How Arduino reads serial data? (comes from Processing or directly from user input in Serial Monitor)

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Answer: It depends where it comes from!

Case1: If it comes from the user input directly in serial port:

The Serial.read() reads the information character by character:

One example of doing this is webct solution for threeLEDs workshop 8 exercise4.

Here is another way of doing it: (reading the data byte by byte but extracting one integer out of it):

//*** Arduino code:

```
int newData=0; // define this in global scope before setup
int userInput = 0; //same as above!


void loop()
{
if (Serial.available() > 0) {
userInput = Serial.read();
if(userInput>='0' && userInput<= '9')
{
newData=newData*10+(userInput-'0');
}

else if (userInput == 'B'|| userInput == 'b')
{
pin=newData; //newData is ready to use
newData=0;
analogWrite(pin, bright);
value = 0;
}

else if (userInput == 'M'|| userInput == 'm')
{
pin=newData; //newData is ready to use
```

```
newData=0;
analogWrite(pin, medium);
value = 0;
}

else if (userInput == 'L'|| userInput == 'l')
{
pin=newData; //newData is ready to use
newData=0;
analogWrite(pin, low);
value = 0;
}
}
}
```

Case2: If data comes from Processing:

```
// ***** Processing:

int a= 56; //example data
port.write(a);
```

Here Arduino reads one byte per time. The byte is 8 bits , so if the integer in Processing is between 0 and 255 , it can understand it right away!

```
//**** Arduino:

int incomingByte = Serial.read(); //it is ready to use!
```

Note:
What if the value is greater than 255? You could think and come up with a solution for reading that.