

### CSCI 131, Midterm Exam 1 – Review Selected Solutions

- 1) team A and team B are not legal identifiers; int is not a legal variable name.
- 2) it is the return value; answer = Math.Cube(7.3); StdOut.print(Math.Cube((x+y)/2.0);
- 3) Type in to a program to get results.
- 4) Use a conditional with expression (number < 100) as the boolean expression.
- 5) Type in to a program to get results.
- 6) Type in to a program to get results. The final else clause executes when day is anything but 6. To fix, make it a multi-choice statement instead of single "if" statements.
- 7) a) Type in to a program to get results.  
b) Use count as the control variable, initialize to 5, test and increment are identical.
- 8) a) Type in to a program to get results.  
b) Can cast one of the operands to double.
- 9) boolean same = true;  
if (A.length != B.length) same = false;  
else  
for (int i = 0; i < A.length; i ++)  
if (A[i] != B[i]) same = false;  
if (same) StdOut.print("SAME");  
else StdOut.print("DIFFERENT");
- 10&11) if (((hair == 's') || (hair == 'S')) && (height > 70))...
- 12) isPrimary = (color.equals("red") || color.equals("blue") || color.equals("green"));
- 13) double partialHarmonicSum = 0;  
for (int i = 1; i <= n; i++) partialHarmonicSum += (1.0/i);
- 14) int sum = 0;  
StdOut.println("N N^2 sum");  
for (int i = 0; i < 10; i++) {  
sum += (i\*i);  
StdOut.println(i + " " + i\*i + " " + sum);  
}
- 15) Need nested loop, inner loop prints a row of "+" and outer loop controls the number of rows.
- 16) See topic 09 on arrays.
- 17) Did maximum value in topic 09 on arrays.
- 18) Use loop to run through array. Body of loop is similar to  
if (grades[i] >= 80 && grades[i] < 90) n++;
- 19) Once the values are stored in the array, to print in reverse:  
for (int i = 3; i >= 0; i--) StdOut.print(a[i] + " ");
- 20) Type in to a program to get results.
- 21) Many variation in answers.
- 22) One possible solution:  
double largestSoFar = 0.0;  
for (int i = 0; i < song.length; i++)  
if (Math.abs(song[i]) > Math.abs(largestSoFar))  
largestSoFar = song[i];  
for (int i = 0; i < song.length; i++)  
song[i] = song[i] / (2 \* largestSoFar);
- 23) One possible solution:  
int N = Integer.parseInt(args[0]);  
int [] values = new int [N];  
int [] count = new int[10];  
StdOut.print("Here are " + N + " random numbers: ");  
for (int i = 0; i < N; i++) {  
values[i] = StdRandom.uniform(10); //0..9

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        StdOut.print (values[i] + " ");
        count[ values[i] ]++;
    }
    StdOut.println();
    int most = 0;
    for (int i = 0; i < 10; i++)
        if (count[i] > count[most]) most = i;
    StdOut.println("\nNumber " + most + " was chosen most, appearing " + count[most]
+ " times.");

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24) Sample solution:

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String[] candidates = {"Alice", "Fatima", "Diego", "Itaru"};
int[] votes = new int[candidates.length];
String choice = "";
while (!choice.equalsIgnoreCase("end")) {
    StdOut.print("Who do you vote for? ");
    choice = StdIn.readString();
    for (int i = 0; i < candidates.length; i++)
        if (choice.equalsIgnoreCase( candidates[i]))
            votes[i]++;
}
int winner = 0;
for (int i = 0; i < candidates.length; i++) {
    StdOut.print(candidates[i] + " got " + votes[i] + " ");
    if (votes[i] > votes[winner])
        winner = i;
}
StdOut.println("\nThe winner is " + candidates[winner]);

```

25) Sample solution:

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String[] food = {"Soup", "Apple", "Juice", "Donut"};
int[] calories = { 350, 130, 200, 1000 };
int[] quantity = new int [food.length];
for (int i = 0; i < food.length; i++) {
    StdOut.print("How many servings of " + food[i] + "? ");
    quantity[i] = StdIn.readInt();
}
StdOut.println("\nYou ordered:");
int total = 0;
for (int i = 0; i < food.length; i++) {
    StdOut.print(quantity[i] + " " + food[i] + "... "
+ (quantity[i]*calories[i]) + " calories");
    total = total + (quantity[i] * calories[i]);
}
StdOut.println("\nTotal is " + total + " calories");

```