

Digital Watch



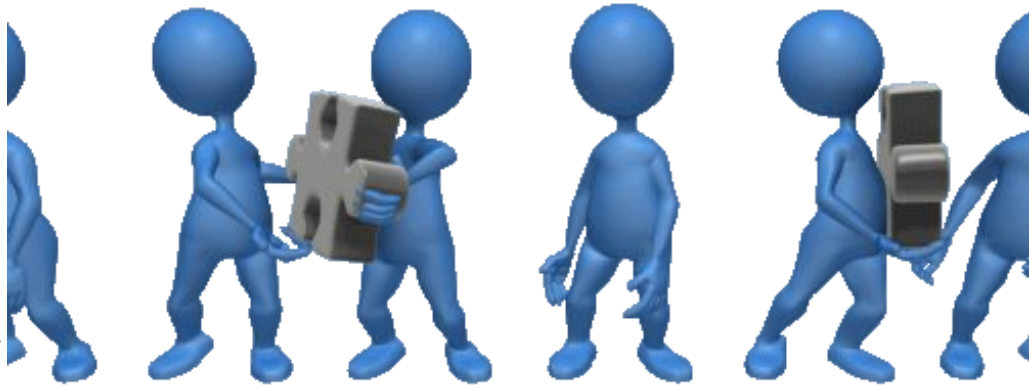
Team members

- Nada Elsayed Arafat sec:8
- Nahla Hatem Mohamed sec:8
- Wafaa Samy sec:8
- Mona Khaled Sobhy sec:8
- Mona Elsayed Ismail sec:8
- Haidy Ashraf sec:8
- Heba Mohamed (leader) sec:8



project content

- Digital watch .
- Date .
- Stopwatch .
- Pomodoro timer .
- Alarm .
- Simple calculator .



Semi Smart Watch

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graph TD; A[Semi Smart Watch] --> B[Digital watch Date]; A --> C[Stop watch Pomodoro]; A --> D[Alarm]; A --> E[Simple calculator]; B --> B1[★ Heba Mohamed]; B --> B2[★ Mona Khaled]; C --> C1[★ Haidy Ashraf]; C --> C2[★ Wafaa Samy]; D --> D1[★ Mona Elsayed]; D --> D2[★ Nada Elsayed]; E --> E1[★ Nahla Hatem];
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◀ Digital watch
◀ Date

◀ Stop watch
◀ Pomodoro

◀ Alarm

◀ Simple calculator

★ Heba Mohamed
★ Mona Khaled

★ Haidy Ashraf
★ Wafaa Samy

★ Mona Elsayed
★ Nada Elsayed

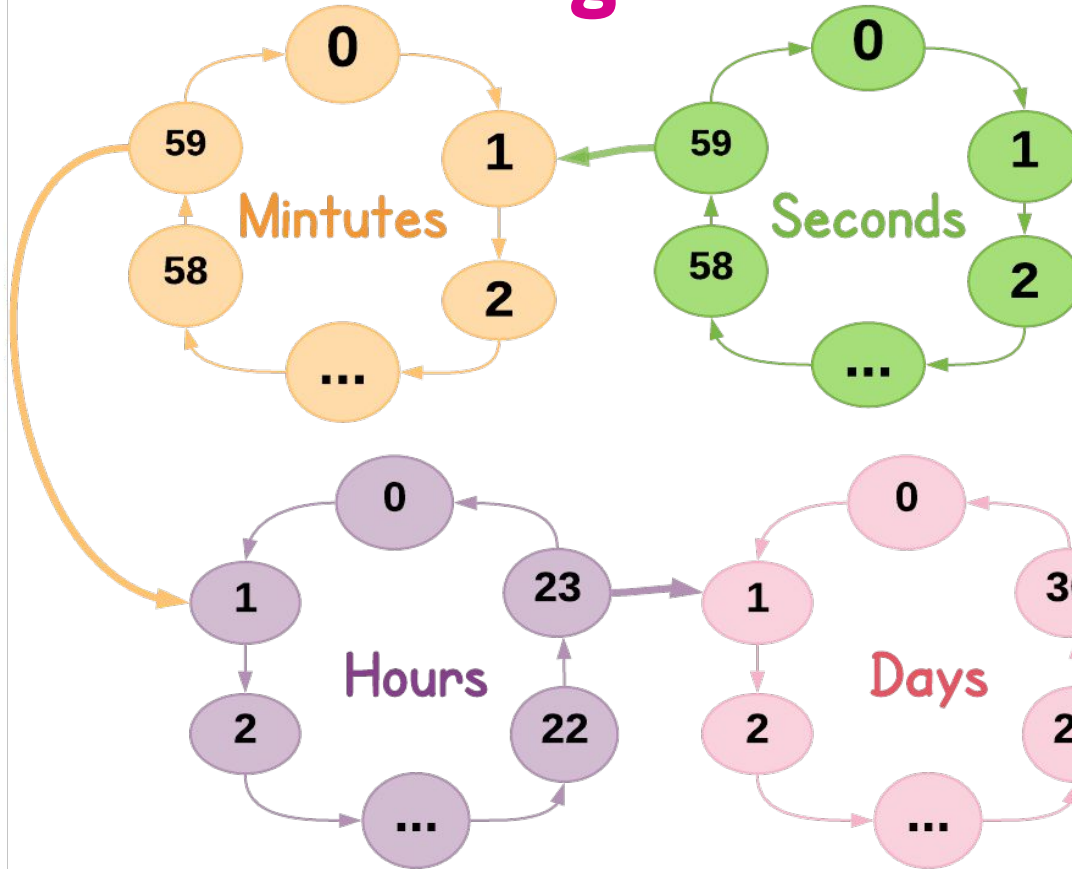
★ Nahla Hatem

Semi Smart Watch diagram

◆ Contains five buttons to move different parts

- StopWatch_on : for starting Stopwatch .
- StopWatch_off : to stop Stopwatch .
- Pomodoro_in : to run pomodoro timer.
- Alarm_in : to Turn on the alarm clock.

Watch design



□ Data

what date depend on ?

it depends on the watch .

How that work ?

- When digital watch became [23:59:59] the days counter +1 .
- days counter start from (1) .
- months counter start from (1) .
- years counter start from (2018) .
- The year contains several months:-
- Months have 30 days : April , June , September , November .
- Months have 31 days : January, March, May, July, August, October, December.
- and February has 28 days .



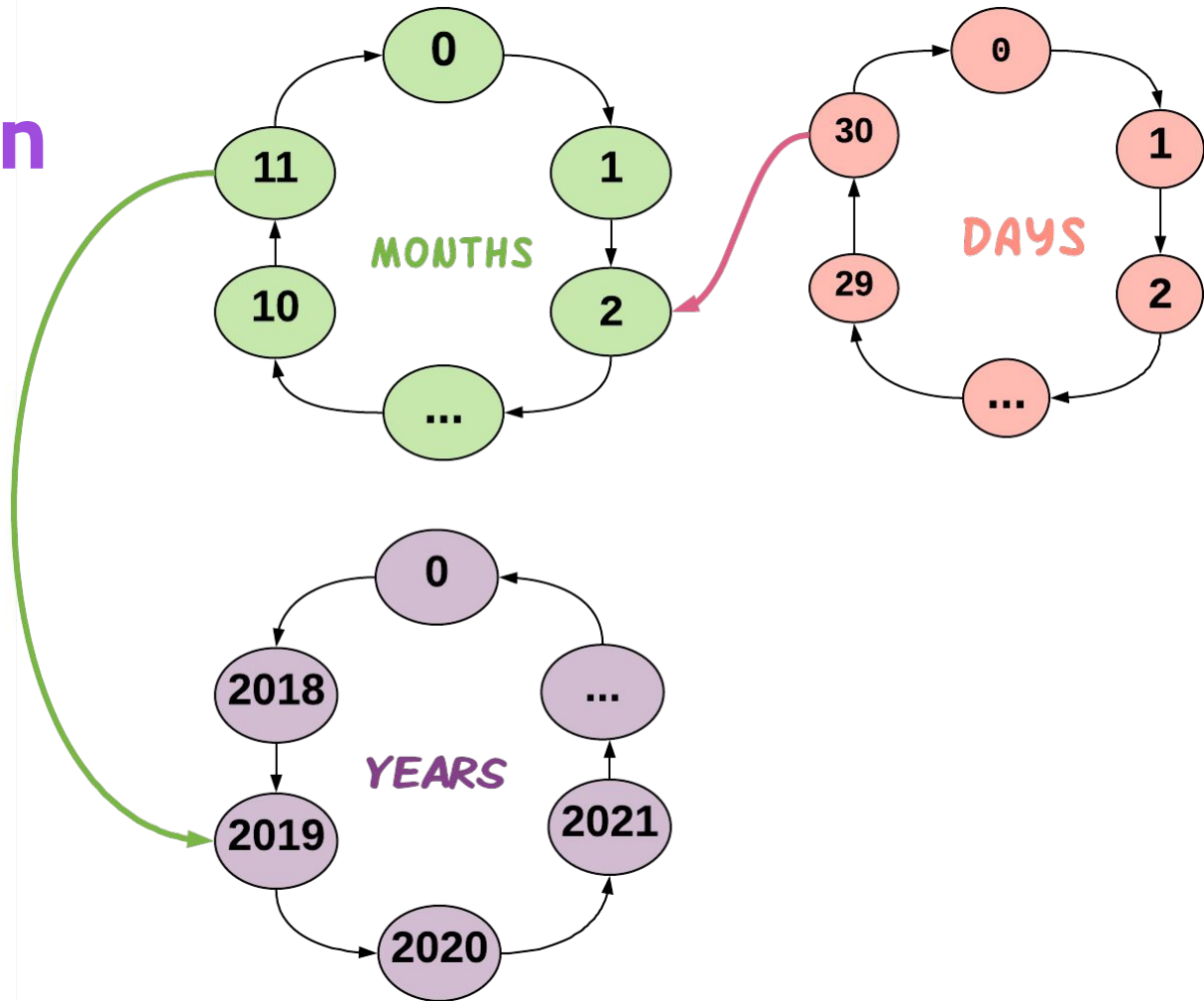
And so...

when it became [31/12/2018] the counter of years +1 .

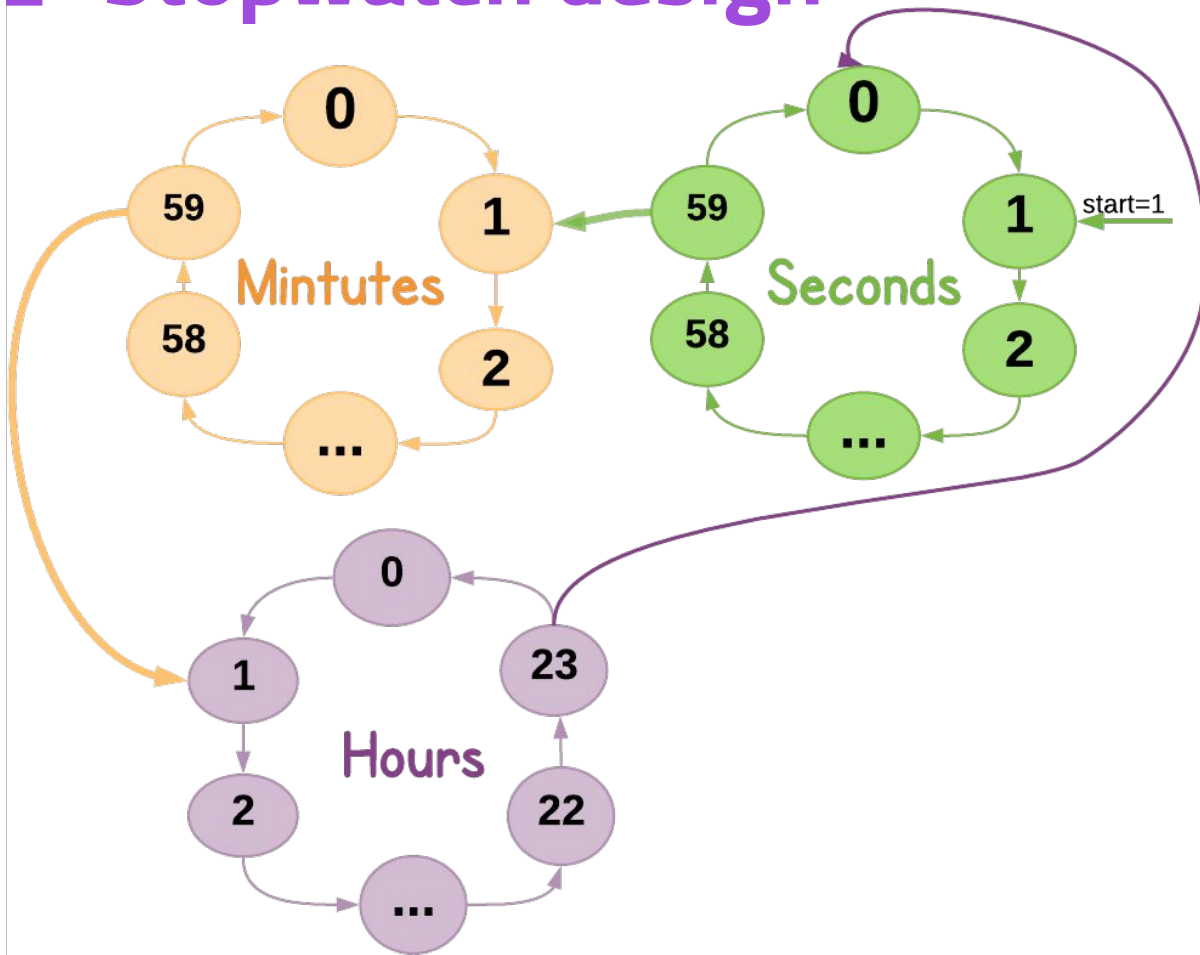
📅 Date design

Note:-

- zero state occurs when you press the RST button
- the initial value of Date is [1/1/2018]



Stopwatch design



❏ Pomodoro technique

What is the pomodoro and how does it operate ?

- the pomodoro in English of the Italian word means (tomato).
- The technique uses a timer to break down work into intervals, traditionally 25 minutes in length, separated by short breaks traditionally 5 minutes in length .

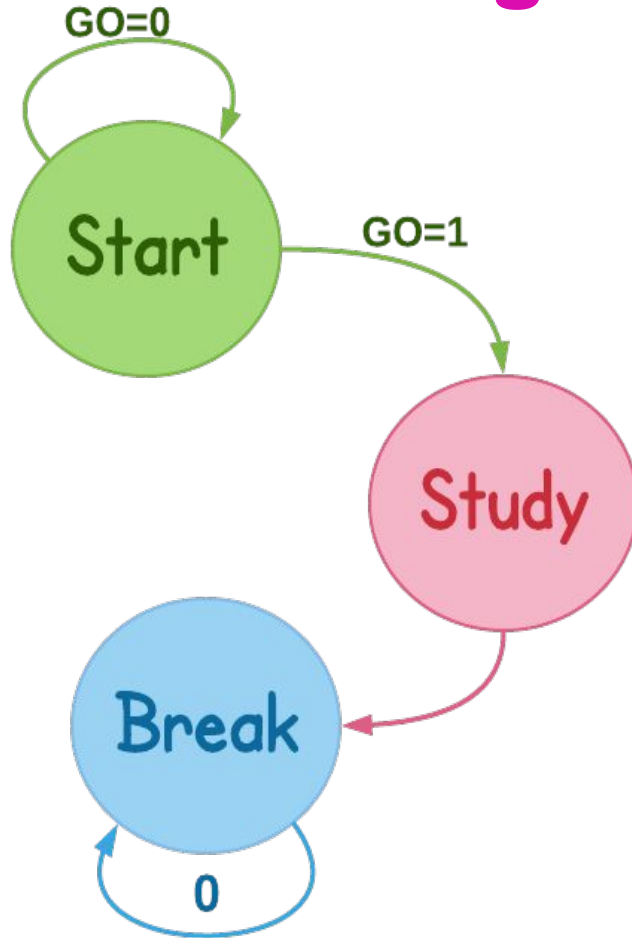
How the program in VHDL works?

- when pressing **GO**:
The pomodoro starts to count from 0 to 25 minutes (**study**).
and then it will count from 0 to 5 minutes (**break**).
another press it will count from 0 to 25 minutes (**study**).
- Contains input “**GO**” to control states .

Pomodoro Timer
A freeCodeCamp Project



❏ Pomodoro design



Alarm

❖ inputs

alarm_armed : To set the alarm .

❖ outputs

buzzz : A voice occurs to wake up .

❖ States

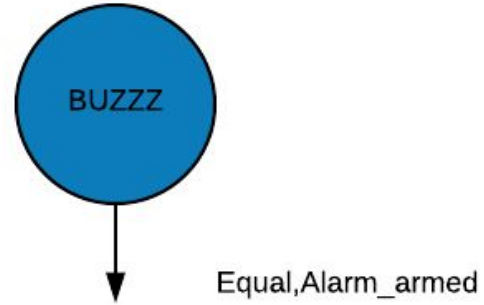
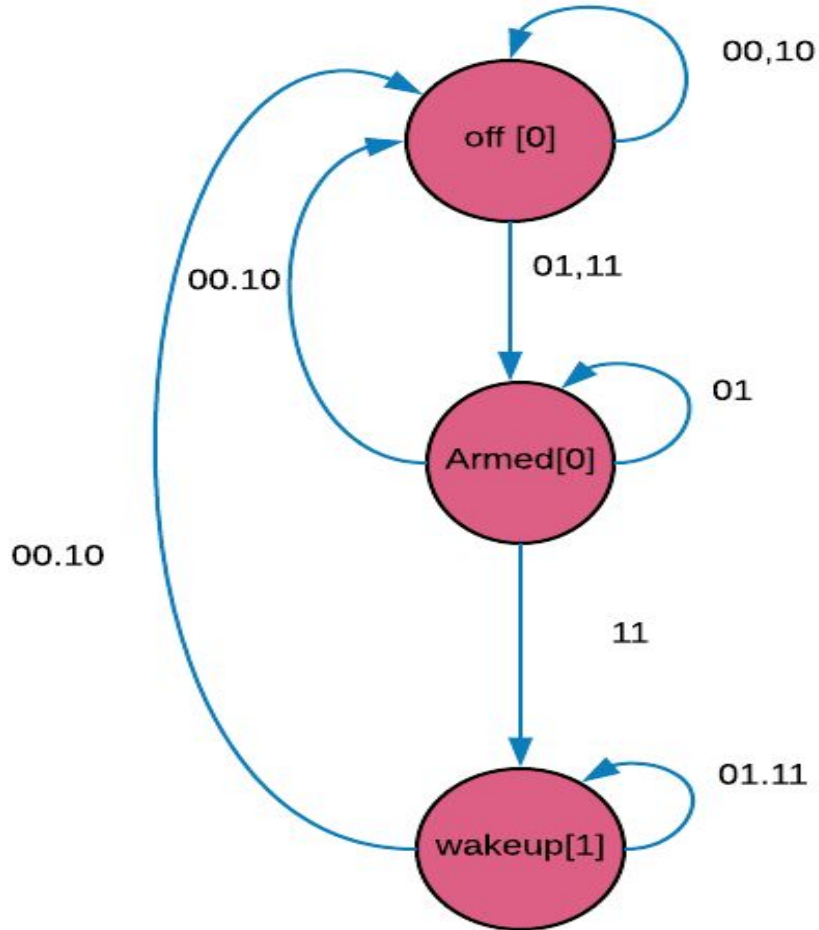
Off : Alarm clock is closed .

armed : the alarm clock is set and waiting for the right time to move to its wakeup state .

wake up : The alarm clock sounds buzzz .



Alarm design



❏ Simple calculator

❖ Operations

The calculator contains four basic operations:-

- Addition
- Subtraction
- Multiplication
- Division

Each operation has block that is responsible for its execution

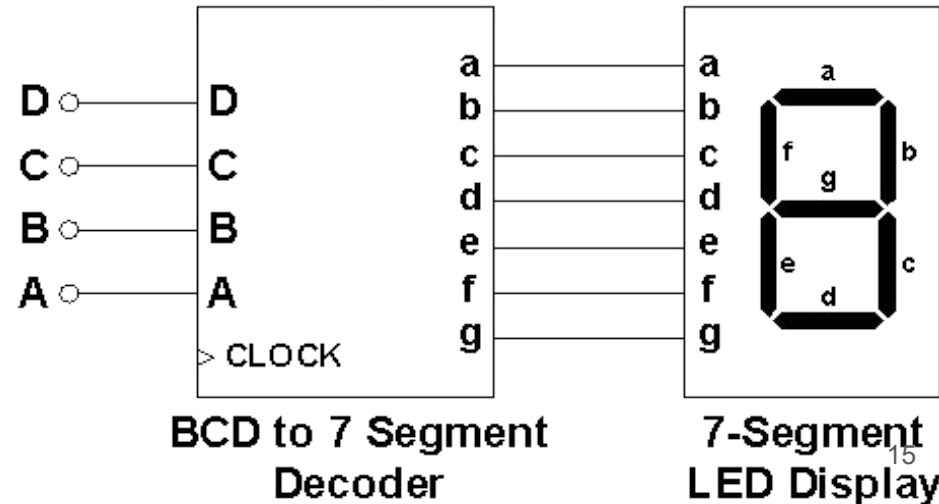


❖ Inputs

- we have 2 input(first and second number) where.
- each input consists of 8-bit and button to control it one of the two buttons is for single numbers and the other for the dozens number
- each button connected to counter when the user push the button the value of it until it reach the value desired by the user .

❖ Outputs

the output appears to user on the seven segment by using decoder



❖ the control block

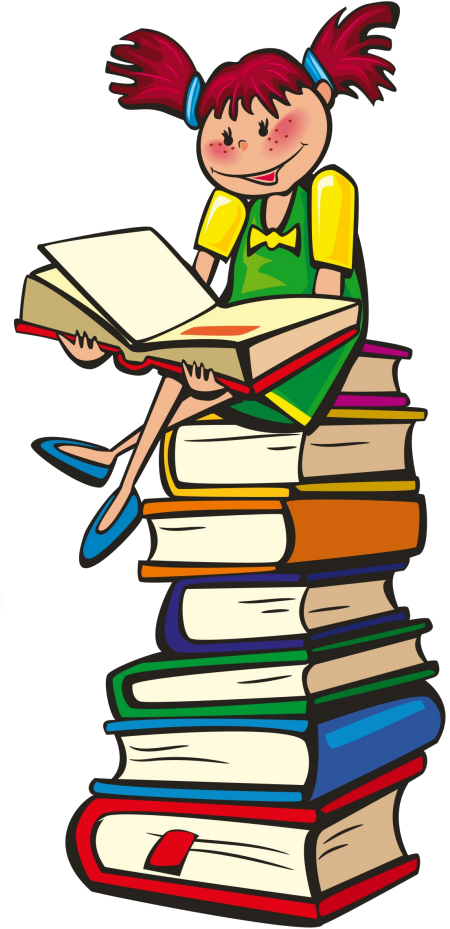
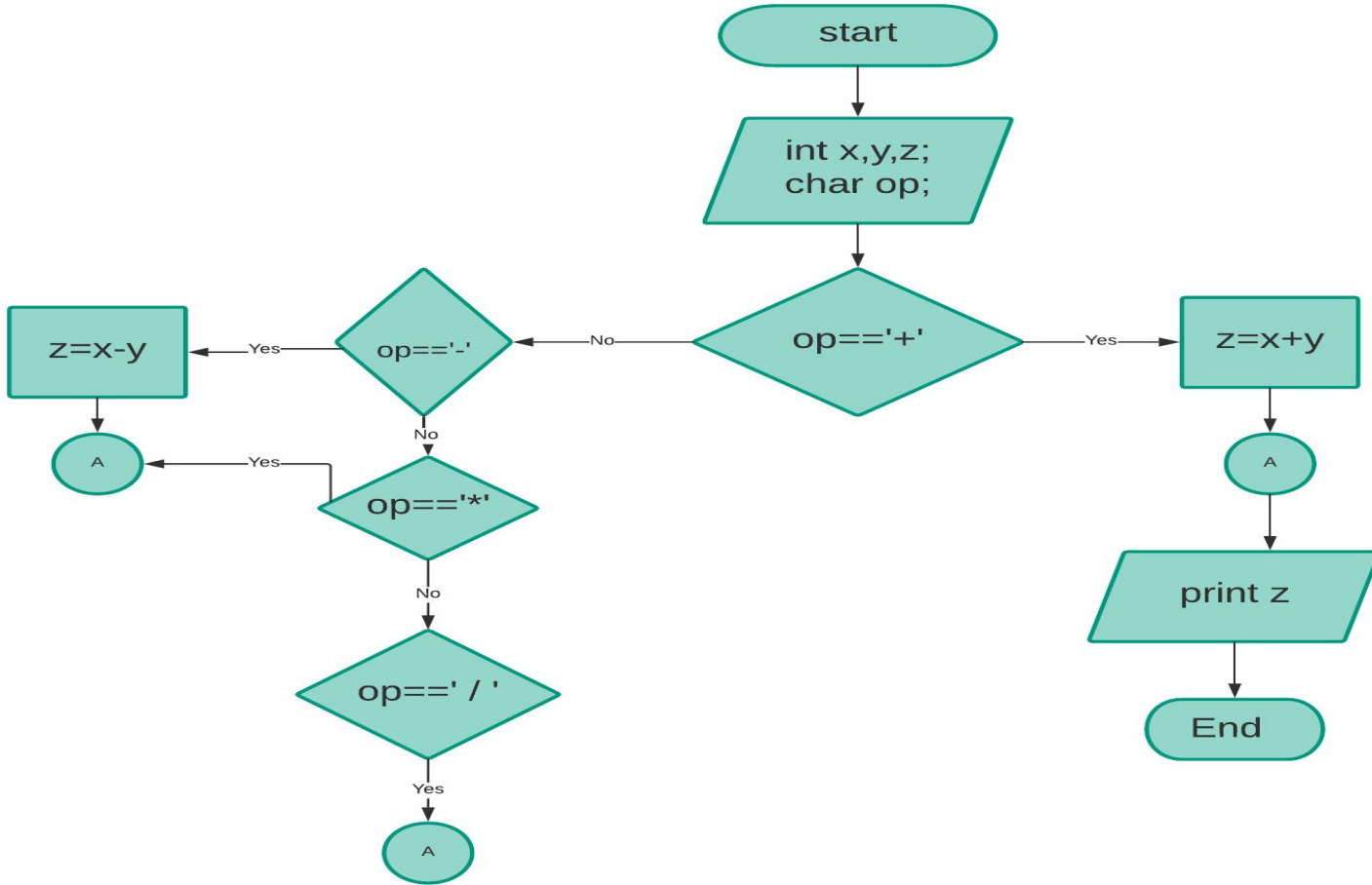
Used for controlling The type of process when pressing the multiplication button (for example) the output is the multiply of the two numbers .

Note:

- if the user active two operations, for example it is multiplying and addition, then the machine calculates one operation according to priority .
- The priority of addition > subtraction > multiplication > division .



Simple Calculator design



THANKS