Project – 3 : Implementation of Flow-Size Sketches

The following project contains a zip file, which consists of 3 source code files(java) which contains the logic for implementing Count Min, Counter Sketch and Active Counter algorithms and corresponding output text files.

Below are the steps which guides to run the project on command line to the functionality of the algorithms mentioned above.
1) Launch the terminal application and go to the "src" folder of the project.
2) Begin by executing the following commands:
"javac P3_CountMin.java", "java P3_CountMin" and
"javac P3_CounterSketch.java", "java P3_CounterSketch" and
"javac P3_ActiveCounter.java", "java P3_ActiveCounter" and
"javac P3_FlowHandler.java", "java P3_FlowHandler" and
"javac P2_Sketches.java", "java P2_Sketches"
3) Executing these commands will result in the creation of output files in the "src" directory and, if those files already exist, will replace them.

1. **CountMin.java:**
   In this algorithm, we try to find the smallest error value foe the size of the flows by maintaining multiple arrays and update the value corresponding to each hashed flow ID to the respective index value of the counter array.

2. **CounterSketch.java:**
   In this algorithm, we assign the flow size with either positive error or negative error by hashing the flow ID with the random number and considering MSB of the resultant to be compared with '1' and evaluate to either of the choices, this produces the median of the median value of the packet sizes.
3. **ActiveCounter.java:**
   In this algorithm, we use to represent the counter as number and exponent parts and we increment the counter value probabilistically using the formula 1/ 2^counter_exp, this provides us to track the sizes using less space.

This project is tested out on both IntelliJ and command line for execution, and below are the screenshots for the outputs. Project starts when above commands is run and contains the calls to the methods to execute CM.countMinSketch, CU.counterUpdateSketch and AC.activeCounterSketch.

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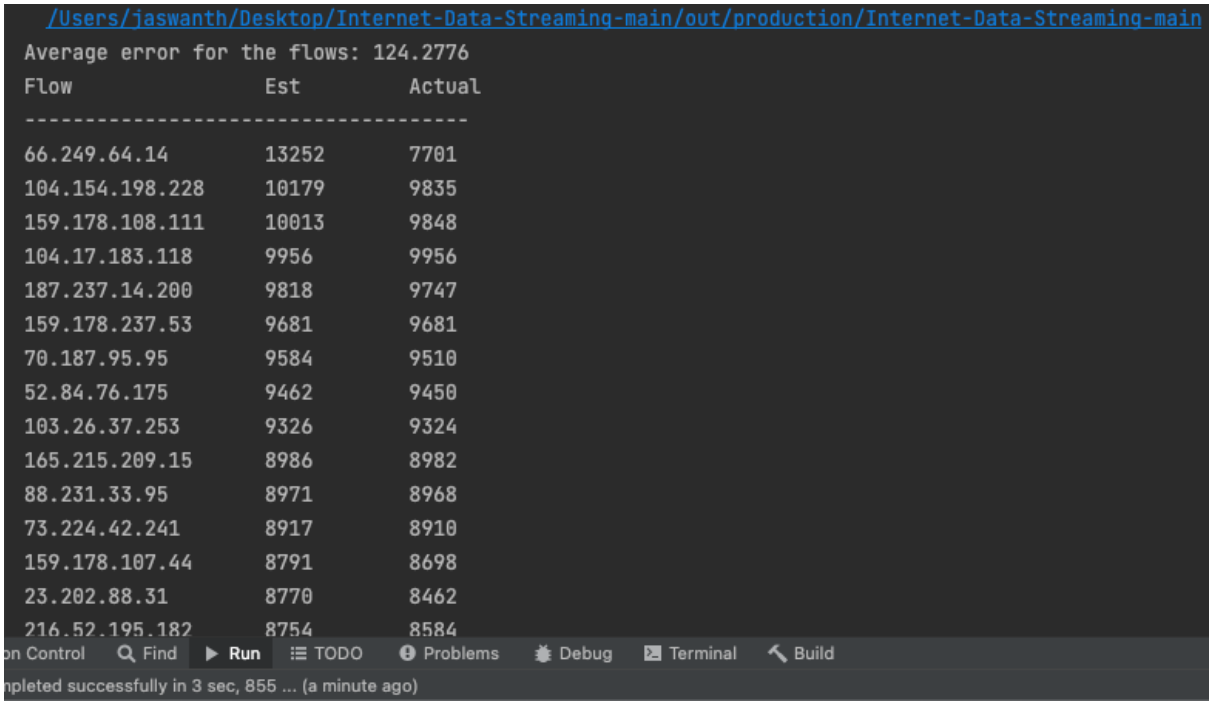
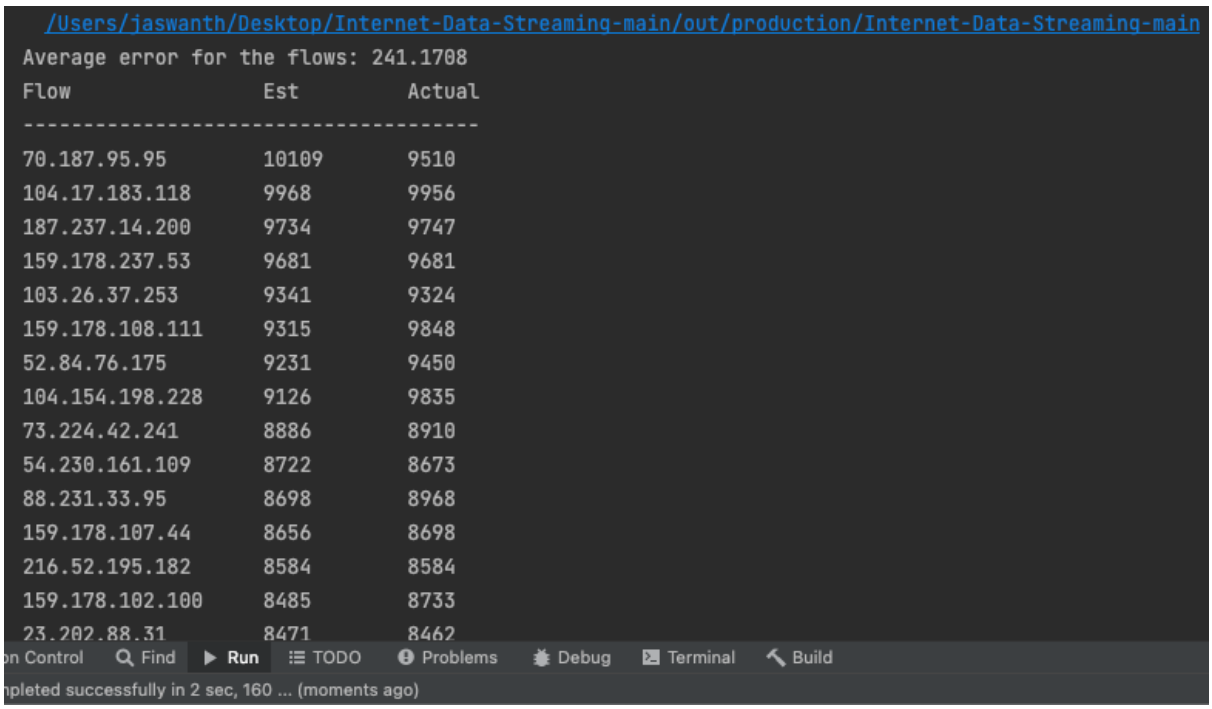
Output Screenshots:

1. **CountMin:**



2. **CounterSketch:**



3. ActiveCounter: