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| Instructor use only | Score 1 | Score 2 | Score 3 | Score 4 | Final Score |
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**Name** (please print) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **CS Account** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Major** (check one) □ Comp’ Science, □ Comp’ Engineering, □ Business Informatics, □ Other \_\_\_\_\_\_\_

**Instructions**: Answer all *eight* questions below. Show work where appropriate. Note that there is some text in boxes that we use as part of our grading rubric, ignore these, and do not write in the boxes.

1) Assume array a[] has size 10. The code below, meant to print the contents of a, contains two mistakes. Point out the two mistakes.  
for (int i = 0; i <= 10; i++ );  
 cout << i[a];

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2) Assume that directory /foo contains a single file, bar. Write the Linux commands that show detailed information about the file foo, then move the file bar into directory /baz, and finally remove the directory /foo.

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| **Students: Ignore the contents of this box.**  Speaks to: An ability to apply knowledge of computing and mathematics appropriate to the discipline/knowledge of mathematics, science, and engineering | Instructor: Please write comments explaining your grading of this work | Score 1 |
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3) Write a make rule that defines a target rolodex.o that (1) depends on rolodex.cc ,   
rolodex.h, and dictionary.h; and (2) compiles rolodex.cc with debugging support; the resulting executable should be called rolodex.

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4) The following code sketches the definition of a basic\_string template class. Complete the code (marked with ‘**?**’) so that, if basic\_string is instantiated with defaults, the representation is a char array of size 100.  
  
template<**?**  >  
class basic\_string {  
 **?** [**100**];  
};

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| **Students: Ignore the contents of this box.**  Speaks to: An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution/ an ability to identify, formulate, and solve engineering problems | Instructor: Please write comments explaining your grading of this work | Score 2 |
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5) Write a bash script that takes input on stdin. It should convert all occurrences of cs014 to cs100 and only display lines containing the phrase “computer science” (without the quotation marks).

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6) Indicate the contents of **L** and **S** after executing the following code. Assume appropriate headers.  
list<int> L; set<int> S;  
for ( int i = 0; i < 5; i++) {   
 L.push\_front(i);  
 S.insert(i);  
 S.insert(i\*i);  
 }

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| **Students: Ignore the contents of this box.**  Speaks to: An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs  /.... realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability | Instructor: Please write comments explaining your grading of this work | Score 3 |
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Answer questions 7 and 8 based on the following sequence of bash commands. Assume your current directory is empty.

1: $ git init

2: $ echo "This is an empty README file" > README

3: $ git add README

4: $ git commit -m "starting project"

5: $ git tag beginning

6: $ git branch coding

7: $ git checkout coding

8: $ echo "int main() { return 0; }" > main.cpp

9: $ g++ main.cpp

10: $ git add main.cpp

11: $ git commit -m "added some code"

12: $ ls

13: $ touch LICENSE

14: $ git add LICENSE

15: $ git commit -m "added a license file"

16: $ git checkout beginning

17: $ ls -a

18: $ mkdir src

19: $ echo "int main() {return 1; }" > src/main.cpp

20: $ git add src/main.cpp

21: $ git commit -m "added different code"

22: $ git checkout coding

23: $ ls -a  
7) What is the output of the ls command on line 12?

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8) What is the output of the ls command on line 23?

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| **Students: Ignore the contents of this box.**  Speaks to: An ability to use current techniques, skills, and tools necessary for computing practice./ an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. | Instructor: Please write comments explaining your grading of this work | Score 4 |
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