# Final Exam : Mile Times

CSE 130: Algorithm Design

Ms. Stevens is the physical education teacher at a local high school. Every student in the high school is required to take Ms. Steven's class during their freshman year, so Ms. Stevens gets a lot of students. One part of her class is to have the students run a timed mile. This means that Ms. Stevens has a record of every student's running time. The track and field coach often stops by Ms. Steven's office looking for new recruits for the team. Ms. Stevens would like to write a program to simplify the process of giving the coach a list of the students with fast times.

## Assignment Definition

Create a design for a program that will read a list of name/time pairs from a file into a list. This program will then search for all students whose mile time is better than or equal to 6:00 (or 360 seconds because the times are recorded in seconds). Finally, the program will display a list of all the students who meet that criterion. Of course, we want this design to be as efficient as possible…

Please do the following:

- Create a representation of a solution to this problem using flowchart or pseudocode
- Evaluate the quality of your design using appropriate metrics presented this semester
- Validate the design by applying appropriate quality tools or techniques

## Grading

| | *Exceptional*<br>*100%* | *Good*<br>*90%* | *Acceptable*<br>*70%* | *Developing*<br>*50%* | *Missing*<br>*0%* |
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| *Design Quality 60%* | The optimal solution was found | A workable solution was found that has acceptable performance characteristics | A correct solution was found with poor performance or a minor flaw exists with the presented solution | Part of the problem was solved but there exists serious issues with the design | The solution as presented is not on track to solve the problem |
| *Tools 10%* | The design was unambiguously and clearly described | An appropriate design tool was utilized and the tool was used without error | Minor ambiguity exists in the design presentation or a minor error exists in how the design tool was utilized | The design tool was utilized poorly | The solution does not demonstrate mastery of the design tools of the semester |
| *Metrics 10%* | Every nuance of the design was correctly characterized | A suitable metric was utilized and the metric was used without error | A minor error exists in the use of the metric | A serious problem exists in the use of the quality metric | No knowledge of a quality metric was demonstrated |
| *Quality 20%* | It is difficult to image how a defect could exist in the code | The design was verified through a suitable application of a quality technique | The design was not adequately verified, but knowledge of quality techniques were demonstrate | Familiarity with quality techniques were demonstrate somewhere in the submitted paper | No knowledge of quality techniques were demonstrated |