The simulation is divided into 3 parts:

**Initialization block**:

In this block I have initialised state variables:I have considered 4 state variables aand around 18 combinations of them

These 4 state variables are based on:

1)Whether the user utterance is a **question**

2)Whether the user utterence has strong **sentiment**(positive,negative,or neutral)

3)Whether the sentence is **long** enough

4)Whether the sentence is at the **beginning or the end** of the conversation

Accordingly,there are 4 functions:**question\_or\_not,count\_no\_words,sentiment,beginning\_end**

I have 4 strategies defined for now:**'affirmative', 'opinion', 'negative','question'**

I have defined **temp\_dict** which maintains the count of the **state variables** till,now this is used for storing the average in the **state\_action\_dict** dictionary

**State\_action\_dict** contains state variables as the rows and strategies as the columns

**Training:**

**record\_check**:this function understands the type of state variable of the user question and stores in the state\_action\_dict

**rows\_utterance**:this function takes the crude list of user utterences(eg:['Very true', 'Thanks', 'What did you mena?'] and converts in this form

["q'l's+b", "q'l's+b", "qs'e"],suitable enough to store in the state\_action\_dict.

**main**:creates the list of user\_utterences(from rows\_utternce) and strategies taken by the bot(here,all the strategies were selected by random)

I have trained on a relative smaller dataset(consisting of 3-4 conversations each consisting of 3 utterences per conversation).

**Testing:**

**store**:this function is used for storing the test values in the state\_action\_dict

**check\_and\_pass:**this function checks for the maximum values amongst the 4 strategies for the entered state variable and returns the strategy which is then

used by the main to get random choices from the maximum strategy.

**form\_user\_utterancelist:**this is similar to the rows\_utterance in the training block.

**rows\_utteranc**e:this method only classifies one selected user utterence.

**main**:similar to the main in training block