Test 1

Information:
• Monday 9/30, 2:20-3:20 (I will lecture from 3:00-3:20).
• In class, closed book, closed notes, clean desk
• 10% of your final grade
• 60 minutes to complete it:
• Bring your ID card!
• NO: calculators or cell phones.
• NO: headphones/earbuds.

Test format:
100 points total:
• 12 multiple choice questions (4 points each)
• 2 questions: write a function to do X (~26 points each)
Probably 4 total pages (2 pages front+back)
I’ll have extra paper if you need it for writing the functions.

Content:
These lectures:
• Unit 1: Functions, Arrays, And Structures
• Linux (slides 2-13)
• Unit 2: Searching, Sorting, and Analysis
See the lecture slides for the corresponding book sections.

Sample questions:

Multiple choice:
1. See squarecap questions
2. What is the output given some code?
3. What is the error in the given code?
4. What is the command to do X in Linux?
5. What will the contents of the array be after 1 pass of the bubble (or selection) sort
6. What are the first two values that the target value X would be compared to during a linear (or binary) search.
7. What is the worst case run time efficiency big O function for the Bubble Sort (or selection sort, or linear search, or binary search)?
8. Of these efficiency functions, which is the slowest growing? O(log n) or O(n) or O(n²) (or some other group of efficiency functions)
9. Also know definitions of terms and methods of parameter passing, scope rules, etc.
Coding questions:

1. Define a struct for a soccer player that stores their name, jersey number, and total points scored.
2. Using the struct in #1, write a function that takes an array of soccer players and its size as arguments and returns the average number of points scored by the players.
3. Using the struct in #1, write a function that takes an array of soccer players and its size as arguments and returns the index of the player who scored the most points.
4. Using the struct in #1, write a function that sorts an array of soccer players by name.
5. Using the struct in #1, write a function that takes an (unsorted) array of soccer players and its size and a number as arguments, and returns the name of the soccer player with that number. It should not do any extra unnecessary work.