CSC112   Fundamentals of Computer Science   Spring 2016

Exam # 1 Topics

C++ Language Features

1. Variable declarations and program structure

2. Input from the keyboard (cin) and output to the screen (cout). Use of stream operators `>>` and `<<`.

3. Methods `cin.fail()` and `cin.eof()`

4. String constants, e.g., `"Hello"`.

5. Intrinsic data types: `char`, `bool`, `short`, `int`, `long`, `long long`, `unsigned`, `float`, `double`. and `long double`

6. Comparison operators: `<`, `<=`, `>`, `>=`, `==`, and `!=`

7. Control constructs

    (a) `if ... else`
    (b) `while` loops
    (c) `do ... while` loops
    (d) `for` loops

8. Logical operators

    (a) Logical AND: `&&`
    (b) Logical OR: `||`
    (c) Logical NOT: `!`

9. Arithmetic operators: `+`, `-`, `*`, `/`, and `%`

10. One Address Operators

    (a) Pre-increment, e.g., `++k`
    (b) Pre-decrement, e.g., `--k`
    (c) Post-increment, e.g., `k++`
    (d) Post-decrement, e.g., `k--`

11. Integer divide and mixed mode expressions

12. Defining functions, return types, including `void`

13. Calling functions

14. The `return` statement

15. `Formal parameters` and `actual parameters` (also known as `parameters` and `arguments`).

16. `#include`

17. Namespaces, Scope, `using namespace std`

18. `exit(1) ;`

19. C-style `printf()` and `scanf()`

20. Pass by value and pass by reference in C++

21. Pointers and the "address of" operator `&`

22. Pass by reference using pointers

23. Keyword **static**

24. Keyword **const**, use in formal parameters

25. 1-D fixed length arrays

Stack Based Memory Organization

26. Activation records, the system stack, function calls

Algorithms

27. General Method for Linear Search

Problem Solving Skills

28. Write a short C++ function to solve a problem