**WIX1002 Fundamentals of Programming**

**Tutorial 1 Problem Solving in Programming**

Part 1

1. Request two numbers from the user and print the multiplication of the numbers.

Enter number 1

Enter number 2

Result = number 1 \* number 2

Print result

Flow chart :

Start

Enter Number 1

Enter Number 2

Multiple number 1 with number 2

Result

End

2. Determine whether a random number is greater than 50.

Pseudocode:

Enter a value

Start

If value < 50

print NO

If value > 50 ,

Enter a value

print Yes

Value > 50

Yes cNo

Print NO

Print YES

End

3. Print the pass/fail grade based on the mark entered by user. The passing mark is at least 40.

Pseudocode

Enter a mark

start

If mark > 40

Print pass

If mark < 40

Enter a mark

Print fail

Mark > 40

Yes No

Print fail

Print pass

End

4. Print the results of the two players’ dice game.

Pseudocode

Enter player one dice number

Enter player two dice number

If player one dice number > player two dice number

Print player one win

If player two dice number < player two dice number

Print player two win

If player one dice number = player two dice number

Print tie

start

Player one dice number

Player two dice number

Player one dice number = player two dice number

Player one dice number > player two dice number

Yes

No

Print tie

Print Player one win

Print Player two win

End

5. Print the perimeter of a rectangle.

Pseudocode

Enter length in cm of rectangle

Enter width in cm of rectangle

Perimeter = length of rectangle + length of rectangle + width of rectangle + width of rectangle

Print perimeter of rectangle

start

Enter length of rectangle

Enter width of rectangle

Length of rectangle plus length of rectangle plus width of rectangle plus width of rectangle

Print perimeter of rectangle

End

6. Print the minimum number from 10 random numbers generated by computer.

Pseudocode

Generate number 1

Generate number 2

Generate number 3

Generate number 4

Generate number 5

Generate number 6

Generate number 7

Generate number 8

Generate number 9

Generate number 10

If number 1 <number 2,3,4,5,6,7,8,9,10

Print number 1

If number 2 < number 1,3,4,5,6,7,8,9,10

Print number 2

If number 3 < number 1,2,4,5,6,7,8,9,10

Print number 3

If number 4 < number 1,2,3,5,6,7,8,9,10

Print number 4

If number 5 < number 1,2,3,4,6,7,8,9,10

Print number 5

If number 6 < number 1,2,3,4,5,7,8,9,10

Print number 6

If number 7 < number 1,2,3,4,5,6,8,9,10

Print number 7

If number 8 < number 1,2,3,4,5,6,7,9,10

Print number 8

If number 9 < number 1,2,3,4,5,6,7,8,10

Print number 9

If number 10 < number 1,2,3,4,5,6,7,8,9

Print number 10

7. Print the number of odd and even number from 10 random numbers generated by computer. The random number must be from 10 – 100.

Pseudocode

If total count < 10

generate

If 10<number < 100

Generate new number

otherwise

Divide number by 2

If number is integer

Add 1 to even number

Add 1 to total count

If number is decimal place

Add 1 to odd number

Add 1 to total count

If total count > 10

Print total number of odd number

Print total number of even number

start

Count = 0

Even number = 0

Odd number = 0

Count < 10

Generate number

10<number<100`

Divide by 2

value is integer

+ 1 even number

+1 total count

+ 1 Odd number

+1 total count

Print number of odd and even number

End

Part II

8. Count the number of alphabet U and M from a sentence entered by user.

Pseudocode

Initialize U = 0

Initialize M = 0

Enter a sentence

If there a “U” letter

Add 1 to U

If there a “M” letter

Add 1 to M

Print number of U

Print number of M

9. Display the frequency of a keyword from a web page.

Initialize keyword = 0

Get a web page

If “keyword” is detect

Frequency of keyword + 1

Print frequency of keyword

10. Display the number of female student from a random list of 100 students.

Pseudocode

Initialize number of female = 0

If female student

Number of female + 1

Otherwise

number of female +0

display number of female

11. Display a list of 5 random numbers in descending order. (Sort)

12. Guess a random number generated by computer

Generate a number

Number -1

Total count +1

Repeat process until number = 0

Number = total count