**CMSC 155 Spring 2020**

**Exercise 2 (40 points available)**

**Deadline: Midnight Thursday Jan 30**

1. Write a program which takes an integer as input from the user and prints out an appropriate message in each of the following situations: (10 points)
   1. The value is exactly divisible by both 2 and 5.
   2. The value is exactly divisible by 2 but not by 5.
   3. The value is exactly divisible by 5 but not by 2.
   4. The value is not exactly divisible by either 2 or 5.

public static void main(String[] args) {  
 Scanner input = new Scanner(System.*in*);  
 System.*out*.println("Enter an integer: ");  
 int num = input.nextInt();  
 if (num % 2 == 0 && num % 5 ==0){  
 System.*out*.println("The value is exactly divisible by both 2 and 5.");  
 } else if (num % 2 == 0 && num % 5 != 0){  
 System.*out*.println("The value is exactly divisible by 2 but not 5.");  
 } else if (num % 2 != 0 && num % 5 == 0){  
 System.*out*.println("The value is exactly divisible by 5 but not by 2.");  
 } else {  
 System.*out*.println("The value is not exactly divisible by either 2 or 5.");  
 }  
  
}

1. Write a for loop that adds up all the integers between 5 and 25 (including the end points) (5 points)

public static void main(String[] args) {  
 int total = 0;  
 for (int index = 5; index <= 25; index += 1) {  
 total += index;  
 }  
 System.*out*.println(total);  
}

1. Rewrite the “for” loop from problem 2 using (a) a while loop (b) a do loop. (10 points)

public static void main(String[] args) {  
 int total = 0;  
 int index = 5;  
 do {  
 total += index;  
 index += 1;  
 } while (index <= 25);  
 System.*out*.println(total);  
}

1. Suppose input is a Scanner object reading from System.in and a program executes String name = input.next(); (5 points)
   1. What is the value of name if the user types John O Cleese?

The value is just “John”.

* 1. Suppose that a program executes String name = input.nextLine() instead?

When doing .nextLine(), we get the entire line “John O Cleese”.

1. **String Methods**. Suppose s1 is "Monty" and s2 is "Python". What are the following? Predict first, then verify. (10 points)
   1. s1.length() + s2.length() 🡪11
   2. s2.charAt(4) 🡪 o
   3. s1.charAt(2) == s2.charAt(s2.length() - 1) 🡪 true
   4. s1.substring(0, 2) + s2.substring(4, 6) 🡪 Moon
   5. s1.contains("ty") && s2.contains("yt") 🡪 true
   6. "hello".indexOf("l") 🡪 2
   7. s1.indexOf("on") + s2.indexOf("a") 🡪 0
   8. (s1 + s2).replace("o", "i") 🡪 MintyPythin
   9. "remove all the e's from this text".replace("e", "") 🡪 rmov all th ‘s from this txt