**CS120 Fundamental of Programming**

**Homework 6: Repetition Structure**

**Exercises**

1. Write a C program to display factors of a number x which is taken as input from the keyboard. The program finds and displays all the factors of the number x. For example, the factors of 30 are 1, 2, 3, 5, 6, 10, 15, 30. Hint: run a loop from i=1 to i<=x and display all the numbers i such that x % i is 0.

#include <stdio.h>

int main()

{

int x, i;

printf("Enter a number : ");

scanf("%d", &x);

for ( i = 1 ; i <= x ; i++ )

{

if ( x % i == 0 )

printf("%d ", i);

}

system("pause");

return 0;

}

1. Write a C program that reads N positive integer numbers, and finds the maximum and minimum numbers

( for example N=7, 20, 5, 3, 18, 4, 2, 3) min is 2, max is 20.

#include <stdio.h>

int main()

{

int i, num, n, min, max;

printf("How many numbers you like to enter? ");

scanf("%d", &n);

for ( i = 1 ; i <= n ; i++ )

{

printf("Enter a number : ");

scanf("%d", &num);

// if it's first loop iteration, initialize the value of min & max

if ( i == 1 )

{

min = num;

max = num;

}

// in 2nd & higher iterations, check and update the min (minimum) value

if ( num < min )

min = num;

// in 2nd & higher iterations, check and update the max (maximum) value

if ( num > max )

max = num;

}

printf("Min = %d, Max = %d \n", min, max);

system("pause");

return 0;

}

1. Write a program to print all capital letters from ‘A’ to ‘Z’ using a loop. The program further prints all small letters ‘a’ to ‘z’ using another loop.

Hint: char ch;

for(ch='A'; ch<='G'; ch++)

printf("%c \t", ch);

#include <stdio.h>

int main()

{

char ch;

for ( ch = 'A' ; ch <= 'Z'; ch++ )

printf("%c ", ch);

printf("\n");

for ( ch = 'a' ; ch <= 'z'; ch++ )

printf("%c ", ch);

system("pause");

return 0;

}

1. Write a program which prints the numbers 99 to 3 in reverse order (99, 96, 93, …, 9, 6, 3) using a loop.

#include <stdio.h>

int main()

{

int i;

for ( i = 99 ; i >= 3; i -= 3 )

printf("%d ", i);

system("pause");

return 0;

}