**CM 1601 Programming Fundamentals**

**Tutorial 5**

1. Write a Java program that reads in 10 student marks into an array called marks and computes the number of students who have failed (got a mark less than 40). The program should then output this number.
2. Predict the output of the following program.

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| int main()  {  int i;  int arr[5] = {1};  for (i = 0; i < 5; i++)  printf("%d ", arr[i]);  return 0;  } |

1. Write a program that reads in, and stores 10 student marks and then reduces each mark by 10% (because it was 24 hours late). Use a loop to reduce each mark. Each reduced mark is then stored in the same element of the array. You should then output the contents of the array.
2. Write a program that reads in a sequence of *INT*s into an array. The program should then shift each value on one position in the array. For example, whatever is in array position 4 should be moved into position 5. Whatever is in the last should be moved to the start. The program should then print out the contents of the array.
3. Write a program where an array of length 20 say is filled with doubles. The user then inputs any two integer values *i* and *j* and the values in the array positions *i* and *j* are swapped around. The program should then print out the contents of the array.
4. Extend your answer above. You need to write a method (function) called *swap()*. *swap()* accepts two integer parameters and swaps the contents of an array and those locations. This method does *not* return a value. Implement this method into a suitable java program by demonstrating how the method changes the contents of the array.
5. Write a program to get 10 Integers from the user and store them in an array called *myNamesArray*. Then clone the Integers in the *myNamesArray* into an ArrayList called *myNamesArrayList*. Sort the *myNamesArrayList* using the *sort()* method.
6. How do you find all pairs whose sum is equal to a given number from an integer array in Java? You have given an array of int primitives and a number, you need to find all pairs in an array whose sum is equal to given number e.g., if an array is {1, 2, 3, 4, 5} and given sum is 6 then your program should return {2, 4} and {1, 5}.