**CS120 Fundamental of Programming**

**Homework 6: Repetition Structure**

**Example 1:**

/\*A game program to practice for loop and if…else. \*/

#include<stdio.h>

int main() { int answer, i;

for(i = 1; i < 4; i++) {

printf("What is %d + %d? ", i, i);

scanf("%d", &answer);

if(answer == i + i)

printf("Right!\n");

else {

printf("Wrong\n");

printf("Try again.\n ");

printf("\nWhat is %d + %d? ", i, i);

scanf("%d", &answer);

/\* nested if \*/

if(answer == i + i)

printf("Right!\n");

else

printf("Wrong, the answer = %d\n", i + i);

}

}

return 0;

}

**Example 2:**

/\* program to sum even integers from 2 to 100 \*/

#include<stdio.h>

int main()

{

int x, sum =0;

for(x=1 ; x<= 100; x++)

if(x%2==0)

sum = sum + x;

printf(" sum of even integers from 2 to 100 is: %d", sum);

return 0;

}

**Example 3:**

/\* This program computes the number of students who passed and failed in a specific course \*/

int main( )

{

int pass=0, fail=0, student, result, N;

printf("Enter number of students in your class: \n");

scanf(" %d", &N);

for(student=1; student<=N; student++)

{

printf("Enter the student(%d) result (1= pass, 2=fail):", student);

scanf("%d",&result);

if(result==1)

pass=pass+1;

else

fail=fail+1;

}

printf(" # students who passed is: %d\n", pass);

printf(" # students who failed is: %d\n", fail);

return 0;

}

**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.
2. 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.

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);

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