```c
//Give a NFA to accept the language of a string over {a,b} in which each string contain abb as substring
#include<stdio.h>
#include<string.h>
#include<conio.h>
#define max 100


void main()
{
        char str[max],f='a',ch;
        int i;

        do
        {
                printf("Enter the string :\n");
                scanf("%s",&str);

        for(i=0;str[i]!='\0';i++)
        {
                switch(f)
                {
                        case 'a':
                                if(str[i]=='a')
                                {
                                        f='b';
                                }

                                else if(str[i]=='b')
                                {
```

```c
                f='a';
        }
        break;

case 'b':
        if(str[i]=='a')
        {
                f='b';
        }

        else if(str[i]=='b')
        {
                f='c';
        }
        break;

case 'c':
        if(str[i]=='a')
        {
                f='b';
        }

        else if(str[i]=='b')
        {
                f='d';
        }
        break;

case 'd':
```

```c
				if(str[i]=='a' || str[i]=='b')
				{
						f='d';
				}
				break;

			default:
				break;
		}
	}

	if(f=='d')
	{
		printf("\nstring %s is accepted",str);
	}

	else
	{
		printf("\nstring %s isnot accepted",str);
	}

	printf("\nDo you want to continue(Y/N):");
	scanf(" %c", &ch);
}

while(ch=='Y' || ch=='y');

getch();
}
```

```
Enter the string :
a

string a isnot accepted
Do you want to continue(Y/N):y
Enter the string :
b

string b isnot accepted
Do you want to continue(Y/N):y
Enter the string :
aba

string aba isnot accepted
Do you want to continue(Y/N):y
Enter the string :
ababb

string ababb is accepted
Do you want to continue(Y/N):n

--------------------------------
Process exited after 32.93 seconds with return value 13
Press any key to continue . . .
```

```c
//Give a NFA which accepts binary strings which have atleast one pair of "00" or "11"
#include<stdio.h>
#include<string.h>
#include<conio.h>
#define max 100


void main()
{
        char f='a',ch,str[max];
        int i;

        do
        {
                printf("Enter the string :\n");
                scanf("%s",&str);

                for(i=0;str[i]!='\0';i++)
                {
                        switch(f)
                        {
                                case 'a':
                                        if(str[i]=='0')
                                        {
                                                f='b';
                                        }

                                        else if(str[i]=='1')
                                        {
```

```c
                f='c';
        }
        break;


case 'b':
        if(str[i]=='0')
        {
                f='d';
        }


        else if(str[i]=='1')
        {
                f='a';
        }
        break;


case 'c':
        if(str[i]=='0')
        {
                f='a';
        }


        else if(str[i]=='1')
        {
                f='d';
        }
        break;


case 'd':
```

```c
                                if(str[i]=='1' || str[i]=='0')
                                {
                                        f='d';
                                }
                                break;

                                default:
                                        break;
                        }
                }

        if(f=='d')
        {
                printf("\nstring %s is accepted",str);
        }

        else
        {
                printf("\nstring %s isnot accepted",str);
        }

        printf("\nDo you want to continue(Y/N):");
        scanf(" %c", &ch);
        }

        while(ch=='Y' || ch=='y');

}
```

```
Enter the string :
0

string 0 isnot accepted
Do you want to continue(Y/N):y
Enter the string :
1

string 1 isnot accepted
Do you want to continue(Y/N):y
Enter the string :
10

string 10 isnot accepted
Do you want to continue(Y/N):y
Enter the string :
01

string 01 isnot accepted
Do you want to continue(Y/N):y
Enter the string :
1010

string 1010 isnot accepted
Do you want to continue(Y/N):y
Enter the string :
11001011

string 11001011 is accepted
Do you want to continue(Y/N):n

--------------------------------
Process exited after 32.08 seconds with return value 110
Press any key to continue . . .
```

```c
//NFA over {a,b} that accepts strings starting with "a" and ending with "b"

#include<stdio.h>

#include<string.h>

#include<conio.h>

#define max 100

void main()
{
        char str[max],f='a',ch;
        int i;

        do
        {
                printf("Enter the string :\n");
                scanf("%s",&str);

                for(i=0;str[i]!='\0';i++)
                {
                        switch(f)
                        {
                                case 'a':
                                        if(str[i]=='a')
                                        {
                                                f='b';
                                        }

                                        else if(str[i]=='b')
                                        {
                                                f='a';
```

```
		}
		break;

	case 'b':
		if(str[i]=='b')
		{
			f='c';
		}

		else if(str[i]=='a')
		{
			f='b';
		}
		break;

	case 'c':
		if(str[i]=='b')
		{
			f='c';
		}
		else
		{
			f='b';
		}
		break;

	default:
		break;
}
```

```c
            }

        if(f=='c')

        {

                printf("\nstring %s is accepted",str);

        }


        else

        {

                printf("\nstring %s isnot accepted",str);

        }


        printf("\nDo you want to continue(Y/N):");

        scanf(" %c", &ch);

        }


        while(ch=='Y' || ch=='y');

        getch();

}
```

```
Do you want to continue(Y/N):y
Enter the string :
a

string a isnot accepted
Do you want to continue(Y/N):y
Enter the string :
ba

string ba isnot accepted
Do you want to continue(Y/N):y
Enter the string :
ab

string ab is accepted
Do you want to continue(Y/N):y
Enter the string :
aaabbba

string aaabbba isnot accepted
Do you want to continue(Y/N):y
Enter the string :
ab

string ab is accepted
Do you want to continue(Y/N):n

-------------------------------
Process exited after 51.28 seconds with return value 13
Press any key to continue . . .
```

```c
//NFA for string over {0,1} that contains substring "0110" or "1001"

#include<stdio.h>
#include<conio.h>
#define max 100

int main(){
    char str[max], f= 'a',ch;
    int i;

    do
    {
    printf("Enter the string: \n");
    scanf("%s", str);
        for (i =0;str[i]!= '\0'; i++){
        switch (f)
        {
        case 'a':
            if(str[i]=='1') {
                f ='f';


            }
            else if(str[i]=='0'){
                f='b';
            }
            else {
                f='a';
                                    };
            break;
```

```
case 'b':
    if(str[i] == '1'){
        f='c';
    }
    else{
        f='b';
    }
    break;
case 'c':
    if(str[i] == '1'){
        f='d';
    }
    else{
        f='g';
    }
    break;
case 'd':
    if(str[i] == '0'){
        f='e';
    }
    else{
        f='a';
    }
    break;
case 'f':
    if(str[i] == '0'){
        f='g';
    }
    else{
```

```
            f='f';
        }
        break;
    case 'g':
        if(str[i] == '0'){
            f='h';
        }
        else{
            f='c';
        }
        break;
    case 'h':
        if(str[i] == '1'){
            f='e';
        }
        else{
            f='a';
        }
        break;
    case 'e':{
        if(str[i] == '0'|| str[i] == '1'){
            f ='e';
        }
        break;
    }
    default:
        break;
    }
}
```

```c
    if (f=='e'){

        printf("Given string %s is accepted", str);

        printf("\n");

    }

    else{

        printf("Given string %s is not accepted", str);

        printf("\n");

    }


    printf("\nDo you want to continue(Y/N):");

            scanf(" %c", &ch);

            }


            while(ch=='Y' || ch=='y');

    return 0;

}
```

```
Enter the string:
1
Given string 1 is not accepted

Do you want to continue(Y/N):y
Enter the string:
010
Given string 010 is not accepted

Do you want to continue(Y/N):y
Enter the string:
1010
Given string 1010 is not accepted

Do you want to continue(Y/N):y
Enter the string:
1110101001
Given string 1110101001 is accepted

Do you want to continue(Y/N):y
Enter the string:
001110110
Given string 001110110 is accepted

Do you want to continue(Y/N):n

-------------------------------
Process exited after 40.3 seconds with return value 0
Press any key to continue . . .
```