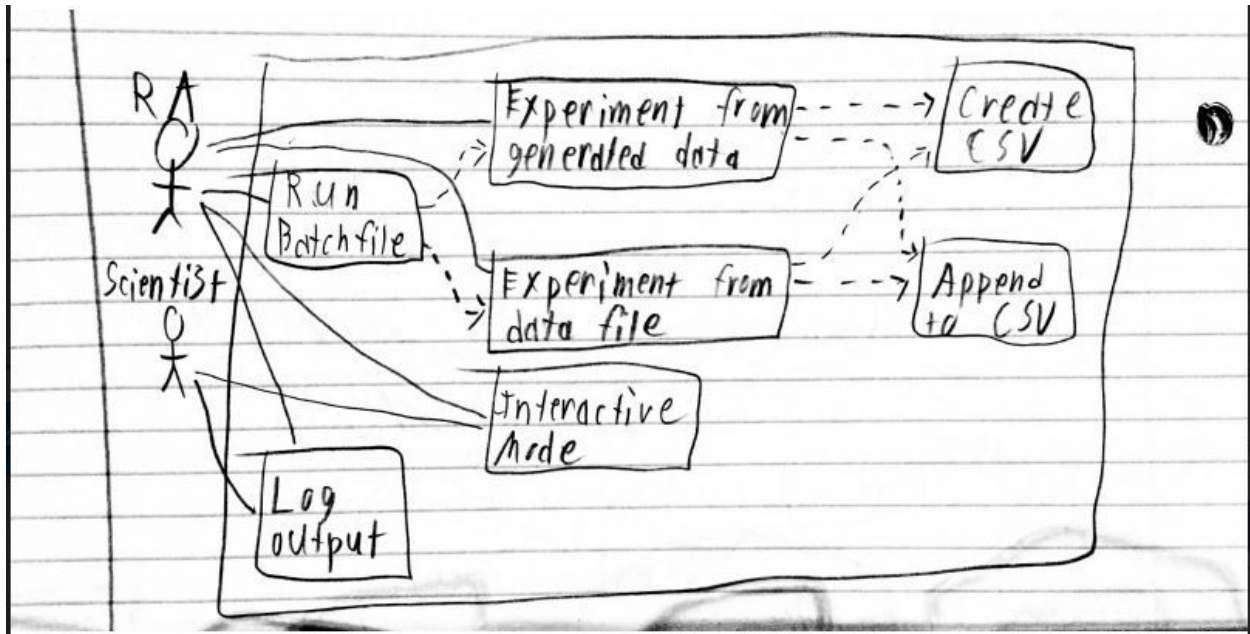1. List of Use Cases
   a. RA has a file of specified data and wants to run a single experiment on that data.
   b. RA has a file of specified data and wants to run a batch of experiments on that data.
   c. RA wants to run an experiments and create a csv file from the output.
   d. RA wants to run a batch of experiments and append output to a csv file.
   e. RA wants to run a single experiment with randomly generate data.
   f. Scientist wants to run in interactive mode and log all output and input.
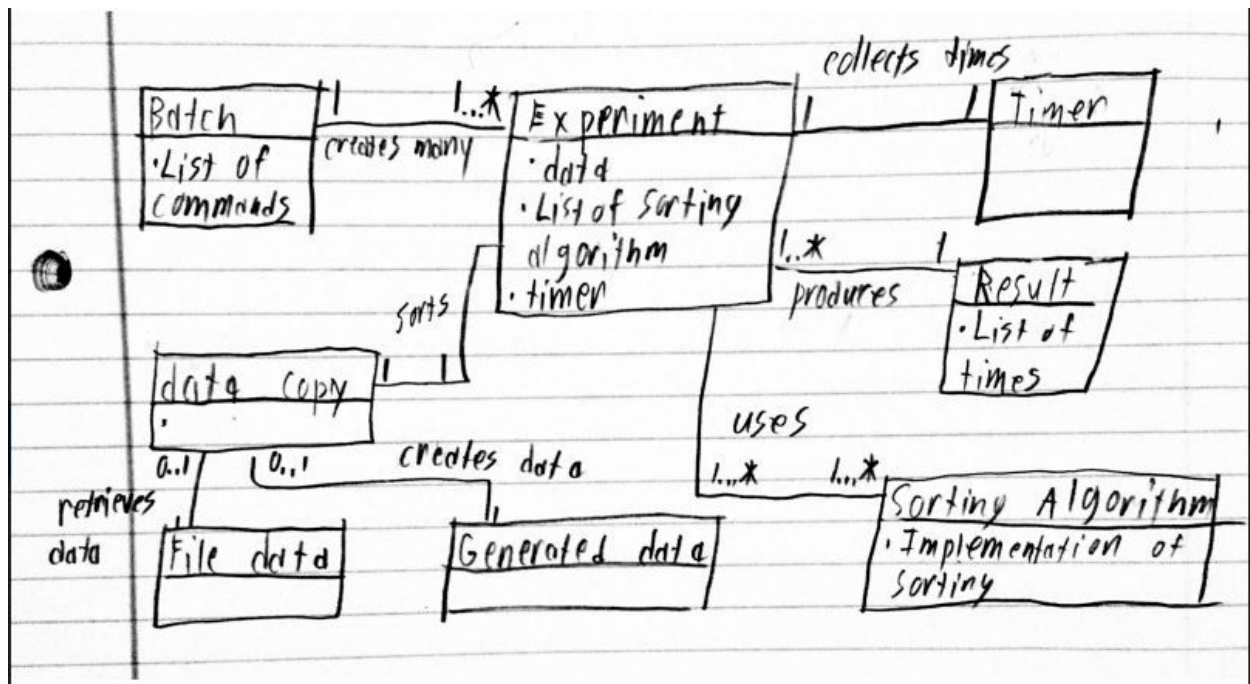2. Use Case Drawing

3. RA runs batch of experiments and records output:
   a. RA has a data file for input, a batch file of experiments, and a csv file for output already prepared.
   b. RA enters commands-line options for running a batch of experiments with prepared data file and csv file.
   c. System runs experiments on data supplied.
   d. System records output to csv file.
4. Domain Concepts:
   a. Experiments
   b. File data
   c. Generated data
   d. Sorting algorithms
   e. Results
   f. Timer
   g. Batch List

5. Domain Model

Batch
· List of Commands

creates many 1..*

Experiment
· data
· List of Sorting algorithm
· timer

collects times

Timer

sorts

data copy
·

Result
· List of times

produces 1..* 1

uses

retrieves data

0..1 0..1 creates data

1..* 1..*

File data

Generated data

Sorting Algorithm
· Implementation of Sorting

6. Glossary
Domain element name: Batch
Definition: A file that has a list of one or more experiments to be run.
Responsibilities: Provides instructions to the system in order to run multiple experiments in a single session.
Interaction with others: Aggregates experiments.

Domain element name: Experiment
Definition: Timing execution time of one or more sorting algorithms
Responsibilities: Time each sorting algorithm, produces time output for Result
Interaction with others: Collects times with Timer, sorts Data Copy, uses Sorting Algorithms, produces Results

Domain element name: Timer
Definition: Determines runtime of algorithms.
Responsibilities: Count time of runtime of algorithm.
Interaction with others: provide times to the Experiment.

Domain element name: Result
Definition: Formatted-time output of an Experiment.
Responsibilities: Print off output of Experiment.
Interaction with others: Retrieves times from Experiment.

Domain element name: Sorting Algorithm
Definition: Algorithm that is being timed.
Responsibilities: Sort numbers correctly.
Interaction with others: Is used by the experiment.

Domain element name: Data Copy
Definition: Copy of data from input source.
Responsibilities: All data to be sorted without altering original source.
Interaction with others: Sorted in Experiment.

Domain element name: File Data
Definition: Data to be ran in experiment that was stored in a file.
Responsibilities: Provide well-formed data to Data Copy.
Interaction with others: To be copied into Data Copy.

Domain element name: Generated Data
Definition: Data to be ran in experiment that was randomly generated.
Responsibilities: Provide thoroughly random data for Data copy.
Interaction with others: To be copied into Data Copy.