Pseudo code

Pseudo code

- The Pseudo code is neither an algorithm nor a program.
- It is an abstract form of a program.
- It consists of English like statements which perform the specific operations.
- In pseudo code, the program is represented in terms of words and phrases, but the syntax of program is not strictly followed.

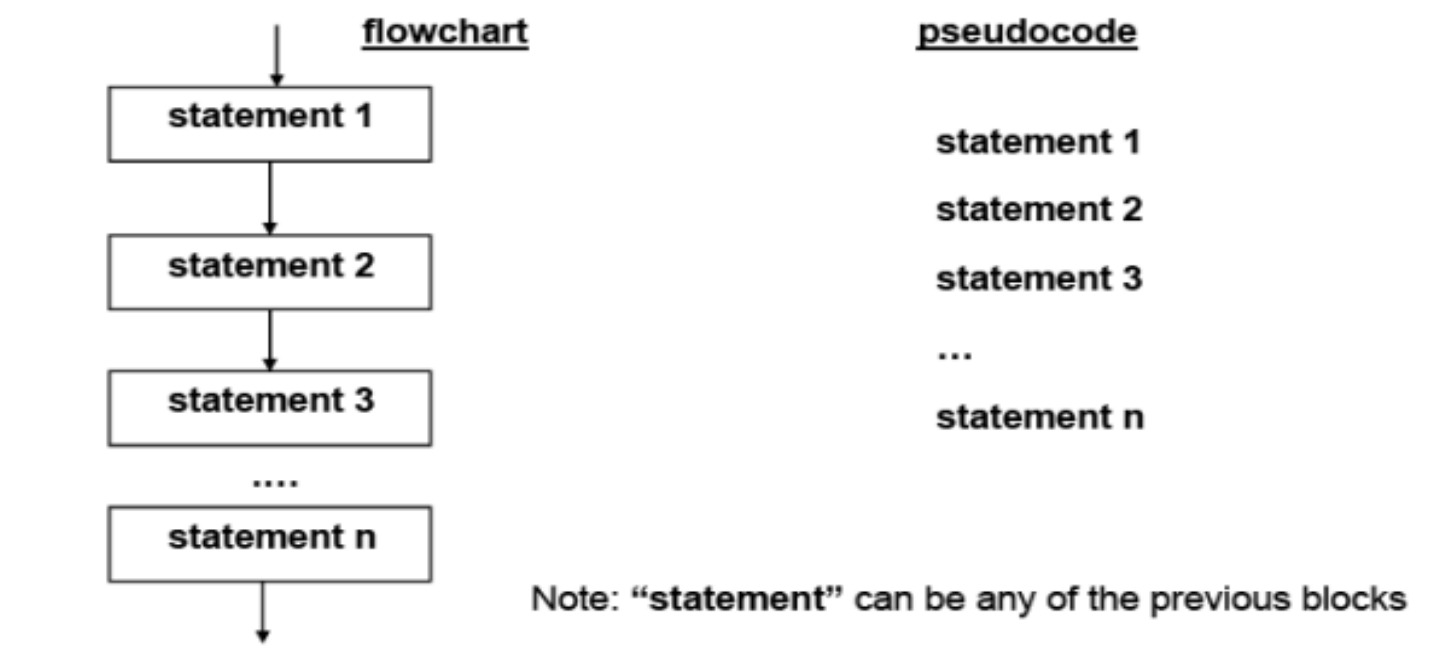
Advantages: * Easy to read, * Easy to understand, * Easy to modify

Logical structure of pseudo code

- Pseudo code is made up of the following logic structures that have been proved to be sufficient for writing any computer program:
  - Sequence Logic
  - Selection Logic
  - Iteration Logic

Sequence logic

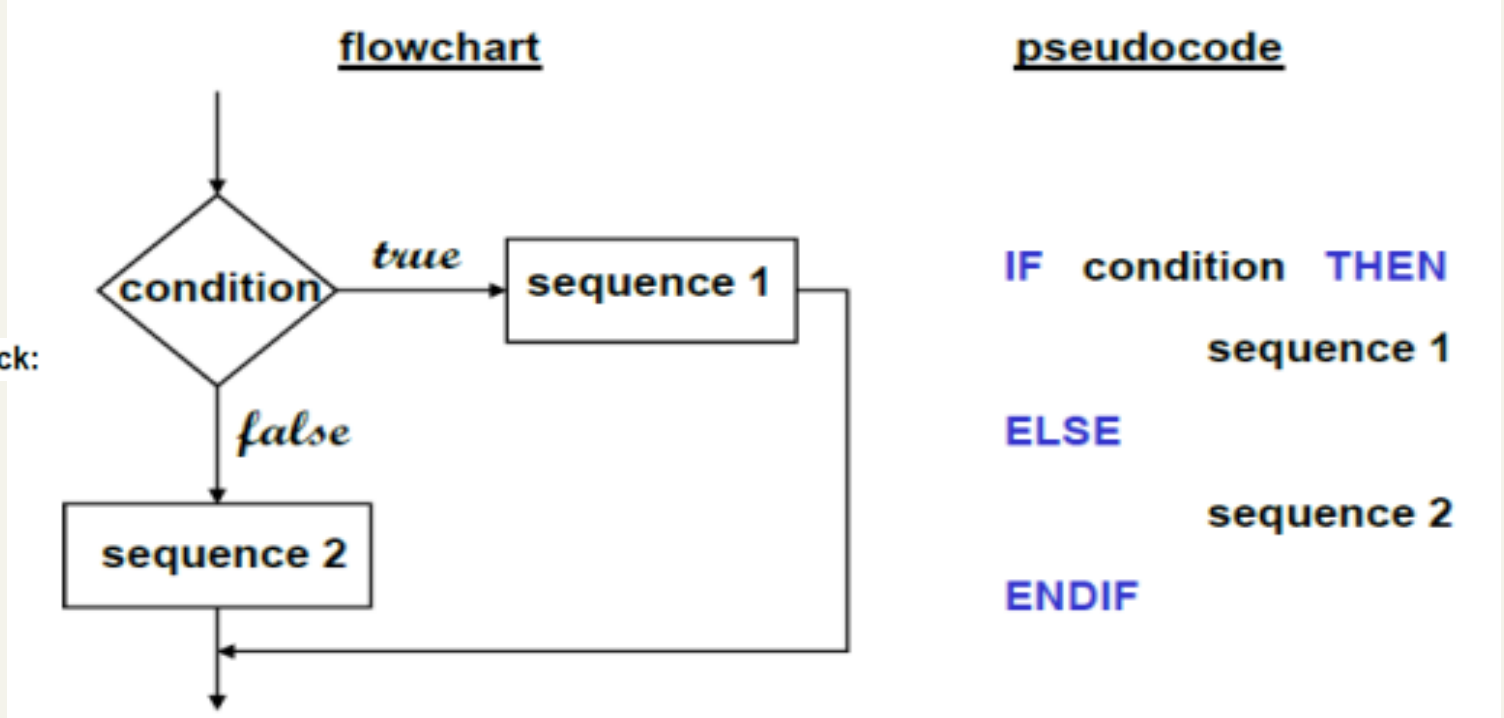
- It is used to perform instructions in a sequence, that is one after another.
- Thus, for sequence logic, pseudo code instructions are written in an order in which they are to be performed.
- The logic flow of pseudo code is from top to bottom.



Selection logic

- It is used for making decisions and for selecting the proper path out of two or more alternative paths in program logic.
- It is also known as decision logic.
- Selection logic is depicted as either an IF...THEN or an IF...THEN...ELSE structure

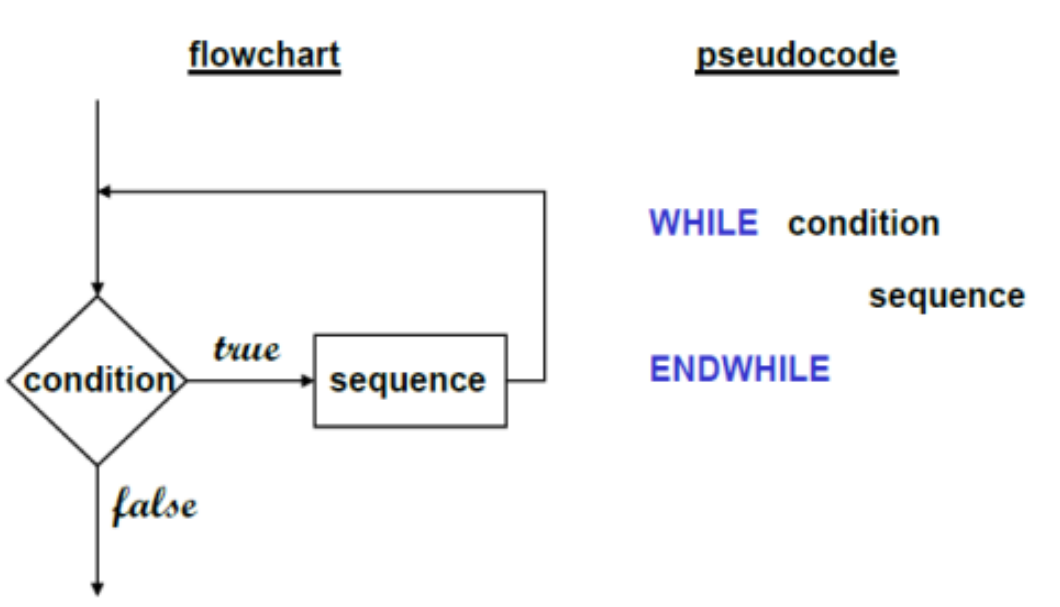
IF-THEN-ELSE block:



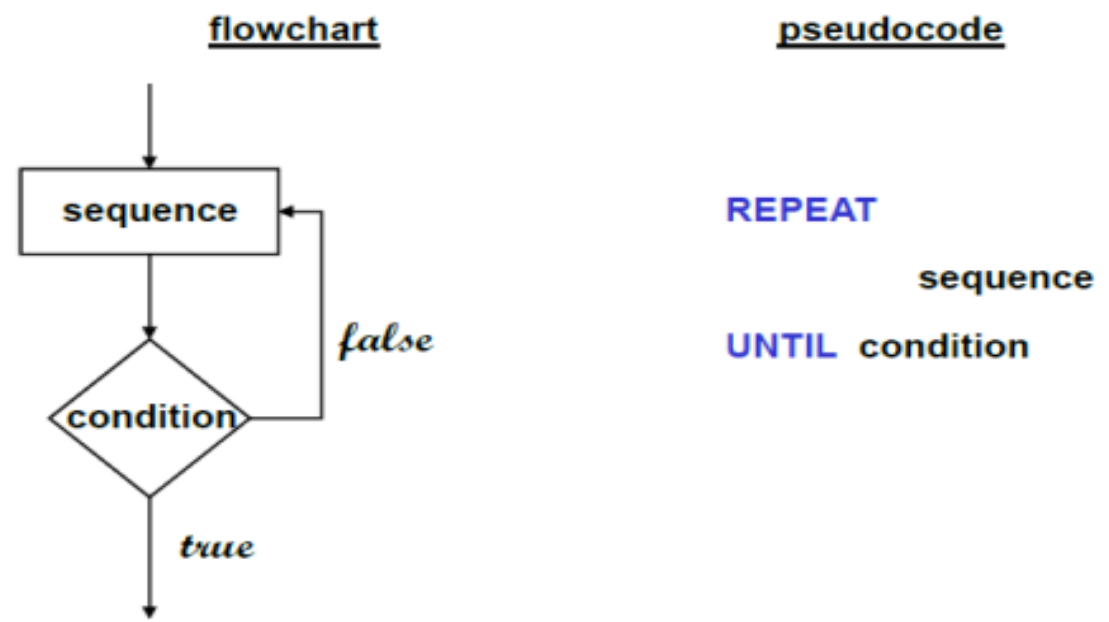
Iteration logic

- It is used to produce loops when one or more instructions may be executed several times depending on some of the conditions.
- It uses structures called the DO_WHILE, FOR and the REPEAT_UNTIL.

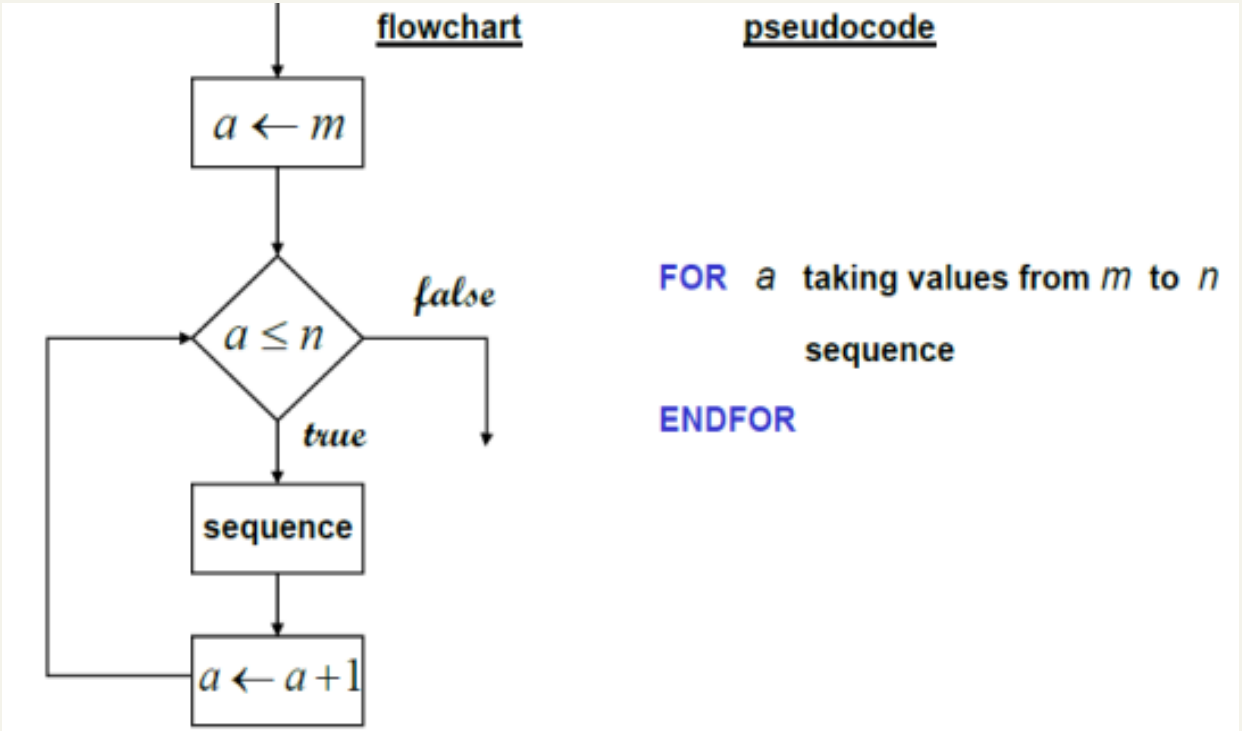
WHILE block:



REPEAT-UNTIL block:



FOR block:


flowchart
pseudocode
$a \leftarrow m$
$a \leq n$
false
true
sequence
$a \leftarrow a+1$
FOR a taking values from m to n
sequence
ENDFOR

Example: Write a pseudo code to perform the basic arithmetic operations.

```
Read n1, n2
Sum = n1 + n2
Diff = n1 – n2
Mult = n1 * n2
Quot = n1/n2
Print sum, diff, mult, quot
End.
```

Advantage of Pseudo code

Following are some of the advantages of using pseudo code:

- Converting a pseudo code to a programming language is much more easier than converting a flowchart.
- As compared to flowchart, it is easier to modify a pseudo code of a program logic when program modifications are necessary

Limitation of pseudo code

It also suffers from some of the limitations. These limitations are as follows:

- In the cases of pseudo code, a graphic representation of program logic is not available.
- There are no standard rules to follow for using a pseudo code. Different programmers use their own style of writing pseudo code and hence, communication problem occurs due to lack of standardization.

Examples

Pseudo code to add 2 numbers is as follows;

```
Begin
        Set sum=0;
        Read: num1, num2;
        Set sum = num1+num2;
        Print sum;
End
```

Pseudo code to find the area of a Rectangle is as follows.

```
Begin
        Read: width, length;
        Set area = width * length;
        Print area;
End
```

Pseudo code of sequential flow with multiple alternatives is as follows.

```
Begin
Read: x;
if x==1 then
        Print: “One”;
else if x==2 then
        Print: “Two”;
else
        Print: “x is not 1 or 2”;
endif
End
```

Pseudo code to print 5 numbers is as follows.

```
Begin
Set i=1;
while i<=5
        Print : i;
        Set i= i+1;
endwhile
End
```