## 1. SUM OF DIGITS UNTIL SINGLE DIGIT IS OBTAINED

#include<stdio.h>

#include<conio.h>

void main()

{

      long int n,rem,sum = 0;

      printf("\nEnter a number : ");

      scanf("%ld",&n);

      while(n > 0)

      {

                 while(n != 0)

                 {

                      rem = n%10;

                      sum = sum+rem;

                      n=n/10;

                 }

                 if(sum > 9)

                 {

                        n = sum;

                        sum = 0;

                 }

      }

      printf("%d",sum);

      getch();

}

**OUTPUT:**

Enter a number: 9873

Sum : 9

**2. STUDENT MARKSHEET**

#include<stdio.h>

#include<conio.h>

struct stud

{

char rollno[9]; char name[30];

int s1,s2,s3,s4,s5;

}student[100];

void main()

{

int i=1,j,temp; char ch;

clrscr();

do

{

printf("Enter roll no:");

scanf("%s",&student[i].rollno);

printf("\nEnter name of the student:");

scanf("%s",&student[i].name);

printf("\nEnter Tamil mark:");

scanf("%d",&student[i].s1);

printf("\nEnter English mark:");

scanf("%d",&student[i].s2);

printf("\nEnter C mark:");

scanf("%d",&student[i].s3);

printf("\nEnter DCF mark:");

scanf("%d",&student[i].s4);

printf("\nEnter Maths mark:");

scanf("%d",&student[i].s5);

i++;

printf("Do you want to continue (y/n) :");

scanf("%s",&ch);

} while(ch!='n');

for(j=1;j<=i-1;j++)

{

clrscr();

printf("\t........................................................................................................\n\n");

printf("\t\t\t BHARATHIAR UNIVERSITY \n");

printf("\t........................................................................................................\n");

printf("\n\t REGISTER NUMBER : %s \t\t NAME :%s\n",student[j].rollno, student[j].name);

printf("\t........................................................................................................\n");

printf("\n\t SUB \t SUBJECT \t MAX MARKS \t\t RESULT\n");

printf(" \tCODE \t NAME \t MARK SECURED \n");

printf("\t........................................................................................................\n");

printf("\n\t11T \t Tamil \t\t 100 %d \t\t ", student[j].s1);

(student[j].s1>39)?printf("pass"):printf("fail");

printf("\n\t12E \t English \t\t 100 %d \t\t ", student[j].s2);

(student[j].s2>39)?printf("pass"):printf("fail");

printf("\n\t13A \t C \t\t 100 %d \t\t ", student[j].s3);

(student[j].s3>39)?printf("pass"):printf("fail");

printf("\n\t13BT \t DCF \t\t 100 %d \t\t ", student[j].s4);

(student[j].s4>39)?printf("pass"):printf("fail");

printf("\n\t1AA \t Maths \t\t 100 %d \t\t ", student[j].s5);

(student[j].s5>39)?printf("pass"):printf("fail");

printf("\n\t....................................................................................................\n");

getch();

}

}

**OUTPUT:**

Enter roll no:1826J0614

Enter name of the student: ARUNA.R

Enter Tamil mark:90

Enter English mark:87

Enter C mark:68

Enter DCF mark:56

Enter Maths mark:64

Do you want to continue (y/n) :n

................................................................................................................................

BHARATHIAR UNIVERSITY

................................................................................................................................

REGISTER NUMBER : 1822K0614 NAME : ARUNA.R

................................................................................................................................

SUB SUBJECT MAX MARKS RESULT

CODE NAME MARK SECURED

................................................................................................................................

11T Tamil 100 90 pass

12E English 100 87 pass

13A C 100 68 pass

13B DCF 100 56 pass

1AA Maths 100 64 pass

.................................................................................................................................

**3. GENERATION OF PRIME NUMBERS**

#include<stdio.h>

#include<conio.h>

void main()

{

int n,no=3,i,n1=0;

clrscr();

printf("\t\t PROGRAM TO GENERATE N PRIME NUMBERS");

printf("\n\nEnter n value:");

scanf("%d",&n);

while(n1!=n)

{

for(i=2;i<=no/2;i++)

{

if(no%i==0)

goto nextno;

}

printf("\t %d",no);

sleep(2);

n1++;

nextno:no++;

}

getch();

}

**OUTPUT:**

PROGRAM TO GENERATE N PRIME NUMBERS

Enter n value:5

3 5 7 11 13

**4. MERGING AND SORTING**

#include<stdio.h>

#include<conio.h>

void main ()

{

int a[50],b[50],c[50],i,j,k=0,n,temp;

clrscr();

printf("\n\t MERGING AND SORTING");

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

printf("\n Enter the No. of elements");

scanf("%d",&n);

printf("\n Enter the A Array elements");

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

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

printf("\n Enter the B Array elements");

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

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

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

c[k+i]=a[i];

k=n;

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

c[k+i]=b[i];

k=2\*n;

printf("\n\n Elements before sorting:\n");

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

printf("%d\t",c[i]);

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

for(i=j+1;i<k;i++)

{

if(c[j]>c[i])

{

temp=c[i];

c[i]=c[j];

c[j]=temp;

}

}

printf("\n\t Element after sorting:\n");

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

printf("%d\t",c[i]);

getch();

}

**OUTPUT**

**MERGING AND SORTING**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Enter the No of Elements: 5

Enter the A array elements: 9 8 1 3 2

Enter the A array elements: 6 0 5 7 4

Elements before sorting:

9 8 1 3 2 6 0 5 7 4

Elements after sorting:

0 1 2 3 4 5 6 7 8 9

**5. STACK OPERATION**

#include<stdio.h>

#include<conio.h>

void main()

{

int stack[100],top=0,i,j,ch,max=5;

clrscr();

printf("\t STACK OPERATION\n");

printf(“\t \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* \n”);

printf("\t OPTIONS");

printf("\n Enter the size of stack");

scanf("%d",&max);

printf("\n[1].push \n[2].pop\n [3].display\n[4].exit\n");

for(;;)

{

printf("\n Enter your choice");

scanf("%d",&ch);

switch(ch)

{

case 1:

if(top>=max) printf("\n stack is full");

else

{

printf("Enter the value to be pushed");

scanf("%d",&stack[top++]);

}

break;

case 2:

if(top==0) printf("Stack is empty");

else

printf("popped item is: %d",stack[--top]);

break;

case 3:

if(top==0) printf("Stack is empty");

else

{

printf("Items in the stack");

for(i=top-1;i>=0;i--)

printf("\n%d",stack[i]);

}

printf("\n\_\_\_\_\_\n stack");

break;

default:exit(0);

}

getch();

}

}

**OUTPUT**

STACK OPERATION

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Enter the size of the Stack: 3

[1]. PUSH [2].POP [3].DISPLAY [4]. EXIT

Your choice: 1

Enter the value to be pushed: 4

Your choice: 1

Enter the value to be pushed: 8

Your choice: 1

Enter the value to be pushed: 5

Your choice: 1

Stack is full

Your choice: 3

Items in the stack

4

8

5

Your choice: 2

Enter the value to be popped: 5

Popped item is: 5

Your choice: 3

Items in the stack

4

8

Your choice: 4

**6. QUEUE OPERATION**

#include<stdio.h>

#include<conio.h>

void main()

{

int queue[30],front=0,rear=0,size,\*pt,i,num,num1,ch;

clrscr();

printf("\t QUEUE OPERATION\n");

printf(“\t \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n”);

printf("\n Enter the size of queue:");

scanf("%d",&size);

printf("\n[1].insert [2].Delete [3].Display [4].Modify [5].Exit");

while(1)

{

printf("\n your choice");

scanf("%d",&ch);

switch(ch)

{

case 1:if(rear==size)

{

printf("\n queue is full");

break;

}

else

{

printf("\n Enter an item to insert");

scanf("%d",&queue[rear]);

rear++;

}

break;

case 2:if(front==rear)

printf("\n queue is empty");

else

printf("\n Deleted item is %d",queue[front++]);

break;

case 3:

pt=&queue[front];

printf("\n front--->");

for(i=front;i<rear;i++)

{

printf("\n%d\t",\*pt);

pt++;

}

printf("\n<-- rear");

break;

case 4:

printf("\n Enter the number to find:");

scanf("%d",&num);

printf("\n Enter the number to modify:");

scanf("%d",&num1);

pt=&queue[front];

for(i=front;i<rear;i++)

if(num==\*pt)

{

\*pt=num1;

printf("\n Replaced num is %d in queue:",num1);

}

else

pt++;

break;

default:exit(0);

}

}

}

**OUTPUT**

QUEUE OPERATION

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Enter the size of queue:3

[1].create

[2].delete

[3]. modify

[4]. display

[5].Exit

Enter your choice: 1s

Enter an item to insert: 3

Your choice: 1

Enter an item to insert: 9

Enter your choice: 1

Enter an item to insert: 7

Enter your choice: 1

Queue is full

Enter your choice: 2

Deleted item is: 3

Enter your choice: 3

front\_\_\_\_>

9

7

<\_\_\_\_\_rear

Enter your choice: 4

Enter the number to find: 9

Enter the number to modify: 10

Replaced num is 10 in queue:

Enter your choice: 3

front\_\_\_\_>

10

7

<\_\_\_\_\_rear

Enter your choice: 5

**7. PALINDROME CHECKING USING POINTER**

#include<iostream.h>

#include<conio.h>

#include<string.h>

void main()

{

char\*x,\*y;

int b;

clrscr();

cout<<"PALINDROME CHECKING\n";

cout<<"\n Enter a string: ";

cin>>x;

strcpy(y,x);

strrev(x);

b = strcmp(x,y);

if(b == 0)

cout<<"\n The given string is a palindrome";

else

cout<<"\n The given string is not a palindrome";

getch();

}

**OUTPUT**:

PALINDROME CHECKING

Enter a string: madam

The given string is a palindrome

PALINDROME CHECKING

Enter a string: tamil

The given string is not a palindrome