**Part A**

#include <stdio.h>

#include <stdlib.h>

int main()

{

int number;

int positive = 0;

int negative = 0;

int zero = 0;

printf("Enter 10 numbers: ");

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

{

scanf("%d", &number);

if(number > 0)

positive++;

else if(number < 0)

negative++;

else

zero++;

}

printf("The number of positive integers %d\n The number of negative integers %d\nThe numbers which are zero %d",positive,negative,zero);

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

float marks;

float max = 0;

float min = 100;

float average;

float total = 0;

int i;

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

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

{

printf("The marks of %d student is: ",i+1);

scanf("%f", &marks);

total += marks;

if(marks > max)

max = marks;

if(marks < min)

min = marks;

}

printf("Total - %f\n", total);

printf("Average - %f\n", total/10);

printf("Max - %f\n", max);

printf("Min - %f", min);

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

float price;

float total;

int num = 0;

float avg;

printf("Enter a item price: ");

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

{

scanf("%f", &price);

total += price;

if(price > 200)

num++;

}

printf("The average of a item is %f\n", total/10);

printf("The number of items whose price is greater than 200 is %d", num);

return 0;

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

int employeeNo;

int basicSalary;

int num = 0;

while(1)

{

printf("Enter Employee number: ");

scanf("%d", &employeeNo);

if(employeeNo == -999)

break;

printf("Enter your salary: ");

scanf("%d",&basicSalary);

if(basicSalary >= 5000)

num++;

}

printf("The number of employees whose basic salary is >= 5000 are %d",num);

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

int employeeNo;

int hours;

float overTime;

int total = 0;

int totalOT = 0;

while(1)

{

overTime =0;

printf("Enter employee number: ");

scanf("%d",&employeeNo);

if(employeeNo == -999)

break;

printf("Enter hours worked: ");

scanf("%d", &hours);

total++;

if(hours > 0 && hours < 40)

overTime += (hours \* 150);

if(hours >= 40)

{

overTime += (39 \* 150);

overTime += (hours - 39) \* 200;

}

if(overTime > 4000)

totalOT++;

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

printf("Over time payment: %f\n", overTime);

printf("The percentage of people over R.s 4000 of overtime %f%%\n", (float)totalOT/total);

return(0);

}

}

**Part B**

#include <stdio.h>

#include <stdlib.h>

int main()

{

int number,rem;

printf("Enter a number: ");

scanf("%d",&number);

rem = (number % 2);

switch(rem)

{

case 1:printf("The number is odd");break;

case 0:printf("The number is even");break;

default: printf("Invalid input");

}

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

int num,a,b;

float avg;

printf("Enter a operator number: \n");

printf("1- +\n2- -\n3- /\n4- \*\n");

scanf("%d", &num);

printf("Enter two numbers ");

scanf("%d %d", &a,&b);

avg = (float)a/b;

switch(num)

{

case 1:printf("%d + %d = %d",a,b, a+b);break;

case 2:printf("%d - %d = %d",a,b, a-b);break;

case 3:printf("%d/%d = %f",a,b,avg);break;

case 4:printf("%d\*%d = %d",a,b,a\*b);break;

}

}

#include <stdio.h>

#include <stdlib.h>

#define PI 3.14159

int main()

{

float radius;

int num;

printf("1-Calculate circumference\n2-Calculate circle area\n3-Calculate sphere volume\n");

scanf("%d",&num);

printf("Enter radius: ");

scanf("%f", &radius);

switch(num)

{

case 1:printf("Circumference of circle is %f", 2 \* PI \* radius);break;

case 2:printf("Area of circle is %f", PI \* radius \* radius);break;

case 3:printf("Volume of sphere is %f", (4 \* PI \* radius \* radius \* radius)/3);break;

}

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

char c;

printf("Enter a character: ");

scanf("%c", &c);

switch(c)

{

case 'a':case 'A':case 'e':case 'E':case 'i':case 'I':case 'o':case 'O':case 'u':case 'U':

printf("%c is a vowel", c);break;

default:printf("%c is not a vowel", c);

}

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

int monthNo;

printf("Enter a month number: ");

scanf("%d", &monthNo);

switch(monthNo)

{

case 1:printf("Month %d has %d days", monthNo, 31);break;

case 2:printf("Month %d has %d days", monthNo, 28);break;

case 3:printf("Month %d has %d days", monthNo, 31);break;

case 4:printf("Month %d has %d days", monthNo, 30);break;

case 5:printf("Month %d has %d days", monthNo, 31);break;

case 6:printf("Month %d has %d days", monthNo, 30);break;

case 7:printf("Month %d has %d days", monthNo, 31);break;

case 8:printf("Month %d has %d days", monthNo, 31);break;

case 9:printf("Month %d has %d days", monthNo, 30);break;

case 10:printf("Month %d has %d days", monthNo, 31);break;

case 11:printf("Month %d has %d days", monthNo, 30);break;

case 12:printf("Month %d has %d days", monthNo, 31);break;

}

}

**LOOPS**

#include <stdio.h>

#include <stdlib.h>

int main()

{

int number = 0;

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

{

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

}

printf("FOR LOOP\n");

number = 0;

while(number <= 100)

{

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

number++;

}

printf("While LOOP\n");

number = 0;

do{

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

number++;

}while(number <= 100);

printf("Do while LOOP");

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

float number = 0;

float total = 0;

float avg = 0;

printf("Enter 10 marks: ");

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

{

scanf("%f", &number);

total += number;

}

printf("total %f\n", total);

avg = (total / 10.0);

printf("Average - %f\n",avg);

if(avg > 50)

printf("Pass");

else

printf("Fail!");

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

int number;

int factorial = 1;

printf("Enter number for factorial: ");

scanf("%d", &number);

for(int i = number; i >= 1; i--)

{

factorial \*= number;

number--;

}

printf("Factorial %d", factorial);

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

int number;

int sum = 0;

printf("Enter a number: ");

scanf("%d", &number);

while(number != 0)

{

sum += (number % 10);

number /= 10;

}

printf("The sum of numbers are %d", sum);

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

int rem = 0;

int number;

int reversed = 0;

printf("Enter a number: ");

scanf("%d", &number);

while(number != 0)

{

rem = number % 10;

reversed = reversed \* 10 + rem;

number /= 10;

}

printf("The reversed numbers is %d", reversed);

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

int base;

int power;

int result = 1;

printf("Enter a base: ");

scanf("%d", &base);

printf("Enter an exponent: ");

scanf("%d", &power);

for(int i = power; i >= 1; i--)

{

result \*= base;

}

printf("The result is %d", result);

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

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

printf("How many fibonacchi numbers do you want: ");

scanf("%d", &n);

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

{

if(i == 0 || i == 1)

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

else

{

next = first + second;

first = second;

second = next;

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

}

}

}

#include <stdio.h>

#include <stdlib.h>

#include <math.h>

int main()

{

int i,num,n = 0,rem,result = 0,original;

printf("Enter a number: ");

scanf("%d",&num);

original = num;

while(num != 0)

{

num /= 10;

n++;

}

num = original;

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

{

rem = num % 10;

rem = round(pow(rem,n));

result += rem;

num /= 10;

}

if(result == original)

printf("This is an Armstrong number");

else

printf("Not an Armstrong number");

return 0;

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

char c;

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

{

printf("%c characters ASCII number is %d\n",c,c);

}

}

#include <stdio.h>

#include <stdlib.h>

int main()

{

int i = 0,j = 0, k = 1;

for(i = 0; i < 5; i++)

{

for(j = 0; j < k; j++)

{

printf("\*");

}

printf("\n");

k++;

}

}

#include <stdio.h>

#include <stdlib.h>

#include <math.h>

int main()

{

int num,i;

printf("Enter a number: ");

scanf("%d",&num);

for(i = 2; i < num /2; i++)

{

if(num % i == 0)

{

printf("This is not a prime");

return 0;

}

}

printf("This is a prime");

return 0;

}

#include <stdio.h>

#include <stdlib.h>

#include <math.h>

int main()

{

int num,i;

printf("Enter a number: ");

scanf("%d",&num);

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

{

if(num % i == 0)

printf("%d is a facor of %d\n",i,num);

}

return 0;

}

#include <stdio.h>

#include <stdlib.h>

#include <math.h>

int main()

{

int num = 0,sum = 0;

while(num != -1)

{

printf("Enter a number: ");

scanf("%d",&num);

if(num != -1)

sum += num;

}

printf("The sum is %d",sum);

return 0;

}

#include <stdio.h>

#include <stdlib.h>

#include <math.h>

int main()

{

int numbers[10],i;

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

{

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

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

}

}

#include <stdio.h>

#include <stdlib.h>

#include <math.h>

int main()

{

int numbers[10],i,count = 0;;

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

{

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

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

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

count++;

}

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

return 0;

}