Benoli Senanayake

CS 102.3 - Programming with C Language

Practical 3 - 5

23.1

29945

Practical Number 03

01

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
    int n1,n2;
printf("Enter the first number");
 scanf("%d",&n1);
 printf("Enter the second number");
 scanf("%d",&n2);

 if(n1>n2)
{
   printf("The highest number is:%d",n1);
 }
  else if (n2>n1)
  {
   printf("The highest number is:%d",n2);
 }
 return 0;
}
```

02.

```
#include <stdio.h>

int main() {
   int n1, n2, n3, max, min;

   printf("Enter three numbers: ");
   scanf("%d %d %d", &n1, &n2, &n3);

   max = n1;
   min = n1;

   if (n2 > max) {
      max = n2;
   }

   if (n3 > max) {
      max = n3;
   }

   if (n2 < min) {
      min = n2;
   }
```

```
    if (n3 < min) {
        min = n3;
    }

    printf("Largest value: %d\n", max);
    printf("Smallest value: %d\n", min);

    return 0;
}
```

03.

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
   char name[100];
   float basicSalary,newSalary,increment;

   printf("Enter your name: ");
   scanf("%[^\n]%*c",name);
   printf("Enter your basic salary: ",basicSalary);
   scanf("%f",&basicSalary);

   if (basicSalary<5000)
   {
      increment=0.05*basicSalary;
   }
   else if (basicSalary>=5000 && basicSalary<10000)
   {
      increment=0.1*basicSalary;
   }
   else
   {
```

```
        increment=0.15*basicSalary;
    }
    newSalary=basicSalary+increment;

    printf("Employee name: %s",name);
    printf("\nBasic Salary: %.2f",basicSalary);
    printf("\nNew Salary: %.2f",newSalary);
    return 0;
}
```

04.

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
   int pi=3.14159;
   float radius,diameter,circumference,area;

   printf("Enter the radius: ",radius);
   scanf("%f",&radius);

   diameter= 2*radius;
   circumference=2* pi*radius;
   area=pi*radius*radius;

   printf("Diameter: %.2f\n",diameter);
   printf("Circumference:%.2f\n",circumference);
   printf("Area: %.2f\n",area);
   return 0;
}
```

05.

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
   int n1,n2;
    printf("Enter the 1st integer: ");
    scanf("%d",&n1);
    printf("Enter the 2nd integer: ");
    scanf("%d",&n2);

    if(n1%n2==0)
    {
      printf("%d is a multiple of %d\n",n1,n2);
    }

    else
    {
        printf("%d is not a multiple of %d\n",n1,n2);
    }

   return 0;
}
```

06.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
   printf("Uppercase letters\n");
   for(char ch='A';ch<='c';ch++)
   {  printf("%c: %d\n",ch,ch);
   }
   printf("\nLowercase letters:\n");
   for (char ch='a'; ch<='c';ch++)
   {
      printf("%c: %d\n",ch,ch);
   }
   printf("Special symbols:\n");
   printf("$:%d\n",'$');
   printf("*:%d\n",'*');
   printf("+:%d\n",'+');
   printf("/:%d\n",'/');
   printf("\nBlank character:\n");
   printf("Space:%d\n",' ');

   return 0;
}
```

```
07 #include <stdio.h>

int main() {
   float basicSalary, additionalAllowance = 0, bonusPercentage = 0, monthlySales,
bonus = 0, grossRemuneration;

   printf("Enter the basic salary: ");
   scanf("%f", &basicSalary);

   printf("Enter the monthly sales: ");
   scanf("%f", &monthlySales);

   if (monthlySales >= 0 && monthlySales <= 25000) {
      bonusPercentage = 10;
   } else if (monthlySales > 25000 && monthlySales <= 50000) {
      bonusPercentage = 12;
   } else if (monthlySales > 50000) {
      bonusPercentage = 15;
   }

   printf("Is the salesman working in Colombo? (Y/N): ");
   char location;
   scanf(" %c", &location);

   if (location == 'Y' || location == 'y') {
```

```
        additionalAllowance = 2500;
    }

    printf("Enter the number of years of service: ");
    int yearsOfService;
    scanf("%d", &yearsOfService);

    if (yearsOfService > 5) {
        additionalAllowance += 0.1 * basicSalary;
    }

    bonus = (bonusPercentage / 100) * monthlySales;
    grossRemuneration = basicSalary + additionalAllowance + bonus;

    printf("Gross monthly remuneration: %.2f\n", grossRemuneration);

    return 0;
}
```

Practical Number 04

01.

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
  int n1,ans;
  printf("Enter an integer: ");
  scanf("%d",&n1);

  ans=n1%2;
  if(ans==1)
  {
     printf("%d is an odd number\n",n1);
  }
  else
  {
     printf("%d is an even number\n",n1);
  }

   return 0;
}
```

Part 2

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
 int num;
 printf("Enter an integer: ");
 scanf("%d",&num);

 switch(num%2)
 {
    case 0:
    printf("%d is an even number\n",num);
    break;
    case 1:
    printf("%d is an odd number\n",num);
    break;
 }

   return 0;
}
```

02.

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
 int choice,num1,num2;
 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:
    printf("Result: %d\n",num1+num2);
    break;

 case 2:
```

```
    printf("Result: %d\n",num1-num2);
    break;



    case 3:
    printf("Result: %d\n",num1*num2);
    break;

    case 4:
       printf("Result: %d\n",num1/num2);

     break;

    default:
       printf("Invalid choice.\n"); }
    return 0;
}
```

03.

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
 int pi=3.14159,choice;
 double radius,circumference,area,volume;

 printf("Menu\n");
 printf("1.Calculate the circumference of a circle\n");
 printf("2.Calculate the area of a circle\n");
 printf("3.Calculate the volume of a sphere\n");
 printf("Enter your choice(1-3): \n");
 scanf("%d",&choice);

 switch(choice)
 {
     case 1:
         printf("Enter the radius of the circle: ");
         scanf("%lf", &radius);
         circumference = 2 * pi * radius;
         printf("Circumference of the circle: %.2lf\n", circumference);
         break;
```

```
        case 2:
            printf("Enter the radius of the circle: ");
            scanf("%lf", &radius);
            area = pi * pow(radius, 2);
            printf("Area of the circle: %.2lf\n", area);
            break;
        case 3:
            printf("Enter the radius of the sphere: ");
            scanf("%lf", &radius);
            volume = (4.0 / 3.0) * pi * pow(radius, 3);
            printf("Volume of the sphere: %.2lf\n", volume);
            break;
        default:
            printf("Invalid choice.\n");
            break;
    }
    return 0;
}
```

04.

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
char letter;
 printf("Enter a letter: ");
scanf("%c",&letter);
 switch(letter)
 {
 case 'a':
 case 'e':
 case 'i':
 case 'o':
 case 'u':
   printf("%c is a vowel.\n",letter);
   break;
 default:
   printf("%c is not a vowel\n",letter);
   break;
 }
   return 0;
}
```

05.

```
#include <stdio.h>
int main()
{
int month;
printf("Enter the month number (1-12): ");
scanf("%d", &month);
switch (month) { case 1:
printf("January has 31 days.\n");break; case 2:
printf("February has 28 days.\n");break; case 3:
printf("March has 31 days.\n");break; case 4:
printf("April has 30 days.\n");break; case 5:
printf("May has 31 days.\n");break; case 6:
printf("June has 30 days.\n");break; case 7:
printf("July has 31 days.\n");break; case 8:
printf("August has 31 days.\n");break; case 9:
printf("September has 30 days.\n");break; case 10:
printf("October has 31 days.\n");break; case 11:
printf("November has 30 days.\n");break; case 12:
printf("December has 31 days.\n");break; default:
printf("Invalid month number.\n");break;
}
return 0;
}
```

Practical Number 05

01.

While

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
int x=1;
while (x<=100)
{
   printf("%d ",x);
   x=x+1;
}
   return 0;
}
```

Do while

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
int x=1;
do
{ printf("%d ",x);
   x=x+1;
}  while (x<=100);
   return 0;
}
```

For

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
int x;
for (x=0;x<=100;x+=1)
{
   printf("%d ",x);
}   return 0;
}
```

02.

```
#include <stdio.h>
#include <stdlib.h>

int main() {
   int marks[10];
   int total = 0;
   float average;
 printf("Enter 10 marks:\n");

   for (int i = 0; i < 10; i++) {
       printf("Mark %d: ", i+1);
       scanf("%d", &marks[i]);
       total += marks[i];
   }
  average = (float)total / 10.0;
  printf("\nTotal marks: %d\n", total);
   printf("Average marks: %.2f\n", average);

   if (average < 50.0) {
       printf("Fail!\n");
   } else {
       printf("Pass!\n");
   }  return 0;
```

03.

```
#include <stdio.h>
int main()
{
int number;
int factorial = 1;
printf("Enter a number: ");
scanf("%d", &number);
if (number < 0) {
printf("Factorial is not defined for negative numbers.\n");
}
Else
{ for (int i = 1; i <= number; i++)
{
factorial *= i;
}
printf("Factorial of %d is %d\n", number, factorial);
}
return 0;
}
```

04.

```
#include <stdio.h>
int main()
{
int number, sum = 0;
printf("Enter a number: ");
scanf("%d", &number);
int remainder;
while (number > 0)
{
remainder = number % 10;
sum += remainder;
number
/= 10;
}
printf("Sum of digits: %d\n", sum);
return 0;
}
```

05.

```
#include <stdio.h>
int main()
{
int number, reversedNumber = 0, remainder;
printf("Enter a number: ");
scanf("%d", &number);
do {
remainder = number % 10;
reversedNumber = reversedNumber * 10 + remainder;
number = number / 10;
} while (number != 0);
printf("Reversed number: %d\n", reversedNumber);
return 0;
}
```

06.

```
#include <stdio.h>
int main()
{
   int x,base,exp,ans=1;

   printf("Enter base value");
   scanf("%d",&base);

   printf("Enter exponent value");
   scanf("%d",&exp);

   for(x=exp;x>0;x--)
   {
      ans*=base;
   }
     printf("%d to the power %d is %d",base,exp,ans);
return 0;

}
```

07.

```
#include <stdio.h>
int main()
{
   int x,n1=1,n2=1,next;

   printf("Fibonacci sequence\n");

   for(x=1;x<11;x++)
   {
      printf("%d\n",n1);
      next=n1+n2;
      n1=n2;
      n2=next;
   }
   printf("\n");
return 0;

}
```

08.

```
#include <stdio.h>
int main()
{
   int n1,onu,rem,ans=0;
   printf("Enter a number");
   scanf("%d",&n1);
   onu=n1;
   for(;onu!=0;)
   {
      rem=onu%10;
      ans=ans+rem*rem*rem;
      onu/=10;
   }
   if(ans==n1)
      printf("%d is an Armtrong number\n",n1);
   else
      printf("%d is not an Armstrong number\n",n1);
return 0;

}
```

09.

```
#include <stdio.h>
int main()
{
  char lett;
  for(lett='A';lett<='Z';lett++)
  {
    printf("%d\n",lett);
  }
return 0;
}
```

10.

```
#include <stdio.h>
int main()
{
   int x,y,z=5;
  for(x=0;x<=z;x++) {
      for(y=1;y<=x;y++) {
         printf("*");
       }
      printf("\n");
   }
return 0; }
```

11.

```
#include <stdio.h>
int main()
{
   int x,n1,prime=1;
   printf("Enter a number");
   scanf("%d",&n1);

   for(x=2;x<=n1/2;x++){
         if(n1%x==0){
            printf("not a prime number");
            prime=0;
            break;
         }
      }
      if(prime==1)
       printf("prime number");
return 0;
}
```

12.

```
#include <stdio.h>
int main()
{
   int x,n1;
   printf("Enter a number");
   scanf("%d",&n1);

   printf("Factors of %d- ",n1);
   for(x=1;x<=n1;x++)
   {
      if(n1%x==0)
      {
         printf("%d ",x);
      }
   }
return 0;
}
```

13.

```
#include <stdio.h>
int main()
{
   int n1,sum=0;
   for(;;)
   {
      printf("Enter a number(enter -1 to stop)");
      scanf("%d",&n1);
      if(n1==-1)
      {
         break;
      }
      sum+=n1;
   }
   printf("Sum is %d\n",sum);
return 0;
}
```

14.

```
#include <stdio.h>
int main()
{
   int x[10],z;
   for(z=0;z<10;z++)
   {
      printf("Enter a number");
      scanf("%d",&x[z]);
   }
   printf("\n");
   for(z=0;z<10;z++)
   {
      printf("%d\n",x[z]);

   }
return 0;
}
```

15.

```
#include <stdio.h>
int main()
{
   int x[10],z,od=0,ev=0,ze=0;
   for(z=0;z<10;z++)
   {
      printf("Enter a number");
      scanf("%d",&x[z]);
      if(x[z]==0)
      {
         ze++;
      }
      else if(x[z]%2==1)
      {
         od++;
      }
      else if(x[z]%2==0)
         ev++;
   }
   printf("\n");
   for(z=0;z<10;z++)
   {
      printf("%d\n",x[z]);
```

```
    }
    printf("\n\nodd count is: %d\n",od);
    printf("even count is: %d\n",ev);
    printf("zeros count is: %d\n",ze);
return 0;
}
```

Section B

01.

```
#include <stdio.h>
int main()
 {
    int num[10],a,posi=0,nega=0,ze=0;
    for(a=0;a<10;a++) {
        printf("Enter a number");
        scanf("%d",&num[a]);
        if(num[a]==0) {
          ze++;
         }
         else if(num[a]>0) {
          posi++;
         }
```

```
        else if(num[a]<0) {
            nega++;
        }
    printf("\n");
    printf("\n\n positive count is: %d\n",posi);
    printf("negative count is: %d\n",nega);
    printf("zeros count is: %d\n",ze);
}
 }
```

02.

```
#include <stdio.h>
int main()
{
    int x,m[10],max,min,sum=0;
    float avg=0;
    for(x=0;x<10;x++)
    {
        printf("Enter marks");
        scanf("%d",&m[x]);
        sum+=m[x];
    }
    avg=sum/10;
    max=m[0];
```

```
    min=m[0];
    for(x=0;x<10;x++)
    {
       if(max<m[x])
       {
          max=m[x];
       }
      if(min>m[x]);
      {
         min=m[x];
      }
    }
    printf("\n");
    printf("Maximum is: %d\n",max);
    printf("Minimum is: %d\n",min);
    printf("Avarage is: %.2f\n",avg);
}
```

03.

```
#include <stdio.h>
int main()
{
   int x,p[10],sum=0,ab=0;
   float avg;
   for(x=0;x<10;x++){
      printf("Enter price of the product");
      scanf("%d",&p[x]);
      sum+=p[x];
   }
   for(x=0;x<10;x++) {
      if(200<p[x])  {
         ab++;
       }

   avg=sum/10;
   printf("\n");
   printf("Avarage is: %.2f\n",avg);
   printf("Products above Rs.200: %d\n",ab);
}
}
```

04.

```
#include <stdio.h>
int main()
{
   int x,emno,count=0;
   float basicsal;
   for(x=0;x<10;x++) {
      printf("Enter a Employee number");
      scanf("%d",&emno);
      printf("Enter basic salary");
      scanf("%f",&basicsal);
      if(emno==-999)
      {
         break;
      }
      if(basicsal>=5000)
      {
         count++;
      }
   }
   printf("Empolyees more >=5000 basic salary: %d",count);
}
```

05.

```
#include <stdio.h>
int main()
{
   int x,empno,hw,nr=150,otr=200,mh=40,oth,exceed=0,amount=4000,count=0;
   float otp,per;
   for(x=0;x<5;x++)
   {
      printf("Employee number");
      scanf("%d",&empno);
      printf("Hours worked");
      scanf("%d",&hw);

      otp=0;
      if(hw>mh)
      {
         oth=hw-mh;
         otp=(oth*otr)+((mh-oth)*nr);
      }
      else
        {
           otp=hw*nr;
        }
      printf("Emp no: %d\n",empno);
```

```
        printf("Over time payment: %.2f\n",otp);


        if(otp>amount)
        {
           exceed++;
        }
        count++;
    }
    per=exceed/count*100;
    printf("Percentage of employees ot payment more than Rs.4000 %.2f\n",per);
}
```