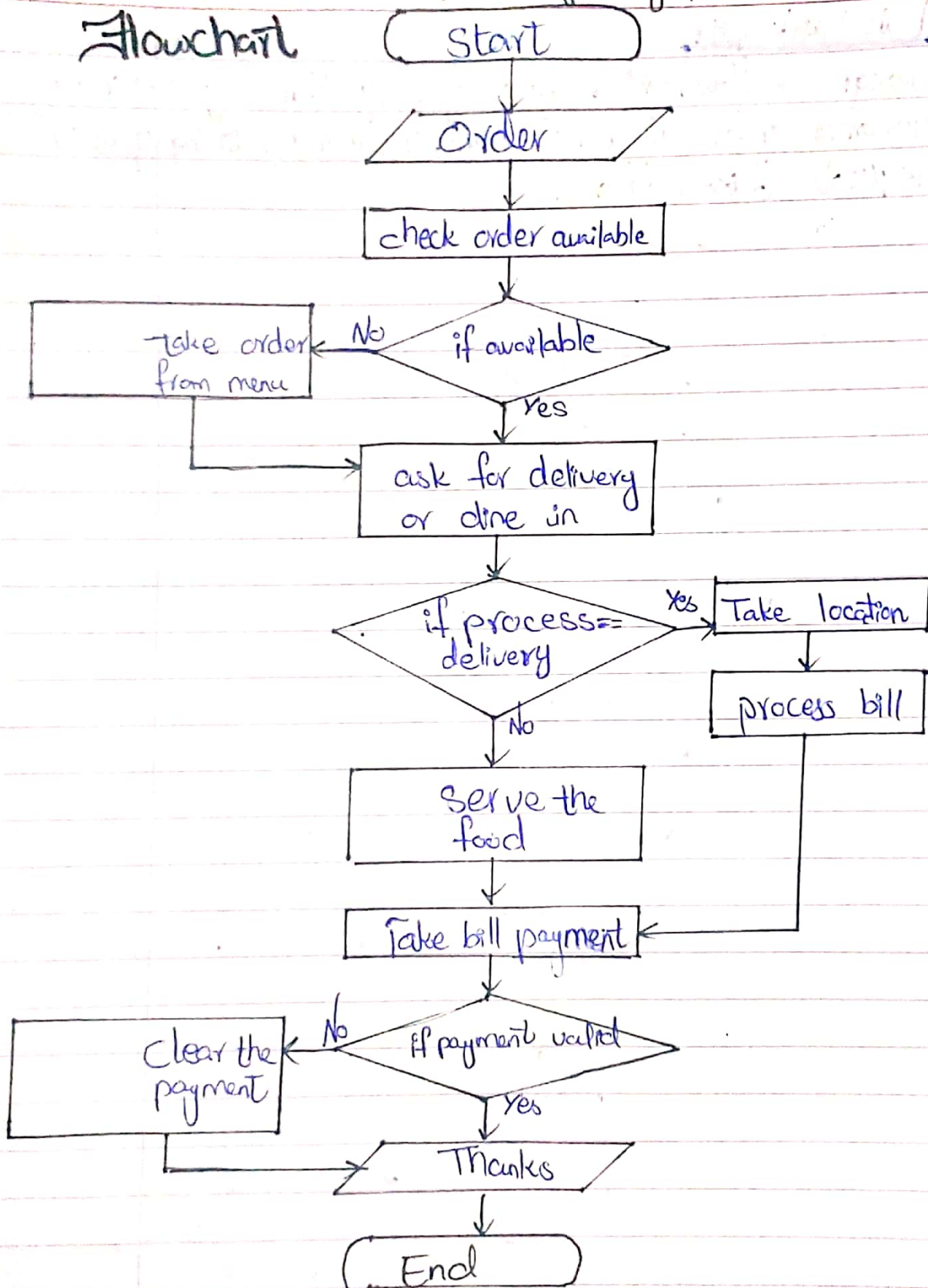1: Design a flowchart, Pseudocode, Algorithm form processing a customer order at a restaurant, including handling special requests.

Flowchart

```
                    ( Start )
                       |
                    / Order /
                       |
              [ check order available ]
                       |
                       v
   [ Take order ]  No  < if available >
   [ from menu  ]<------
        |              | Yes
        |              v
        +------->[ ask for delivery ]
                 [ or dine in      ]
                       |
                       v                 Yes
              < if process== >-------->[ Take location ]
              < delivery     >              |
                       |                     v
                       | No           [ process bill ]
                       v                     |
              [ Serve the  ]                 |
              [ food       ]                 |
                       |                     |
                       v                     |
              [ Take bill payment ]<---------+
                       |
                       v
  [ Clear the ]  No  < If payment valid >
  [ payment   ]<------
        |              | Yes
        |              v
        +------->/ Thanks /
                       |
                       v
                    ( End )
```

Pseudocode,

1. Start
2. Take order
3. check if order is available,
   then move to next step
   else,
   take order from menu
4. check if delivery
   then take location and move to step 5
   else,
   serve food
5. Take bill payment
6. Check if bill payment valid proceed
   else,
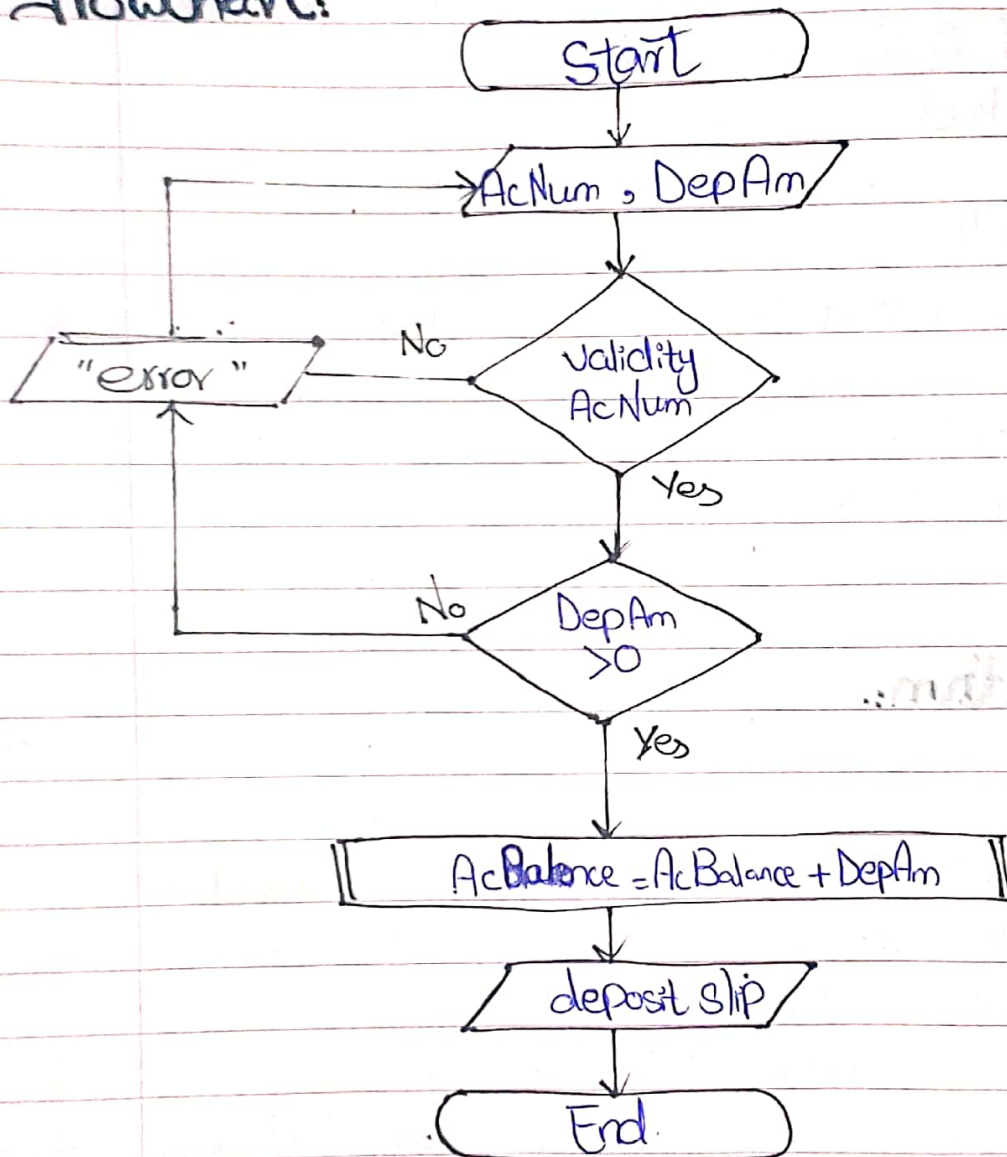   clear the payment
7. Say thanks
8. End

Algorithm :-

step 1. Start
step 2. Read order
step 3. check : if order available, proceed
   else, take order from menu
step 4: check : if delivery, take location and proceed to step 5
   else, serve food
step 5: Take bill payment
step 6 Check: if bill payment valid, proceed
   else, clear the payment
step 7 Print "Thanks"
step 8 End

Q2 Design a flowchart, Pseudocode, Algorithm for handling a customer's deposit transaction at a bank, including checks for account validity and deposit amount condition.

Flowchart:

```
                    ( Start )
                        |
                        v
        ----->  / AcNum , DepAm /
        |               |
        |               v
        |    No      < Validity >
 / "error" / <------- < AcNum  >
        ^               |
        |              Yes
        |               |
        |    No         v
        |   <------  < DepAm >
        |           <   >0   >
        |               |
        |              Yes
        |               v
        |    || AcBalance = AcBalance + DepAm ||
        |               |
        |               v
        |       / deposit slip /
        |               |
        |               v
        |           ( End )
```

Pseudocode.

1. Start.
2. Declare variables AcNum, DepAm and AcBalance.
3. Take Values for AcNum and DepAm.
4. Check : if AcNum is valid,
       check: if DepAm > 0,
           AcBalance = AcBalance + DepAm
       else,
           display "error" and move to 3rd step.
     else,
       display error and move to 3rd step.
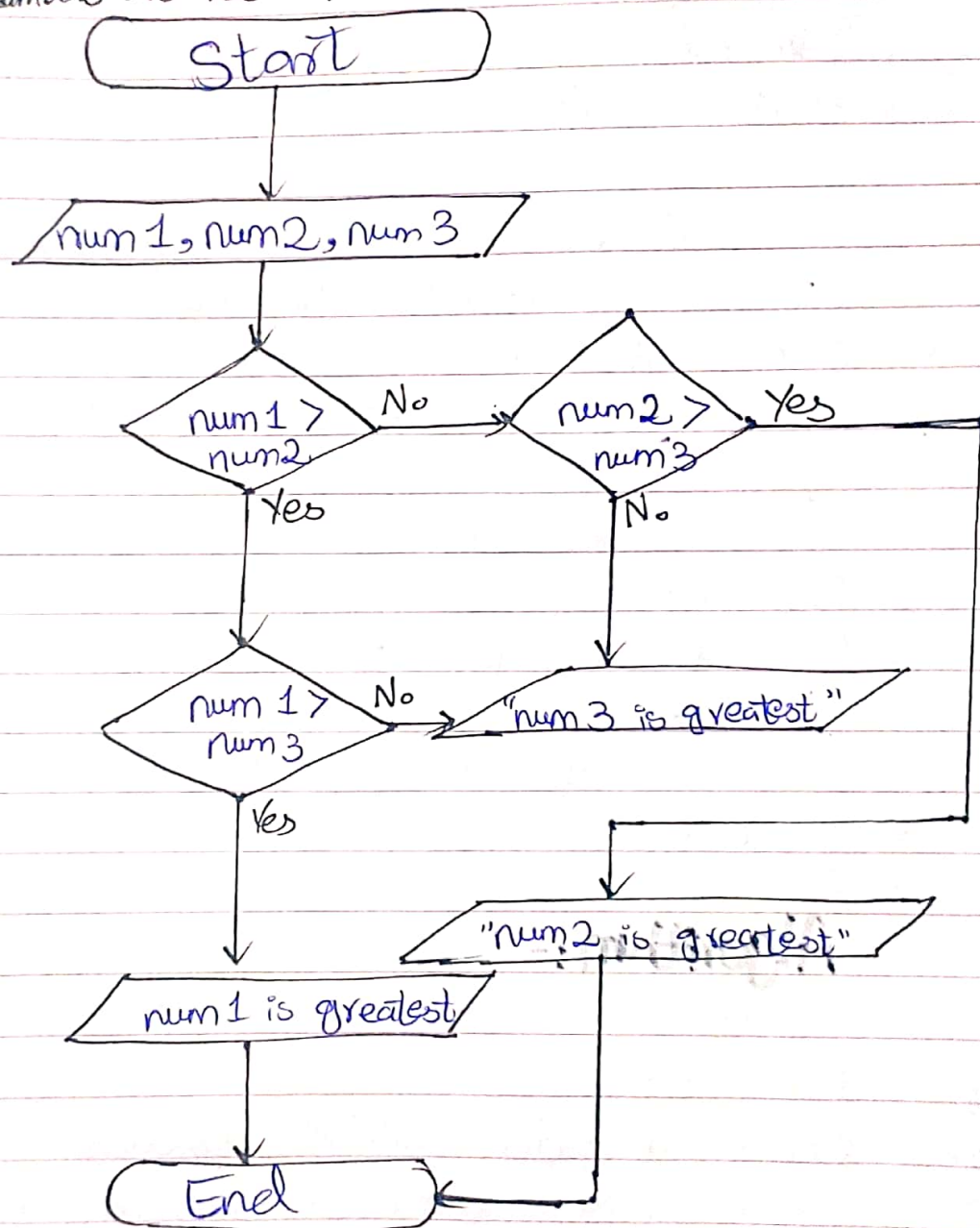5. Give deposit slip
6. End.

Algorithm..

Step 1:   Start
Step 2:   Declare variables AcNum, DepAm and AcBalance
Step 3:   Read values from users and set to variables.
Step 4:   check : if AcNum is valid,
        check: if DepAm > 0,
            AcBalance = AcBalance + DepAm
        else,
          display 'error' and repeate Step 3
      else,
        display "error" and repeat Step 3.
Step 5: Print deposit slip.
Step 6: End.

Q.3   Design a flowchart, Pseudocode, Algorithm to define determine which of these provided numbers is greatest (three numbers are not equal)

Flowchart:

```
                    Start
                      |
                      v
        /num 1, num 2, num 3/
                      |
                      v
           num 1 >        No          num 2 >       Yes
           num 2    ------------->    num 3    -------------
               |                        |                  |
              Yes                       No                 |
               |                        |                  |
               v                        v                  |
           num 1 >        No      "num 3 is greatest"      |
           num 3    ---------->                            |
               |                        |                  |
              Yes                       |                  |
               |                        v                  |
               |              "num 2 is greatest"          |
               v                        |                  |
      /num 1 is greatest/               |                  |
               |                        |                  |
               v                        |                  |
            End  <---------------------                    
```

Pseudocode:-

1 Start.
2. initialize three variables num1, num2, num3.
3. Take 3 numbers from users.
4. Check for largest number.
5. Display largest number.
6. End.

Algorithm

Step 1: Start

step 2: Declare variables num1, num2 and num3.

step 3: Input num1, num2 and num3.

step4 : Check : if num1 > num2 && num1 > num3,
display "num1 is the largest"
else check: if num2 > num3,
display "num2 is the largest"
else,
display "num3 is the largest".

step5. End

Q. Implement an algorithm for making a simple where the users enters a number, and an appropriate month is displayed.

Algorithm:

Step 1. Start
Step 2: ~~Read~~ Declare variable Mnum.
Step 3. Read Mnum from user
Step 4. Check: if $1 > Mnum > 12$,
         display "invalid number"
    else,
       proceed.

Step 5 Check, if Mnum == 1,
       print "January"
    else if Mnum == 2,
       print "February"
    else if Mnum == 3,
       print "March"

     . . .

    else if Mnum == 11
       print "November"
    else,
       print "December"

step 6 End

Qs Create pseudocode a small calculator which only does '+' or '-' operations (Hint : Take three variable inputs with one being used for the operator)
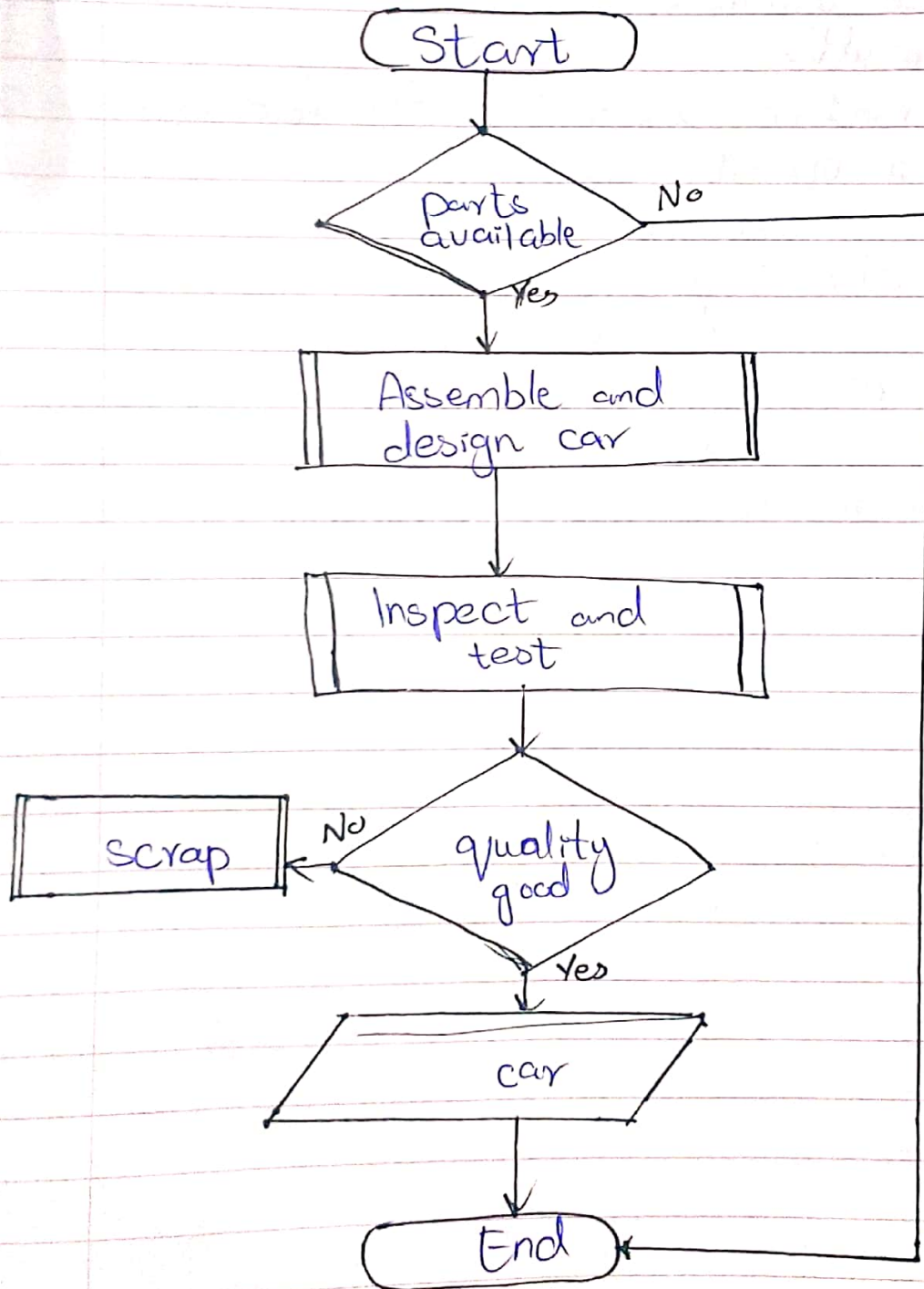
Pseudocode

- Initialize variables num1, num2, operator (+ or -), and result.
- Input num1, num 2, and operator from user
- Check if operator equals " + "
          result = num1 + num2
     else if operator equals "-"
          result = num 1 - num2
     else,
          display "Invalid operator"
- Display result.
- End

Q6 You are working at Tayda Indus Motors and want to assemble a car. Design a flowchart with proper process modules and decision structures. to replicate a pipeline production.

Flowchart:-

```
                    ┌─────────┐
                    │  Start  │
                    └─────────┘
                         │
                         ▼
                    ◇ Parts ◇ ──No──┐
                    ◇available◇      │
                         │Yes        │
                         ▼           │
                 ┌──────────────┐    │
                 │ Assemble and │    │
                 │ design car   │    │
                 └──────────────┘    │
                         │           │
                         ▼           │
                 ┌──────────────┐    │
                 │ Inspect and  │    │
                 │    test      │    │
                 └──────────────┘    │
                         │           │
          ┌───────┐  No  ◇quality◇   │
          │ Scrap │◄─────◇ good  ◇   │
          └───────┘      ◇       ◇   │
                         │Yes        │
                         ▼           │
                    ╱ car ╱          │
                         │           │
                         ▼           │
                    ┌─────────┐◄─────┘
                    │  End    │
                    └─────────┘
```

Q7. Implement an algorithm for making a simple calculator with all the operators (+,-,*,/,%)

Algorithm :-

Step 1. Start

Step 2. Declare variables as num1, num2, opt and cal.

Step 3. Read ip two numbers from user and set to num1 and num2 and operator and set to opt.

Step 4. Check: if opt == "+";

$$cal = num1 + num2$$

else if opt == "-";

$$cal = num1 - num2$$

else if opt == "*"

$$cal = num1 * num2$$

else if opt == "/"

$$cal = num1 / num2$$

else if opt == %

$$cal = num1 \% num2$$

else,

print "Invalid operator"

Step 5: End, print cal.

Step 6: End.