***Practical 3 to 5***

**Practical 03**

**//Question 01**

#include <stdio.h>

int main()

{

int n1,n2,max;

printf("Enter Two Numbers:");

scanf("%d %d",&n1,&n2);

if(n1>n2)

max=n1;

else

max=n2;

printf("The highest number is %d\n",max);

return 0;

}

**//Question 02**

#include <stdio.h>

int main()

{

int no1,no2,no3,max,min;

printf("Enter Three Numbers:");

scanf("%d %d %d",&no1,&no2,&no3);

max=no1;

{

if(no2>max)

max=no2;

if(no3>max)

max=no3;

}

min=no1;

if(no2<min)

min=no2;

if(no3<min)

min=no3;

printf("The Largest Number is %d\n",max);

printf("The Smallest Number is %d\n",min);

return 0;

}

**//Question 03**

#include <stdio.h>

int main()

{

char employeeName[50];

float basic\_Sal, new\_Sal, increment;

printf("Enter Employee Name: ");

scanf("%s", employeeName);

printf("Enter Basic Salary: ");

scanf("%f", &basic\_Sal);

if (basic\_Sal >=10000)

increment = basic\_Sal \* 0.15;

else if (basic\_Sal >= 5000 && basic\_Sal < 10000)

increment = basic\_Sal \* 0.10;

else

increment = basic\_Sal \* 0.05;

new\_Sal=basic\_Sal+increment;

printf("Employee Name: %s \n", employeeName);

printf("New Salary: %.2f \n", new\_Sal);

return 0;

}

**//Question 04**

#include <stdio.h>

int main()

{

float radius;

printf("Enter the Radius of the Circle:");

scanf("%f",&radius);

printf("Diameter is %.2f \n",radius\*2.0);

printf("Circumference is %.2f \n",radius\*2.0\*3.14159);

printf("Area is %.2f \n",radius\*radius\*3.14159);

return 0;

}

**//Question 05**

#include <stdio.h>

int main()

{

int no1,no2;

printf("Input the First Integer:");

scanf("%d",&no1);

printf("Input the Second Integer:");

scanf("%d",&no2);

if(no1%no2==0)

printf("\n%d is a multiple of %d.\n",no1,no2);

else

printf("\n%d is not a multiple of %d.\n",no1,no2);

return 0;

}

**//Question 06**

#include <stdio.h>

int main()

{

char uppercaseLetters[] = {'A', 'B', 'C'};

char lowercaseLetters[] = {'a', 'b', 'c'};

char digits[] = {'0', '1', '2'};

char specialSymbols[] = {'$', '\*', '+', '/'};

char blank = ' ';

printf("Integer equivalents of uppercase letters:\n");

for (int i = 0; i < sizeof(uppercaseLetters) / sizeof(uppercaseLetters[0]); i++)

{

printf("%c: %d\n", uppercaseLetters[i], uppercaseLetters[i]);

}

printf("\nInteger equivalents of lowercase letters:\n");

for (int i = 0; i < sizeof(lowercaseLetters) / sizeof(lowercaseLetters[0]); i++)

{

printf("%c: %d\n", lowercaseLetters[i], lowercaseLetters[i]);

}

printf("\nInteger equivalents of digits:\n");

for (int i = 0; i < sizeof(digits) / sizeof(digits[0]); i++)

{

printf("%c: %d\n", digits[i], digits[i]);

}

printf("\nInteger equivalents of special symbols:\n");

for (int i = 0; i < sizeof(specialSymbols) / sizeof(specialSymbols[0]); i++)

{

printf("%c: %d\n", specialSymbols[i], specialSymbols[i]);

}

printf("\nInteger equivalent of blank character:\n");

printf("Blank: %d\n", blank);

return 0;

}

**//Question 07**

#include <stdio.h>

int main()

{

float basicSalary, monthlySales;

char city;

float additionalAllowance = 0, bonusPercentage = 0, bonusAmount = 0, grossRemuneration = 0;

printf("Enter the Basic Salary: ");

scanf("%f", &basicSalary);

printf("Enter the monthly sales amount: ");

scanf("%f", &monthlySales);

printf("Enter the city ('C' for Colombo, 'N' for other cities): ");

scanf(" %c", &city);

if (yearsOfService > 5) {

additionalAllowance = basicSalary \* 0.10;

}

if (city == 'C') {

additionalAllowance += 2500;

}

if (monthlySales >= 0 && monthlySales <= 25000) {

bonusPercentage = 10;

} else if (monthlySales > 25000 && monthlySales <= 50000) {

bonusPercentage = 12;

} else if (monthlySales > 50000) {

bonusPercentage = 15;

}

bonusAmount = monthlySales \* (bonusPercentage / 100);

grossRemuneration = basicSalary + additionalAllowance + bonusAmount;

printf("Gross Monthly Remuneration: %.2f\n", grossRemuneration);

return 0;

}

**Practical 04**

**//Question 01**

#include <stdio.h>

int main()

{

int number;

printf("Enter an Integer:");

scanf("%d",&number);

{

if(number%2==0)

printf("%d is an Even Number.\n",number);

else

printf("%d is an Odd Number.\n",number);

}

//Switch statement

switch (number % 2)

{

case 0:

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

break;

default:

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

break;

}

return 0;

}

**//Question02**

#include <stdio.h>

int main()

{

int choice,num1,num2,add,sub,mul,div;

printf("Menu:\n");

printf("1.Addition\n");

printf("2.Subtraction\n");

printf("3.Multiplication\n");

printf("4.Division\n");

printf("Enter Your Choice:");

scanf("%d",&choice);

printf("Enter Two Numbers:");

scanf("%d %d",&num1 ,&num2);

switch(choice)

{

case 1:

add=num1+num2;

printf("Result: %d\n",add);

break;

case 2:

sub=num1-num2;

printf("Result:%d\n",sub);

break;

case 3:

mul=num1\*num2;

printf("Result: %d\n",mul);

break;

case 4:

div=num1/num2;

printf("Result: %d\n",div);

break;

default:

printf("Invalid Choice:%d\n");

}

return 0;

}

**//Question 03**

#include <stdio.h>

int main()

{

int choice;

float radius,result;

printf("1.Calculate Circumference of a Circle:\n");

printf("2. Calculate Area of a Circle:\n");

printf("3.Calculate Volume of a Sphere:\n");

printf("Enter Your Choice:");

scanf("%d",&choice);

printf("Enter the Radius:");

scanf("%f",&radius);

if (choice == 1)

{

result = 2 \* 3.14159 \* radius;

printf("Circumference of the circle: %.2f\n", result);

}

else if (choice == 2)

{

result = 3.14159 \* radius \* radius;

printf("Area of the circle: %.2f\n", result);

}

else if (choice == 3)

{

result = (4.0 / 3.0) \* 3.14159 \* radius \* radius \* radius;

printf("Volume of the sphere: %.2f\n", result);

}

else

{

printf("Invalid Choice! Please Enter a Choice Number between 1 to 3.\n");

}

return 0;

}

**//Question 04**

#include <stdio.h>

int main()

{

char ch;

printf("Enter a Character:");

scanf("%c",&ch);

switch(ch)

{

case 'a':

printf("a is a Vowel \n");

break;

case 'e':

printf("e is a Vowel \n");

break;

case 'i':

printf("i is a Vowel \n");

break;

case 'o':

printf("o is a Vowel \n");

break;

case 'u':

printf("u is a Vowel \n");

break;

default:

printf("%c is not a Vowel \n",ch);

break;

}

return 0;

}

**//Question 05**

#include <stdio.h>

int main()

{

int month;

printf("Enter a Month Number:");

scanf("%d",&month);

switch(month)

{

case 1:

case 3:

case 5:

case 7:

case 8:

case 10:

case 12:

printf("This month has 31 days.");

break;

case 4:

case 6:

case 9:

printf("This month has 30 days.");

break;

case 2:

printf("This month has 28 days.");

break;

default:

printf("Invalid Month Number.");

break;

}

return 0;

}

**Practical 05**

**//Question 01**

#include <stdio.h>

int main()

{

// while loop

int i = 0, j = 0, k = 0;

while (i <= 100)

{

printf("%d ", i);

i++;

}

printf("\n");

// do-while loop

do

{

printf("%d ", j);

j++;

} while (j <= 100);

printf("\n");

// for loop

for (int k = 0; k <= 100; k++)

{

printf("%d ", k);

}

printf("\n");

return 0;

}

**//Question 02**

#include <stdio.h>

int main()

{

int marks[10];

int i, total = 0;

float average;

printf("Enter the Marks:\n");

while (i<10)

{

printf("Subject %d: ",i+1);

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

total += marks[i];

i++;

}

average = (float) total / 10;

printf("Total marks: %d\n", total);

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

if (average < 50)

{

printf("Fail!\n");

}

else

{

printf("Pass!\n");

}

return 0;

}

**//Question 03**

#include <stdio.h>

int main()

{

int number, k, factorial = 1;

printf("Enter a Number:");

scanf("%d", &number);

for (k = 1; k <= number; ++k)

{

factorial = factorial \* k;

}

printf("Factorial of %d is %d\n", number, factorial);

return 0;

}

**// Question 04**

#include <stdio.h>

int main()

{

int number, sum=0 ,m;

printf("Enter a numbers:");

scanf("%d", &number);

while (number>0)

{

m=number%10;

sum +=m;

number/= 10;

}

printf("Sum is: %d\n" ,sum);

return 0;

}

**// Question 05**

#include <stdio.h>

int main()

{

// Q5

int number, reverseNumber=0,digit;

printf("Enter a number: ");

scanf("%d", &number);

do

{

digit = number % 10;

reverseNumber= (reverseNumber \* 10) +digit;

number /= 10;

} while (number!= 0);

printf("Reverse number: %d\n", reverseNumber);

return 0;

}

**// Question 06**

#include <stdio.h>

int main()

{

int base, exponent, result;

printf("Enter the base: ");

scanf("%d", &base);

printf("Enter the exponent: ");

scanf("%d", &exponent);

result = power(base, exponent);

printf("Result: %d\n", result);

return 0;

}

int power(int base, int exponent)

{

int result = 1;

for (int i = 0; i < exponent; i++)

{

result \*= base;

}

return result;

}

return 0;

}

**// Question 07**

#include <stdio.h>

int main()

{

int n = 10;

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

printf("Fibonacci Sequence:\n");

for (i = 0; i < n; i++)

{

if (i <= 1)

next = i;

else

{

next = first + second;

first = second;

second = next;

}

printf("%d ", next);

}

return 0;

}

**// Question 08**

#include <stdio.h>

int main()

{

int isArmstrongNumber(int number);

int number;

printf("Enter a number: ");

scanf("%d", &number);

if (isArmstrongNumber(number)) {

printf("%d is an Armstrong number.\n", number);

} else {

printf("%d is not an Armstrong number.\n", number);

}

return 0;

}

int isArmstrongNumber(int number) {

int originalNumber,remainder,result=0,n= 0;

originalNumber=number;

while (originalNumber!=0) {

originalNumber /= 10;

++n;

}

originalNumber = number;

while (originalNumber!=0) {

remainder = originalNumber % 10;

result += pow(remainder, n);

originalNumber /= 10;

}

if (result==number) {

return 1;

} else

{

return 0;

}

**// Question 09**

#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);

}

return 0;

}

**// Question 10**

#include <stdio.h>

int main()

{

int x,y;

//main loop

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

{

//inner loop

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

{

printf("\*");

}

printf("\n");

}

return 0;

}

**// Question 11**

#include <stdio.h>

int main()

{

int isPrime(int number)

{

if (number <= 1)

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

{

if (number % i == 0)

return 1;

}

}

{

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;

}

**// Question 12**

#include <stdio.h>

int main()

{

// Q12

void printFactors(int num) {

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

for (int i = 1; i <= num / 2; i++) {

if (num % i == 0) {

printf("%d ", i);

}

}

printf("%d\n", num);

}

int number;

printf("Enter an integer: ");

scanf("%d", &number);

printFactors(number);

return 0;

}

**// Question 12**

#include <stdio.h>

int main()

{

// Q12

int number,sum =0;

printf("Enter numbers to add (enter -1 to stop):\n");

while (1) {

scanf("%d",&number);

if (number==-1) {

break;

}

sum += number;

}

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

return 0;

}

**// Question 13**

#include <stdio.h>

int main()

{

// Q13

int array[10],i;

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

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

printf("Enter Integer %d: ",i+1);

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

}

printf("The Array is:\n");

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

{

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

}

return 0;

}

**// Question 14**

#include <stdio.h>

int main()

{

// Q14

int countEvenNumbers(int arr[], int size)

{

int count = 0;

for (int i=0;i<size;i++)

{

if (arr[i] % 2 == 0)

{

count++;

}

}

return count;

}

{

}

int arr[] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};

int size = sizeof(arr) / sizeof(arr[0]);

int evenCount = countEvenNumbers(arr, size);

printf("Number of even numbers: %d\n", evenCount);

return 0;

}

**Practical 05 – Section B**

**// Question 01**

#include <stdio.h>

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]);

}

for (int i = 0; i < 10; 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;

}

**// Question 02**

#include <stdio.h>

int main()

{

int marks[10];

int i;

int sum = 0;

int max = 0;

int min = 100;

float average;

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

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

{

printf("Enter marks for student %d: ",i+1);

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

if (marks[i] > max)

{

max = marks[i];

}

if (marks[i] < min)

{

min = marks[i];

}

sum += marks[i];

}

average = (float)sum / 10;

printf("\nMaximum marks: %d\n", max);

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

printf("Sum marks: %d\n",sum);

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

return 0;

}

**// Question 03**

#include <stdio.h>

int main()

{

int prices[10];

int sum=0, count=0;

float average;

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

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

{

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

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

}

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

{

sum += prices[i];

if (prices[i] > 200) {

count++;

}

}

average = (float)sum / 10;

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

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

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

return 0;

}

**// Question 04**

#include <stdio.h>

int main()

{

int employeeNo, count = 0;

float basicSalary;

printf("Enter Employee Number and Basic Salary (-999 to end):\n");

while (1) {

printf("Employee Number: ");

scanf("%d",&employeeNo);

if (employeeNo==-999)

{

break;

}

printf("Basic Salary: ");

scanf("%f", &basicSalary);

if (basicSalary >= 5000)

{

count++;

}

}

printf("Number of Employees with Basic Salary>= 5000: %d\n",count);

return 0;

}

**// Question 05**

#include <stdio.h>

int main()

{

int employeeNumber;

float hoursWorked;

float overtimePayment;

int overtimeExceeding4000 = 0;

int totalEmployees = 0;

int maxEmployees = 10;

int overTimeRate=1;

printf("Enter employee number (-999 to end): ");

scanf("%d", &employeeNumber);

while (employeeNumber != -999 && totalEmployees < maxEmployees) {

printf("Enter hours worked by employee %d: ", employeeNumber);

scanf("%f", &hoursWorked);

overtimePayment = 0;

if (hoursWorked > 40) {

overtimePayment = (hoursWorked - 40) \*overTimeRate;

overtimePayment += 40 \*overTimeRate;

} else {

overtimePayment = hoursWorked \*overTimeRate;

}

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

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

if (overtimePayment > 4000) {

overtimeExceeding4000++;

}

totalEmployees++;

printf("\nEnter employee number (-999 to end): ");

scanf("%d", &employeeNumber);

}

float percentageExceeding4000 = (float)overtimeExceeding4000 / totalEmployees \* 100;

printf("\nPercentage of employees whose overtime payment exceeds Rs. 4000: %.2f%%\n", percentageExceeding4000);

return 0;

}

//Question 02

#include <stdio.h>

int main()

{

int marks[10];

int i, total = 0;

float average;

printf("Enter the Marks:\n");

while (i<10)

{

printf("Subject %d: ",i+1);

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

total += marks[i];

i++;

}

average = (float) total / 10;

printf("Total marks: %d\n", total);

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

if (average < 50)

{

printf("Fail!\n");

}

else

{

printf("Pass!\n");

}

return 0;

}