Serial - Timing Code

1.

```
int red = 11;
int blue = 10;
int green = 9;

void setup()
{
  pinMode(red, OUTPUT);
  pinMode(blue, OUTPUT);
  pinMode(green, OUTPUT);
  Serial.begin(9600);
}

void loop()
{
  if (Serial.available() > 0)
  {
    String input = Serial.readString();
    if(input == "yellow")       {
           analogWrite(red,255);
           analogWrite(green,255);
           analogWrite(blue,0); }
    else if (input == "purple") {
           analogWrite(red,168);
           analogWrite(green,0);
           analogWrite(blue,255);}
    else
      Serial.println("ERROR");
  }
}
```

2.

```
#define green 9
#define blue 10
#define red 11
#define button 2

int lastState = false; // previous button state
int state; // button state
bool color; //true - purple, false - yellow

void setup(){
  pinMode(button,INPUT);
  pinMode(green,OUTPUT);
  pinMode(blue,OUTPUT);
  pinMode(red,OUTPUT);
}
```

```
void loop(){
  checkButton();
  if(color)
    lightPurple();
  else
    lightYellow();
}

// change 'color' variable when button is pressed
void checkButton(){
  state = digitalRead(button); // get new state
  if(state != lastState){ // if there is state change
    if(state == 1){ // and the input is now HIGH
      color = !color; // change color
    }
  }
  lastState = state; // store new state as last state
}

void lightPurple(){
  analogWrite(red,168);
  analogWrite(green,0);
  analogWrite(blue,255);
}

void lightYellow(){
  analogWrite(red,255);
  analogWrite(green,255);
  analogWrite(blue,0);
}
```

3.

```
#define led 13

void setup()
{
  pinMode(led, OUTPUT);
}

void loop()
{
       // turn the LED on (HIGH is the voltage level)
  digitalWrite(led, HIGH);
  delay(500); // Wait for 500 millisecond(s)
     // turn the LED off by making the voltage LOW
  digitalWrite(led, LOW);
  delay(500); // Wait for 500 millisecond(s)
}
```

4.

```
#define led1 12
#define led2 8

     // time of latest change
uint64_t lastMillis1 = 0;
uint64_t lastMillis2 = 0;

     // periods
uint64_t period1 = 1000;
uint64_t period2 = 300;

/    / state of the LED
bool state1 = false;
bool state2 = false;

void setup(){
  pinMode(led1, OUTPUT);
  pinMode(led2, OUTPUT);
}

void loop(){
  digitalWrite(led1,state1);
  digitalWrite(led2,state2);

     // check for led1
  if(millis() > lastMillis1 + period1){
        lastMillis1 = millis();
        state1 = !state1;
    }

     // check for led2
  if(millis() > lastMillis2 + period2){
        lastMillis2 = millis();
        state2 = !state2;
    }
}
```