Syed Bukhari
CS342 Fall 2016

HW # 1 Design Document

Classes:

- **City** – Holds the city data
  - Variables:
    - String cityName – *city's name*
    - String state – *state that the city belongs to*
    - int cityNumber – *city's ID number*
    - List<DistanceTo> *connections – city's adjacency list*
    - Double [] allDistances – *distances from this city to all other cities*
  - Functions:
    - Constructor
- **DistanceTo** – Holds information about city distances
  - Variables:
    - int cityNumber – *this (destination) city's ID number*
    - double distance – *distance from host city to this city*
  - Functions:
    - Constructor
- **Participant** – holds data about participants
  - Variables:
    - String name – *participant name*
    - int cityNumber – *participant's home city ID number*
  - Functions:
    - Constructor
- **Runner** – Driver class for my program
  - Variables:
    - n/a
  - Functions:
    - **Main** – *calls printAuthorInfo & runner function*
    - **printAuthorInfo** – *prints information about the author*
    - **runProgram** – *calls file parsing functions, Dijkstra function, adjacency list print function, distances from Chicago function, prints out ideal destination*
    - **parseParticipants** – *parses participants file*
    - **parseCities** – *parses cityNames file*
    - **parseDistances** – *parses cityDistances file*
    - **displayAdjacencyList** – *displays adjacency list of cities*
    - **runDijkstras** – *runs Dijkstras and finds smallest distance from one city to all other cities*
    - **printDistancesFromChicago** – *prints distances from Chicago to all other cities*
    - **findTotalAvgDistances** – *calculates a list of average distances with respect to participants*
    - **findSmallestAvgDistance** – *finds smallest average distance in an array of distances*