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Input

```
30
40
50
1
2
60
```

Output

```
Enter the size of array
5
Enter the elements of array
10  20  30  40  50
The array elements are
10  20  30  40  50
Enter the choice
```

Input

```
20
30
40
50
1
2
60
```

Output

```
Enter the choice
 1 for insertion     2 for deletion
 1
Enter the postion where new element is inserted
2
Enter the element to be inserted
60
```

Input

```
20
30
40
50
1
2
60
```

Output

```
Enter the postion where new element is inserted
2
Enter the element to be inserted
60
The array after insertion
10  20  60  30  40  50
```

Runtime Error

Input

```
5
10
20
30
40
50
2
```

Output

```
Enter the size of array
5
Enter the elements of array
10  20  30  40  50
The array elements are
10  20  30  40  50
Enter the choice
```

Input

```
5
10
20
30
40
50
2
```

Output

```
Enter the choice
 1 for insertion     2 for deletion
 2
Enter the position where element is deleted
2
Enter the element to be deleted
40
```

Input

```
5
10
20
30
40
50
2
```

Output

```
 2
Enter the position where element is deleted
2
Enter the element to be deleted
40
The array after deletion of element
10  20  40  50
```

Insertion and Deletion of array

Program -

```
#include <stdio.h>
void main()
{
    int n, a[10], i, pos, ele;
    char ch;
    printf("Enter the size of array\n");
    scanf("%d\n",&n);
    printf("%d\n",n);
    printf("Enter the elements of
                array\n");
    for(i=0; i<n; i++)
    {
        scanf("%d",&a[i]);
    }
    printf("\n The array elements are\n");
    for(i=0; i<n; i++)
    {
        printf("%d\t",a[i]);
    }
    printf("Enter the choice\n 1 for insertion
            \t 2 for deletion\n");
    scanf("%c", &ch);
```

```
switch(ch)
{
case 1: printf("Enter the position where
            new element is inserted\n");
        scanf("%d", &pos);
        printf("Enter the element to
            be inserted\n");
        scanf("%d", &ele);
        for(i=n-1; i>=pos; i--)
        {
            a[i+1] = a[i];
        }
        a[pos] = ele;
        n++;
        printf("The array after insertion\n");
        for(i=0; i<n; i++)
        {
            printf("%d\t", a[i]);
        }
        break;

case '2': printf("Enter the position
            where element is
            deleted\n");
        scanf("%d", &pos);
        printf("Enter element to be
            deleted\n");
        scanf("%d", &ele);
```

```
ele = a[pos];
for (i=pos; i<n-1; i++)
{
    a[i] = a[i+1];
}
n--;
printf("The array after deletion
                of element\n");
for (i=0; i<n; i++)
{ printf("%d\t", a[i]);
}
break;
default: printf("Invalid choice");
         break;
}
}
```

Algorithm

step1 - start

step2 - Input n.

step3 - for (i=0; i<n; i++)
Input a[i]

step4 - for (i=0; i<n; i++)
output a[i]

step5 - Input ch

step6 - switch(ch)

case(1): Input pos, ele

```
for(i=n-1; i>=pos; i--)
    a[i+1] = a[i]
a[pos] = ele
n = n+1
for(i=0; i<n; i++)
output a[i]
break;
```

case(2): Input pos, ele

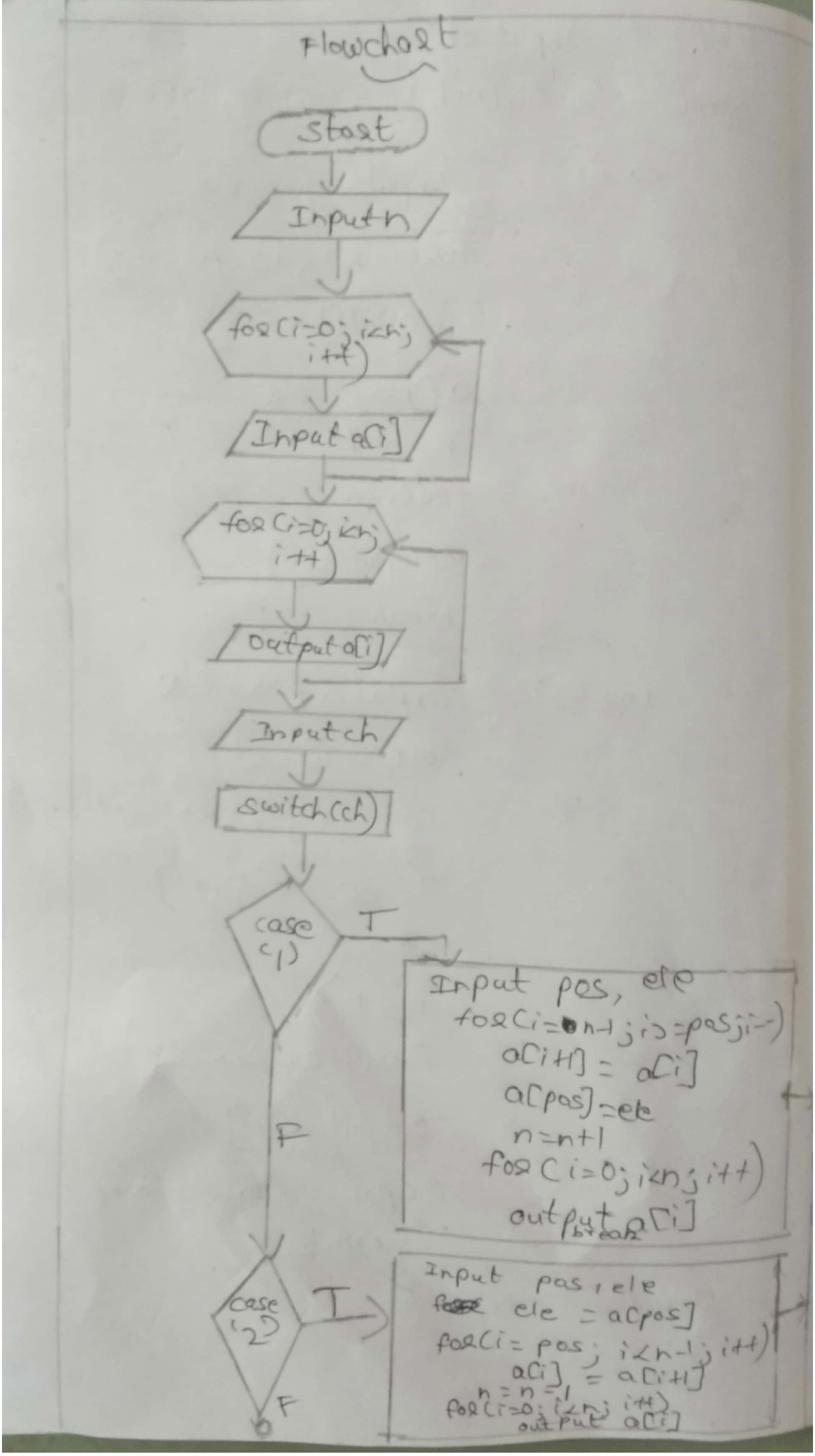
```
ele = a[pos]
for(i=pos; i<n-1; i++)
{ a[i] = a[i+1]
}
n = n-1
for(i=0; i<n; i++)
output a[i]
break
```

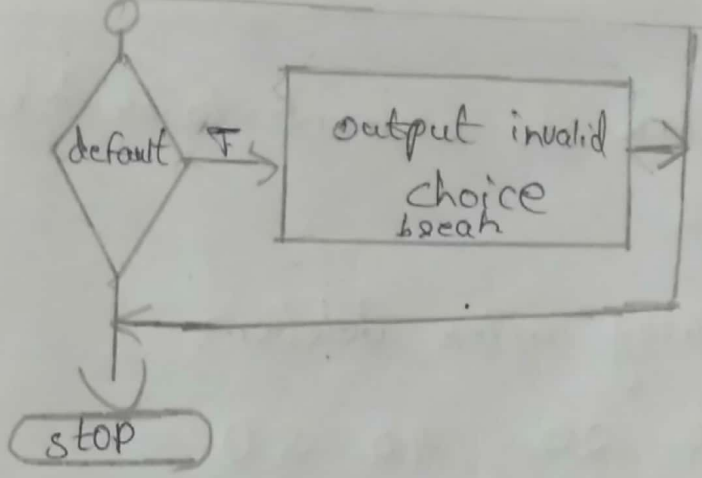
default: output invalid choice

break

step7 - Stop

Flowchart





output - 1

Enter size of array
5
Enter the elements of array
10 20 30 40 50
The array elements are
10 20 30 40 50
Enter the position where new element is inserted
2
The array after insertion
10 20 60 30 40 50

output - 2

Enter size of array
5
Enter the elements of array
10 20 30 40 50
The array elements are
10 20 30 40 50
Enter the position where element is deleted

2

Enter the element to be deleted

30

Array after deletion

10 20 40 50