Day 2 Assignments: <u>CLASS WORK</u>   **NOTE: DAILY evaluation will be done.**

Context: Assignments based on Serial communication Arduino library

PAUSE VIDEO: After 34 minutes:43sec of video:

Q5 Declare a variable as 'unsigned char c=0', print its numeric value inside a loop and increment it in every iteration. After what value it becomes zero again?

Q6 Write an Interactive program for switching the LEDs, ON and OFF. Connect four LEDs to the Arduino with four different resistances of 470-ohm each. The sample input-output of the program is shown below:

```
Do you want to glow RED LED : y/n
User enters: y

Do you want to glow GREEN LED : y/n
User enters: y

Do you want to glow YELLOW LED : y/n
User enters: n

Do you want to glow WHITE LED : y/n
User enters: y

The status of the LEDs is updated as per user requirement.
```

HINT: Use `Serial.print()` to display messages on Serial Port. Use some kind of Serial input function to input user response. This program is just like a `printf()` and `scanf()` type of exercise!

PAUSE VIDEO After 44:31 Sec

Q7 Ask the user to enter a ONE digit number,
Ask the user to enter another ONE digit number
Print the sum of two numbers on serial terminal

ALSO display the sum on 7-segment display (SSD).
Use the function void `displayNumber(int n)`
[If you have not developed this function, do it now, it will be used in other assignments as well]

NOTE:
If the number is <= 9 then display on SSD
Else blank the display (lit the dot 'dp') to indicate an over flow.
HINT 1:
```
// Here num1, num2 and sum are integers
//       a and b are characters.

read a from Arduino Serial Monitor
num1 = a -'0'; // Serial comm. only read/write chars, so convert ASCII char to number

read b from Arduino Serial Monitor
num2 = b -'0'; // Serial comm. only read/write chars, so convert ASCII char to number

sum = num1 + num2;

if(sum <= 9)
 Simply display
else
  Special case
```

Advanced Users ONLY:
If you are a good programmer: Imagine you had a two digit display
One display for UNITS, another for TENS (You understand, units, tens, hundreds, thousands .... right!)

The largest number the user can give are 9 and 9, the sum would be 18
The smallest number the user can give 0 and 0, the sum would be 00
Observing the cases, the Most Significant Digit (MSD) is 1 or 0

Can you use, one LED, to display Tens and One SSD for units ?? In this way you can display from 0 to**19**

HINT 2: Advanced users
user gave two inputs 6 + 8
the answer is 14
How to separate the two digits 1 and 4 ?
Use Divide by 10 and mod operator (%)

After the video:
Q8 Learn how to input a String from user

Lower case r is to OFF the red LED
UPPER case R is to ON the red LED
Ask the user to enter a "string"
Example:
Input: RgYw
OUTPUT: RED ON, green off, YELLOW ON, white off

HOME WORK
Submit the answer drop.box.submit@gmail.com within 24hours (ie 2:30pm next day)

Q9 Input two numbers from Serial terminal A and B in the program (between 0 and 4). The sum of A and B can goto another variable C. Display C on Seven Segment display as well as on Serial terminal.
HINT: Serial.parseInt()
Use the function from yesterday's home work to display on seven segment: **void displayNumber(int n)**

Q10 : In a loop:
    Switch OFF SSD
    Ask the user which digit to display on SSD (0 to 9).
    Display as per the user requirement.
    Delay for 10 seconds and Loop again

Q11 Ask the user to enter his/her given name. The name may be in between 2 to 12 char only. Convert it to upper case. Display the name on Arduino Serial Monitor in a boxed form as shown below:

```
O:    Please neter your given name:
I:    Bansidhar
O:    The length of name is 9 char
+---+---+---+---+---+---+---+---+---+
| B | A | N | S | I | D | H | A | R |
+---+---+---+---+---+---+---+---+---+
Thnaks.

O:    Please neter your given name:
I:    Deepika
O:    The length of name is 7 char
+---+---+---+---+---+---+---+
| D | E | E | P | I | K | A |
+---+---+---+---+---+---+---+
Thnaks.

O:    Please neter your given name:
I:    John
O:    The length of name is 4 char
+---+---+---+---+
| J | O | H | N |
+---+---+---+---+
Thnaks.
```

HAPPY CODING !!!!!!!!!