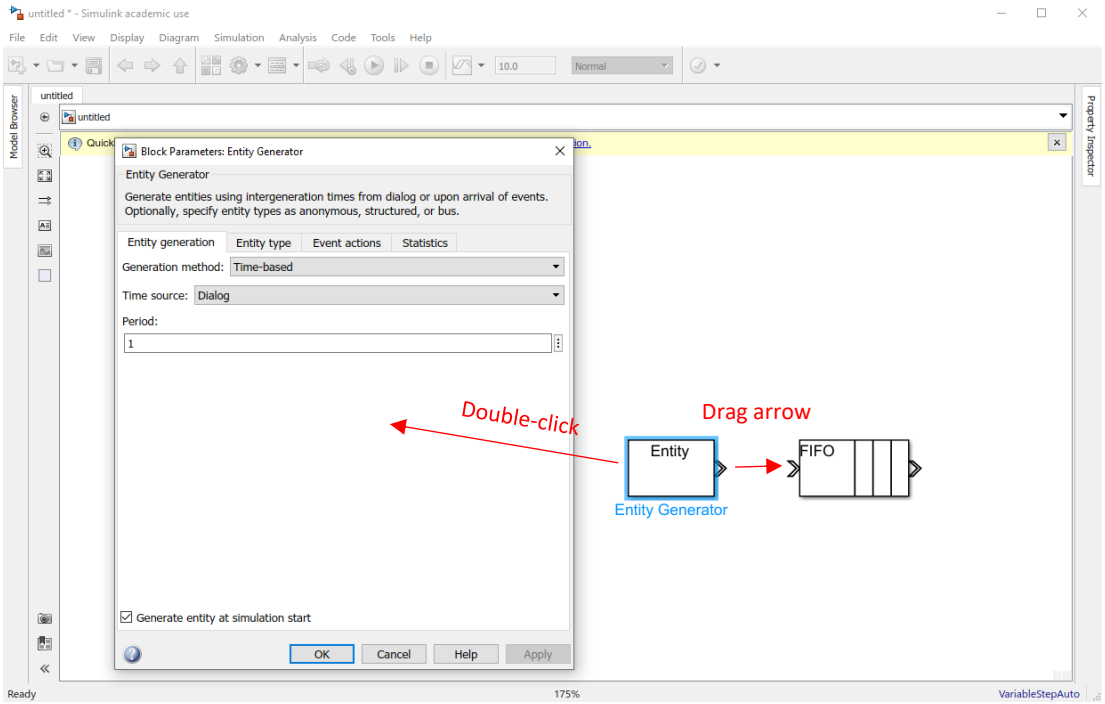
3. In the model editor UI, open the **Library Browser** and select **SimEvents**. You will see all available blocks provided by SimEvents.



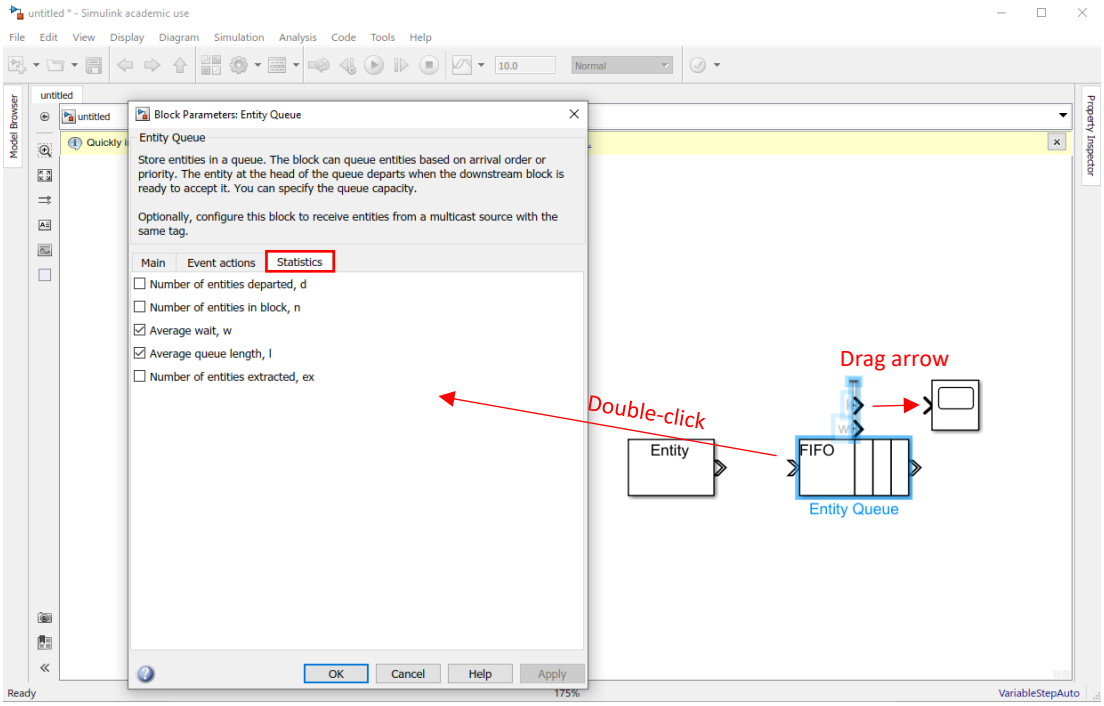
4. Start your modeling by dragging the blocks you need into the blank model.



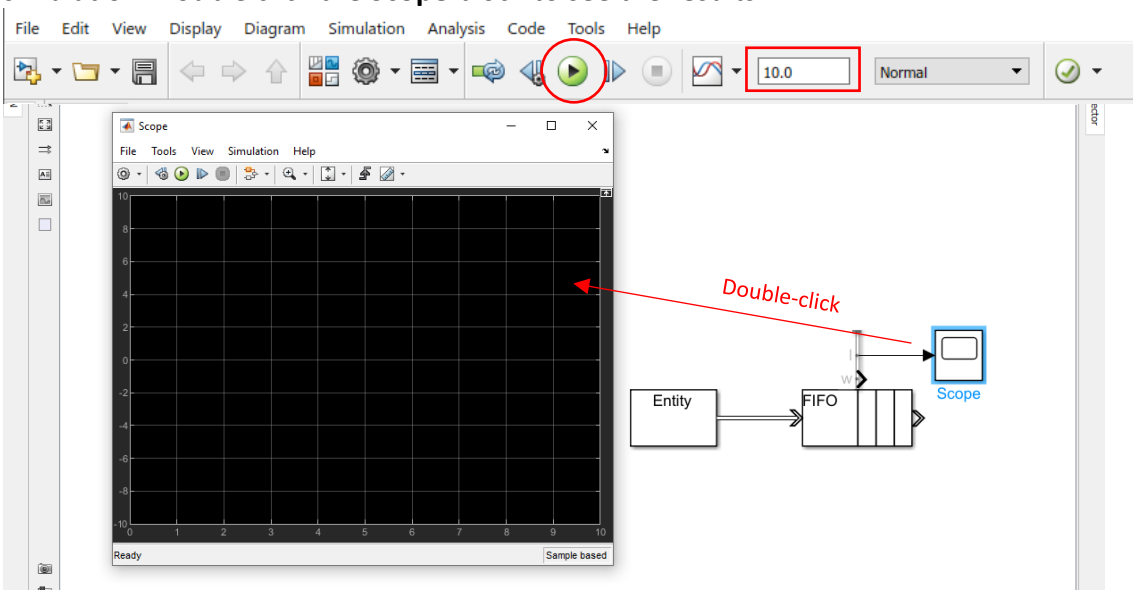
5. You can double click the block to modify the parameters and drag arrows to connect different blocks.



6. To observe the results, double click a block and turn to **Statistics** tab. Check the values you want to display and click OK or Apply. Drag the additional arrows to a **Scope** block (you can find it in Library Browser -> Simulink -> Commonly Used Blocks) so you will be able to observe the data.



7. After you finish your modeling, set up the simulation duration and click **Run** to start simulation. Double click the **Scope** block to see the results



For more details (e.g. how to build a queuing system), please refer to **documentation here:** https://www.mathworks.com/help/simevents/

Important Notes for Assignment

1. Blocks that may be needed for assignment 2:
   SimEvents -> Entity Generator
   SimEvents -> Entity Queue
   SimEvents -> Entity Server
   SimEvents -> Entity Terminator
   SimEvents -> Entity Input Switch
   SimEvents -> Entity Output Switch
   Simulink -> Commonly Used Blocks -> Scope
   Simulink -> Commonly Used Blocks -> Sum
   This is just a list of recommended blocks. You can also use other blocks as long as the overall goal is achieved.
2. The example of queuing system in official guide is a D/D/1 queue (D stands for deterministic), which is different from a M/M/1 queue. Please pay attention to the difference.
3. To generate independent random numbers, please make sure to use different random seeds or different generation approaches. Otherwise you will always get same sequence.
   You can use the ready-to-go block within EXP_GEN.slx. To use this block, you first need to set the **Time Source** of **Entity Generator & Server** to be **Signal Port** and connect the block to the generator and server. Then set the mean value and seed by double-clicking on the block.