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**23.1**

# PRACTICAL 05

SECTION A

//Q1

#include <stdio.h>

int main()

{

int x=0;

while(x<=100)

{printf("%d ",x);

x++;

}

printf("\n\n");

int y=0;

do

{

printf("%d ",y);

y++;

}while(y<=100);

printf("\n\n");

int a;

for(a=0;a<=100;a++)

{

printf("%d ",a);

}

printf("\n\n");

//Q2

#include <stdio.h>

int main()

{

int count=0,mk,sum=0;

float avg;

while(count<3)

{

printf("Enter %d marks=",count+1);

scanf("%d",&mk);

sum=sum+mk; //sum+=mk;

count++;

}

avg=sum/count;

if(avg>=50){

printf("You are PASS ");}

else{

printf("You are FAIL");

}

printf("\n\n");

}

//Q3

#include <stdio.h>

int main()

{

int n,fac=1,i;

printf("Enter a desired number= ");

scanf("%d",&n);

if(n<0){

printf("Not calculatable.\n");}

else if(n==0){

printf("Factorial of %d is %d \n",n,1);}

else{

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

fac\*=i;}

}

printf("The factorial of %d is %d \n",n,fac);

}

//Q4

#include <stdio.h>

int main()

{

int num,dig,sum=0;

printf("Enter a number= ");

scanf("%d", &num);

while (num>0) {

dig=num%10;

sum+=dig;

num/=10;

}

printf("Sum of digits %d\n",sum);

}

//Q5

#include <stdio.h>

int main()

{

int num, reversedNum = 0, remainder;

printf("Enter an integer: ");

scanf("%d", &num);

do {

remainder = num % 10;

reversedNum = reversedNum \* 10 + remainder;

num /= 10;

} while (num != 0);

printf("Reversed number: %d\n", reversedNum);

}

//Q7

#include <stdio.h>

int main()

{int first = 0, second = 1, next;

printf("Fibonacci Sequence= ");

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

if (i <= 1) {

next = i;

} else {

next = first + second;

first = second;

second = next;

}

printf("%d ", next);

}

printf("\n");

}

//Q8

#include <stdio.h>

int main()

{

int gh,hj=0,et=0,count5=0,et3=0,total3=0,nh=1,count6=0,ls=0;

printf("Enter a number to find if it is an Armstrong Number or not = ");

scanf("%d",&gh);

hj=gh;

ls=gh;

for(;hj>0;hj/=10)

{

et=hj%10;

count5+=1;

}

for(;gh>0;gh/=10)

{

et3=gh%10;

if(count5==0)

{

nh=1;

}

else

{

count6=count5;

nh=1;

for(;count6>0;count6--)

{

nh=nh\*et3;

}

}

total3+=nh;

}

if(total3==ls)

{

printf("This is an Armstrong Number.");

}

else

{

printf("This is not an Armstrong Number.");

}

}

//Q9

#include <stdio.h>

int main()

{

char letter;

printf("ASCII values for letters A to Z :\n");

for (letter = 'A'; letter <= 'Z'; letter++) {

printf("%c = %d\n", letter, letter);}

}

//Q10

#include <stdio.h>

int main()

{

printf("\* \n");

printf("\*\* \n");

printf("\*\*\* \n");

printf("\*\*\*\* \n");

printf("\*\*\*\*\* \n");

}

//Q11

#include <stdio.h>

int main()

{

int num, pr= 1;

printf("Enter a number= ");

scanf("%d", &num);

if (num<= 1) {

pr= 0;

} else {

for (int i = 2; i < num; i++) {

if (num % i == 0) {

pr= 0;

break;

}

}

}

if (pr) {

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

} else {

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

}

}

//Q12

#include <stdio.h>

int main()

{

int num;

printf("Enter an integer= ");

scanf("%d", &num);

printf("Factors of %d = ", num);

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

if (num % i == 0) {

printf("%d ", i);

}

}

printf("\n");

}

SECTION B

//Q1

#include <stdio.h>

int main()

{

int num, poscount = 0, negcount = 0, zerocount = 0;

printf("Enter 10 numbers=");

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

scanf("%d", &num);

if (num> 0) {

poscount++;

} else if (num< 0) {

negcount++;

} else {

zerocount++;

}

}

printf("Number of positive numbers= %d\n", poscount);

printf("Number of negative numbers= %d\n", negcount);

printf("Number of zeros: %d\n", zerocount);

}

//Q2

#include <stdio.h>

int main()

{

int marks[10];

int i, total = 0;

int max, min;

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

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

printf("Student %d= ", i + 1);

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

total += marks[i];

}

float average = (float) total / 10;

max = min = marks[0];

for (i = 1; i < 10; i++) {

if (marks[i] > max) {

max = marks[i];

}

if (marks[i] < min) {

min= marks[i];

}

}

printf("Maximum Marks= %d\n", max);

printf("Minimum Marks= %d\n", min);

printf("Average Marks= %.2f\n", average);

}

//Q3

#include <stdio.h>

int main()

{

float pri[10];

float total = 0;

int countGreater200 = 0;

printf("Enter the prices of 10 items=\n");

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

printf("Item %d= ", i + 1);

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

total += pri[i];

if (pri[i] > 200) {

countGreater200++;

}

}

float average = total / 10;

printf("Average Price of an Item= %.2f\n", average);

printf("Number of items with price greater than 200= %d\n", countGreater200);

}

//Q4

#include <stdio.h>

int main()

{

int empnum;

float hrw;

float or = 150;

float oe = 200;

float op;

int countexceeding4000 = 0;

int totemp = 0;

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

while (1) {

printf("Employee Number= ");

scanf("%d", &empnum);

if (empnum == -999) {

printf("Hours Worked= ");

scanf("%f", &hrw);}

if (hrw <= 40) {

op = 0;

} else {

float overtimeHours = hrw - 40;

op = 40 \* or + overtimeHours \* oe;

}

printf("Employee Number= %d\n", empnum);

printf("Overtime Payment= Rs. %.2f\n", op);

if (op > 4000) {

countexceeding4000++;

}

totemp++;

}

float percentageExceeding4000 = (float) countexceeding4000 / totemp \* 100;

printf("\nPercentage of employees with overtime payment exceeding Rs. 4000= %.2f%%\n", percentageExceeding4000);

}