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Welcome to AirDelay 1.0
========================
1- Delays by Airport
2- Best and Worst Airports
3- On-time/Distance Correlation
0- Exit

What do you want to do (0-3)? 1

Origin airport code? JFK
On time 57.7892614066% of the time.
Delayed 42.2107385934% of the time.

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What do you want to do (0-3)? 1

Origin airport code? LGA
On time 58.2550179835% of the time.
Delayed 41.7449820165% of the time.

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What do you want to do (0-3)? 2
Best Airport: PIT
On-time Record: 82.2222222222%
Worst Airport: TYS
On-time Record: 27.2727272727%

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What do you want to do (0-3)? 3
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Attached you will find actual airport flight delay data for the month of Jan 2015 extracted from US Bureau of Transportation Statistics website. I have simplified the data quite a bit for your convenience. There are over 40,000 flights (rows) leaving from or arriving to NY airports for the month of Jan 2015. For each flight you will find the airport codes for originating airport (first column) and destination airport (second column) along with departure delay (third column) and arrival delay (fourth column). Delay columns are in minutes and entered as zero if no delay. The last column (fifth column) in the file is the distance in miles between the originating and destination airports.

[50 points] Your program will read the provided data file. Keep in mind that there may be some incomplete data in the file. For any row, if you encounter that any of the columns is empty (blank, equal to ""), you should skip that row. Each flight should be represented as an object. So you will need to create a class that can hold the information for each flight. As you read the file row by row, you will be creating an instance of this class, setting its fields and finally adding into a list.
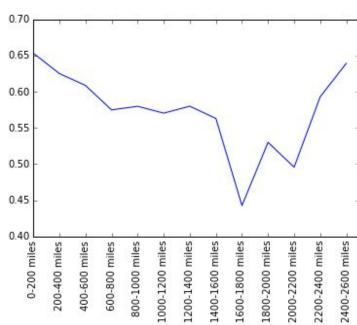
In other words, we are reading the file to create a list of objects, where each object represent a flight. All functionality needed for this program will operate on this list of objects.

[50 points] Feature #1: Given an origin airport, tell us how many percent of the flights departing from that airport are delayed (departure delay) and how many percent are on-time.

I would recommend creating a function that takes in an airport code and the list of flights. The function should go through all the flights and figure out (a) how many flights originated from that airport and (b) how many of those were on time (or delayed) at departure. On time record is (number of on-time flights) divided by (the total number of flights). On time record of zero means all flights are delayed; and on time record of 1 means all flights are on time. On time flights have 0 value for their delay column.

[50 points] Feature #2: Display the airports with best and worst on time record. Go through all the airports that appear in the origin and destination fields of each flight and determine the ontime record of each. Display the airport with worst and best on time record.

[50 points] Feature #3: We would like to see if there is any correlation between on-time record and distance of the flights. Perhaps shorter flights get more delays than longer flights. We would like your program to generate a graph that groups flights based on the distance. Flights that are 0 to 200 miles long would be grouped together and we would get the on time record of these flights. Then we would do the same thing for flights that are 201 to 400, and 401 to 600 and so on, up to 2600. The graph should look similar to the way shown here. You do not have to worry about the x axis tick labels. I added them for clarification.