Tutorial 8

Intro to Database

1. What is a database?

2. What is a Database Management System (DBMS)?

3. What is a record?

4. What does the acronym CRUD stand for?

5. Sketch the algorithm to Add an item to a database composed of an array of structures.

6. Sketch the algorithm to Find a record that is composed of an array of structures.

7. Sketch the algorithm to Modify a record that is composed of an array of structures.

8. Sketch the algorithm to Delete a record that is composed of an array of structures.

Types, Enumerations, and Macros

9. Why are types converted?

10. How are types converted when arithmetic is done?

11. How does the division operator convert between integers and floating point numbers?

12. Why should you prefer explicit conversion over implicit conversions?

13. What is an enumeration?

14. Define an type that can hold an enumeration of the months of the year?

15. Define a function that will print out the month of a year given an enumeration of the months of the year?

16. How are enumerations represented?

17. Where should macros be used?

18. What are the pitfalls of using macros instead of functions?

19. Why do you enclose all macro variables in parentheses?

20. Why do you enclose the entire macro in parentheses?

Conditional; Comma, Goto, Break and Continue, Unions, Storage Classes and String Libraruy

21. What is the conditional operator. Given an example of its use.

22. Write a conditional operator that returns the string "False" if the int variable test is 0; "True" if it is not.

23. Write a for loop that increments two variables, i and j, using the comma operator.

24. How do break and continue differ?

25. Give an example of using break in a program.

26. Given an example of using continue in a program.

27. What does goto do?

28. Give an example of using goto in a program.

29. When should goto, continue and break be used?

30. What is the extern storage class?

31. What is the auto storage class.

32. What is the heap vs the stack.

33. Are static variables stored on the heap or the stack.

34. What are the four storage classes?

35. What variables are automatic by default?

36. What variables are static by default?

37. What happens if you define a local variable as static?

38. What is an external variable?

39. Give an example of a union.

40. What are the six bit operators?

41. What arithmetic operation does left shift do?

42. What arithmetic operation does right shift do?

43. What is the difference between or and exclusive or?

44. How many operands does the ~ operator take?

45. Which bit operator should you use to multiply a number by 2.

46. Which bit operator should you use to divide a number by two?

47. Show the bit values for &

48. Show the bit values for |

49. Show the bit values for ^

50. Show the bit values for ~

51. What is the difference between ones complement and twos complement?

52. Why is twos compliment used for negative numbers?

53. What is two's complement?

54. What does strlen do?

55. What type does strcmp return?

56. What to the values returned by strcmp mean?

57. What are the parameters to strcmp?

58. What does strcpy do?

59. If s1 and s2 are strings, what is the difference between strcpy(s1, s2) and s1 = s2?

60. What is the size of an int?

61. What is the size of a char?

62. What do you include if you want to use the C string library?