# **Homework**

# **Grade 11 Review 1 – Assignment, BEDMAS**

1. Trace through the following code segments and illustrate the output and memory.

int a = 3;

int b = 9;

System.out.println(b);

a = b + 2;

a = a + b;

System.out.println(b+3);

System.out.println(a);

| **Output** |
| --- |
| 9  12  20 |
| **Memory** |
| a (int) = 3 11 20  b (int) = 9 |

int ans = 10;

int res = 6;

int num;

num=ans + res;

System.out.println(num + 2);

res=num + 3;

System.out.println( res);

| **Output** |
| --- |
| 18  19 |
| **Memory** |
| ans (int) = 10 19  res (int) = 6  num (int) = 16 |

1. Circle the assignment statements that will cause errors

int a = 6;

int b = 3;

float c = 3.5;

char e = 'd';

int f;

Reason: variable c type float must be initialized with an ‘f’ next to the 3.5: e.g. float c = 3.5f; (Must convert double to a float)

// consider each of the following lines individually; assume the initial values given above

a = 4;

b = a + b;

c = a + b;

e = e;

e = ‘h’;

b = f;

The line “b = f;” will return an error because the variable “f” has not been initialized

1. Write a program that reads three double values and computes their average.

| /\*  \* Program name: AverageOfDoubles.java  \*  \* By: Lucas Chow  \*  \* ICS4U1 - 01\_Gr11Review  \*  \* This program prompts the user for three doubles, then outputs the average of the doubles  \*  \*  \*/  import java.util.\*;  public class AverageOfDoubles {  //start of main method  public static void main(String[] args)  {  //declaring variables  double firstValue;  double secondValue;  double thirdValue;    //initializing scanner and prompting for values  Scanner sc = new Scanner(System.in);  System.out.print("Enter the first value: ");  firstValue = sc.nextDouble();  sc.nextLine();    System.out.print("Enter the second value: ");  secondValue = sc.nextDouble();  sc.nextLine();    System.out.print("Enter the third value: ");  thirdValue = sc.nextDouble();  sc.nextLine();    //printing out the average  System.out.printf("The average is %.2f",(firstValue + secondValue + thirdValue)/3);    //closing scanner  sc.close();  }  } |
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Write a program that calculates the number of hours of your life that you have spent sleeping. Assume that you sleep 8 hours each night. To simplify the problem, assume that there are 30 days in each month and 365 days in each year. The program output should look similar to:

Enter your birthdate:

Year: 1990

Month: 9

Day: 8

Enter today’s date:

Year: 2006

Month: 2

Day: 12

You have been alive for 5634 days.

You have slept 45072 hours.

| /\*  \* Program name: howLongAlive.java  / \*  \* By: Lucas Chow (Last edited: 2022-09-19)  \*  \* ICS4U1 - 01\_Gr11Review  \*  \* This program prompts the user for the current date, and their birthdate,  \* calculating their total days alive and total hours slept, assuming they  \* slept an average of 8 hours a night  \*  \*  \*/  import java.util.Scanner;  /\* This program takes in the user's birth month, date, and year, as well as the current  date and year and outputs the total days they have been alive as well as the the total hours  slept if slept 8 hours a day on average\*/  public class howLongAlive {  public static void main(String[] args)  {  int userYear;  int userMonth;  int userDay;  int userTodayYear;  int userTodayDay;  int userTodayMonth;  int yearDiff;  int monthDiff;  int dayDiff;  int totalDays;  int totalSleepHours;  Scanner sc = new Scanner(System.in);  //initializing scanner object    System.out.println("Enter your Birthday:");  System.out.print("Year: ");  userYear = sc.nextInt();  sc.nextLine();  //prompting user for year of birth and storing the value    System.out.print("Month (E.x. January: 1) : ");  userMonth = sc.nextInt();  sc.nextLine();  //prompting user for month of birth and storing the value    System.out.print("Day: ");  userDay = sc.nextInt();  sc.nextLine();  //prompting user for day of birth and storing the value      System.out.println("Enter Today's Date");  System.out.print("Year: ");  userTodayYear = sc.nextInt();  sc.nextLine();  //prompting user for current year today      System.out.print("Month: ");  userTodayMonth = sc.nextInt();  sc.nextLine();  //prompting user for current Month today    System.out.print("Day: ");  userTodayDay = sc.nextInt();  sc.nextLine();  //prompting user for current day of the month today    yearDiff = userTodayYear - userYear;  monthDiff = userTodayMonth - userMonth;  dayDiff = userTodayDay - userDay;  //calculating the difference between user birthday and current day      totalDays = 365\*yearDiff + 30\*monthDiff + dayDiff;  //calculating the today days difference    totalSleepHours = totalDays\*8;  //calculating the total sleep if user has had an average of 8 hours of sleep per day      System.out.println("You have been alive for "+totalDays+" days");  //outputting user's today days alive    System.out.println("You have slept "+totalSleepHours + " hours");  //outputting user's today hours slept    sc.close();  }  } |
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1. A fast food restaurant charges $1.69 for burgers, $1.09 for fries, and $0.99 for sodas.
   1. Write a program that prompts the employee for the number burgers, fries, and sodas and then displays the totals, the PST (8%), the GST (5%), and the final cost.
   2. Modify the program to prompt the employee for the amount tendered and then display the change due.

| /\*  \* Program name: FastFood.java  \*  \* By: Lucas Chow (Last edited: 2022-09-19)  \*  \* ICS4U1 - 01\_Gr11Review  \*  \* This program prompts the cashier or user in this case, prompts them for the  \* number of burgers, fries, and sodas, and creates a cost according to the prices  \* (Burgers: 1.69, Fries: 1.09, Sodas: 0.99) The program then outputs the HST at 8%,  \* and the final cost. Finally, the program prompts the cashier for the amount of  \* payment the customer has given and outputs the change and if/or not the customer  \* payed enough  \*  \*/  import java.util.Scanner;  public class FastFood  {  public static void main(String[] args)  {  int numberBurgers;  int numberFries;  int numberSodas;  double total;  double gstTotal;  double pstTotal;  double grandTotal;  double customerPayment;  double customerChange;    Scanner sc = new Scanner(System.in);  System.out.print("Number of Burgers: ");  numberBurgers = sc.nextInt();  sc.nextLine();  //prompting cashier/user for number of burgers as an integer    System.out.print("Number of Fries: ");  numberFries = sc.nextInt();  sc.nextLine();  //prompting cashier/user for number of fries an an integer    System.out.print("Number of sodas: ");  numberSodas = sc.nextInt();  sc.nextLine();  //prompting cashier/user of number of sodas as an integer    total = 1.69\*numberBurgers+1.09\*numberFries+0.99\*numberSodas;  gstTotal = (total)\*8/100;  pstTotal = (total)\*5/100;  grandTotal = total+pstTotal+gstTotal;  //calculating total price, hstTotal which is 8% tax, and grandTotal including tax and total price      System.out.println("The total is $"+ String.format("%.2f", total));  System.out.println("The %8 GST is $"+String.format("%.2f", gstTotal));  System.out.println("The 5% PST is $"+String.format("%.2f", pstTotal));  System.out.println("The grand total is $"+String.format("%.2f", grandTotal));  //printing out the various prices    System.out.print("How much change did the customer give?:");  //prompting the cashier/user for the amount of change given by the customer      customerPayment = sc.nextDouble();  sc.nextLine();  customerChange = customerPayment-grandTotal;  //calculating customer change  //closing scanner  sc.close();    if (customerChange <= 0.0)  {  System.out.println("Customer has to pay $"+String.format("%.2f", -customerChange)+" more");  //if in case the customer gives too little  }  else  {  System.out.println("The change is $"+String.format("%.2f", customerChange)+"");  }  }  } |
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1. Write a program that asks the user for a three-digit number, finds the sum of the digits of the number, and then prints both the number and its digit sum.

| /\*  \* Program name: SumOfDigits.java  \*  \* By: Lucas Chow (Last edited: 2022-09-19)  \*  \* ICS4U1 - 01\_Gr11Review  \*  \*  \* This program prompts the user for a 3 digit number, then finds the sum  \* of the digits and outputs that as well as the original number  \*  \*/  import java.util.Scanner;  public class SumOfDigits  {  public static void main(String[] args)  {  int userNumber;  int num1;  int num2;  int num3;  int sumNumber;    Scanner sc = new Scanner(System.in);  // initializing scanner object    System.out.print("Print a 3 digit number:");  userNumber = sc.nextInt();  sc.nextLine();  // prompting user for 3 digit input    num1 = (userNumber - userNumber%100)/100;  num2 = (userNumber%100 - userNumber%10)/10;  num3 = userNumber%10;  //calculating and utilizing mod and storing the values of each digit    sumNumber = num1+num2+num3;  // calculating the sum of the numbers    System.out.println("The number is "+userNumber);  System.out.println("The sum of the digits is "+sumNumber);  //printing out the result and the original number    //closing scanner  sc.close();    }  } |
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Reference for questions 3, 6

Carter, John. An Introduction To Computer Science Using Java. Toronto: University of Toronto Press, 2003

Reference for questions 4, 5

Brown, Beth. A Guide to Programming in Java, 2nd Edition, for Java SE5 and Java SE6. Pennington: Lawrenceville Press