Practical 5

1.Using “while” loop

#include <stdio.h>

int main() {

int number = 0;

while (number <= 100) {

printf("%d ", number);

number++;

}

return 0;

}

Using “do while ”loop

#include <stdio.h>

int main() {

int number = 0;

do {

printf("%d ", number);

number++;

} while (number <= 100);

return 0;

}

Using a “for” loop

#include <stdio.h>

int main() {

for (int number = 0; number <= 100; number++) {

printf("%d ", number);

}

return 0;

}

2.int d=0,mark,sum=0;

float avg;

while(d<10)

{

printf("enter the mark");

scanf("%d",&mark);

d++;

sum=sum+mark;

}

avg=(float)sum/10;

printf("average is %f\n",avg);

if (avg<50)

{

printf("FAIL");

}

else

{

printf("PASS");

}

printf("\n");

3.int f,fact=1,e;

printf("enter the number");

scanf("%d",&e);

for(int f=1 ; f<=e ; f++)

{

fact=fact\*f;

}

printf("factorial of %d is %d",e,fact);

printf("\n");

4.int g=0,h,i;

printf("enter a number");

scanf("%d",&i);

for(int h=1 ; h<=i ; h++)

{

g=g+h;

}

printf("sum of the all digits = %d",g);

printf("\n");

5.int j,k,l,n=0;

printf("enter a number");

scanf("%d",&j);

k=j;

do

{

l=j%10;

n=n\*10+l;

j=j/10;

}

while(j>0);

printf("the reverse number of %d is %d",k,n);

6.int base,exp;

double result=1.0;

printf("enter a base number");

scanf("%d",&base);

printf("enter the exponent");

scanf("%d",&exp);

while(exp!=0)

{

result\*=base;

exp--;}

printf("answer = %.lf",result);

printf("\n");

7.int n1,n2,nxt,p=10;

printf("fibonacci series");

for(int x=1 ; x<=p ; x++)

{

printf("%d",n1);

nxt=n1+n2;

n1=n2;

n2=nxt;

}

printf("\n");

8.int number,y,rem,r=0;

printf("enter a 3 digit integer");

scanf("%d",&number);

y=number;

while(y!=0)

{

rem=y%10;

r+=rem\*rem\*rem;

y/=10;

}

if(r==number)

{

printf("%d is an armstrong number",number);

}

else

{

printf("%d is not an amstrong number",number);

}

printf("\n");

9.char L,z;

printf("ASCII values for all letters in lowercase");

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

{

printf("%C:%d",L,L);

}

printf ("ASCII values for all letters in uppercase");

for (L='A' ; L<=z ; L++)

{

printf("%C:%d",L,L);

}

printf("\n");

int A,I;

for (I=1 ; I<=5 ; I++)

{

for(A=1 ; A<=I ; A++)

{

printf("\*");

}

printf("\n");

}

return 0;

}

10.#include <stdio.h>

int main() {

int rows = 5;

for (int i = 1; i <= rows; i++) {

for (int j = 1; j <= i; j++) {

printf("\*");

}

printf("\n");

}

return 0;

}

11.#include <stdio.h>

int isPrime(int number) {

if (number <= 1) {

return 0; // Not a prime number

}

for (int i = 2; i \* i <= number; i++) {

if (number % i == 0) {

return 0; // Not a prime number

}

}

return 1; // Prime number

}

int main() {

int number;

printf("Enter a number: ");

scanf("%d", &number);

if (isPrime(number)) {

printf("%d is a prime number.\n", number);

} else {

printf("%d is not a prime number.\n", number);

}

return 0;

}

12.#include <stdio.h>

void printFactors(int number) {

printf("Factors of %d: ", number);

for (int i = 1; i <= number; i++) {

if (number % i == 0) {

printf("%d ", i);

}

}

printf("\n");

}

int main() {

int number;

printf("Enter an integer: ");

scanf("%d", &number);

printFactors(number);

return 0;

}

13.#include <stdio.h>

int main() {

int array[10];

printf("Enter 10 integers:\n");

for (int i = 0; i < 10; i++) {

scanf("%d", &array[i]);

}

printf("The array is: ");

for (int i = 0; i < 10; i++) {

printf("%d ", array[i]);

}

printf("\n");

return 0;

}

14.#include <stdio.h>

int main() {

int array[10];

int count = 0;

printf("Enter 10 integers:\n");

for (int i = 0; i < 10; i++) {

scanf("%d", &array[i]);

}

for (int i = 0; i < 10; i++) {

if (array[i] % 2 == 0) {

count++;

}

}

printf("The count of even numbers in the array is: %d\n", count);

return 0;

}

**Section B**

1.#include <stdio.h>

int main() {

int numbers[10];

int positiveCount = 0, negativeCount = 0, zeroCount = 0;

printf("Enter 10 numbers:\n");

for (int i = 0; i < 10; i++) {

scanf("%d", &numbers[i]);

if (numbers[i] > 0) {

positiveCount++;

} else if (numbers[i] < 0) {

negativeCount++;

} else {

zeroCount++;

}

}

printf("Positive numbers: %d\n", positiveCount);

printf("Negative numbers: %d\n", negativeCount);

printf("Zero numbers: %d\n", zeroCount);

return 0;

}

2.#include <stdio.h>

int main() {

int marks[10];

int maximum, minimum;

float average = 0;

printf("Enter marks of 10 students:\n");

for (int i = 0; i < 10; i++) {

scanf("%d", &marks[i]);

if (i == 0) {

maximum = marks[i];

minimum = marks[i];

} else {

if (marks[i] > maximum) {

maximum = marks[i];

}

if (marks[i] < minimum) {

minimum = marks[i];

}

}

average += marks[i];

}

average /= 10;

printf("Maximum marks: %d\n", maximum);

printf("Minimum marks: %d\n", minimum);

printf("Average marks: %.2f\n", average);

return 0;

}

3.#include <stdio.h>

int main() {

float prices[10];

float total = 0;

int count = 0;

printf("Enter the price of 10 items:\n");

for (int i = 0; i < 10; i++) {

scanf("%f", &prices[i]);

total += prices[i];

if (prices[i] > 200) {

count++;

}

}

float average = total / 10;

printf("Average value of an item: %.2f\n", average);

printf("Number of items with price greater than 200: %d\n", count);

return 0;

}

4.#include <stdio.h>

int main() {

int employeeNumber;

float basicSalary;

int count = 0;

printf("Enter employee number and basic salary (enter -999 to end):\n");

while (1) {

scanf("%d", &employeeNumber);

if (employeeNumber == -999) {

break;

}

scanf("%f", &basicSalary);

if (basicSalary >= 5000) {

count++;

}

}

printf("Number of employees with a basic salary >= 5000: %d\n", count);

return 0;

}

5. #include <stdio.h>

int main() {

int employeeNumber;

float hoursWorked;

float overtimeRate = 150;

float overtimePayment;

int count = 0;

int totalEmployees = 0;

printf("Enter employee number and hours worked (enter -999 as employee number to end):\n");

while (1) {

scanf("%d", &employeeNumber);

if (employeeNumber == -999) {

break;

}

scanf("%f", &hoursWorked);

if (hoursWorked > 40) {

overtimePayment = (hoursWorked - 40) \* overtimeRate;

} else {

overtimePayment = 0;

}

printf("Employee number: %d\n", employeeNumber);

printf("Overtime payment: %.2f\n", overtimePayment);

if (overtimePayment > 4000) {

count++;

}

totalEmployees++;

}

float percentage = (float) count / totalEmployees \* 100;

printf("Percentage of employees with overtime payment exceeding Rs. 4000: %.2f%%\n", percentage);

return 0;

}