# Classes and Functions

1. Assignment2.java: This class sets up all the threads in the constructer and the calls each Thread class. There are other functions such that the thread classes know when a smoker is waiting or if the smoker is finished and when agent Agatha placed the items on the table.
   1. Assignment2: This is the constructer for Assignment2 class. In the constructer the default value are set, such as status of items on the table. I then set up the threads with there respective objects. Then the Agent and 3 Smoker threads are started.
   2. placeItemOnTable: In this function with a random choice of which smoker will get the ingredients is selected and then the agent Agatha places the other two items.
   3. smokerWaitingForItem: In this function it displays which smoker is waiting for what items, and then once they receive their item it displays that they received the item.
   4. smokerFinishedSmoking: This function just displays if the smoker has stubbed out, also it pops the semaphore stack.
   5. main: Starts the program.
2. Semaphore.java: This class pushes and pops the semaphore stack.
   1. Semaphore: This is the constructer for Semaphore class. In the constructer it sets the default value.
   2. Release: Pops the semaphore stack, than decrease the value by one.
   3. Take: Pushes to the semaphore stack, after adding one to value.
3. AgentAgatha.java: This class runs the Agent thread.
   1. AgentAgatha: This is the constructer for AgentAgaths class. In the constructer it sets a reference to Assignment2 class object so it can access the place item on table function.
   2. run: This access the place item on table function from assignment2 so it can display the two items being placed on the table.
4. Smokers.java: This class runs the 3 Smokers thread.
   1. Smokers: This is the constructer for Smoker class. In the constructer it sets a reference to Assignment2 class object and the smoker and the item they have.
   2. run: This is were the thread for each smoker is running. It first will display what that smoker is waiting for and check if they have received the items so they can create a cigarette. Than it waits 1 second for the current smoker to smoke and then it displays that they stubbed out.
5. Makefile: Creates the entire class file from the java files and then runs assignment2. There is also a clean function, which will delete all the class files.

# Testing

We did manual testing during coding, to test if everything was printing in the right order. We also tested if each smoker got his or her item first.