**CSE 115 Lab on simple loop (part 1) – Ara2**

**1. Write a C program that computes the sum of the series: 3+7+11+…+n, where n is a user input**

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| //Program using while loop:  #include<stdio.h>  void main()  {  int n, i=3, sum=0;  printf("Enter the value of n:");  scanf("%d",&n);  while(i<=n){  sum+=i;  i+=4;  }  printf(“sum=%d”, sum);  } | //Program using for loop:  #include<stdio.h>  void main()  {  int n, i, sum = 0;  printf("Enter the value of n:");  scanf("%d",&n);  for(i=3;i<=n; i+=4){  sum+=i;  }  printf(“sum=%d”, sum);  } |

**2. Write a C program to print all odd numbers from 1 to n (n is user input) using for loop.**

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| --- | --- |
| #include <stdio.h>  void main()  {  int i, n;  printf("Print odd numbers till: ");  scanf("%d", &n); //Read the upper limit | printf("All odd numbers from 1 to %d are: \n", n);  for(i=1; i<=n; i+=2)  {  printf("%d\n", i);  }  } |

**3. Write a C program that reads an integer and then computes & prints the factorial of that integer**

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| #include<stdio.h>  void main()  {  int n, i, fact = 1;  printf("Enter the value of n:");  scanf("%d",&n);  for(i=1;i<=n; i++){  fact\*=i;  }  printf(“n!=%d”, fact);  } |

**Exercise Problems (You must use a loop for solving these problems):**

1. Write a program to display all decimal digits (i.e., numbers in the range 0 - 9) in reverse order.

Example output: 9 8 7 6 5 4 3 2 1 0

1. Write a program to display all the letters of the alphabet (a-z). Use two for loops: the 1st one will print all letters in small letters and the 2nd one will print them in capital letters.

Example output: a b c d e ……… z

A B C D ……… Z

1. Write a program to compute the following series using while loop: 4+11+18++….+n
2. Write a program to compute the following series using while loop: 23+53+83+...+n3
3. Write a program to print all even numbers between m and n (m, n are user inputs) in reverse order.

Sample input/output (bold ones are inputs):

Enter m: **9**

Enter n: **21**

All even numbers between 9 and 20 in reverse order: 20, 18, 16, 14, 12, 10

**Assignment Problems (You must use a loop for solving these problems):**

1. Write a program to compute the following series using while loop: 52+92+152+232+....+n2
2. Write a program that computes the following series using for loop: 10000+2000+400+…+8
3. Write a program that takes a minimum number, a maximum number, and common difference and prints the sum of the *arithmetic* series between them.

Sample input/output (bold ones are inputs):

Enter minimum: **11**

Enter maximum: **19**

Enter Common difference: **2**

The Sum is: 11 + 13 + 15 +17 +19 = 75

1. Write a program that takes a minimum number, a maximum number, and common ratio and prints the sum of the *geometric* series between them.

Sample input/output (bold ones are inputs):

Enter minimum: **5**

Enter maximum: **150**

Enter Common ratio: **3**

The Sum is: 5 + 15 + 45 + 135 = 200

1. Write a C program to print the multiplication table (নামতা) of any given integer number.

Sample input/output (bold ones are inputs):

Enter number to print the multiplication table of: **5**

5 \* 1 = 5

5 \* 2 = 10

5 \* 3 = 15

5 \* 4 = 20

5 \* 5 = 25

5 \* 6 = 30

5 \* 7 = 35

5 \* 8 = 40

5 \* 9 = 45

5 \* 10 = 50

1. Write a C program to compute the value of nPr = n\*(n-1)\*(n-2)\*…\*(n-r+1), read n and r from user.
2. Write a C program to find power of any number using for loop. Don’t use pow() function. Example: Enter base: **2**

Enter power: **5**2 to the power 5 = 32