CS3514 Laboratory Session:

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Repeat the following sections for each question

Question Number: **Play Lotto**

Answer:

----------Report----------

I start by setting a *define* function that will compute the size of a given array. This will be used later in the code to loop through the lotto numbers array.

Then I declare *variables*.

- **lotto_Numbers** = an array of long data type, used to store the lotto numbers.
- **random_Number** = stores the randomly generated number between 1-42, returned by random().
- **time_passed** = the amount of milliseconds since the program began. I use this to determin if ten seconds has passed.
- **seconds** = how often do you want to print lotto numbers array.

In my *setup function* I begin the Serial monitor and set random seed to analog pin 0.

In my *loop function* I begin with setting a one second delay for each iteration of the loop.
Then I calculate the time passed since program began and divide and modulus divide to see if it has been a multiple of 10 seconds yet. If it has been 10 seconds then call a function to generate and print an array of 6 lotto numbers.
Otherwise print how many seconds has passed.

Fucntion to generate and print 6 lotto numbers.

Generate 6 random integers between 1-42 with a while loop that each iteration generates the number and adds it to the array.
Then I print the array to the Serial monitor.

----------Code----------

```
#define ARRAY_SIZE(arr) sizeof(arr)/sizeof(arr[0])

long lotto_Numbers[6];              //initaites array of size 6 of all 0's.
long random_Number;                 //random number to be appended to lotto array.

unsigned long time_passed;          //millis() returns unsigned long.
long seconds=10;                    //***must use a long when doing calculation operations on another long!!!!

void setup(){
    Serial.begin(9600);             //begin serial monitor at bit rate of 9600 bits per second.
    randomSeed(analogRead(0));
    /* if analog input pin 0 is unconnected, random analog
     noise will cause the call to randomSeed() to generate
     different seed numbers each time the sketch runs.
     randomSeed() will then shuffle the random function.
    */
}

void loop(){
  delay(1000);
  random_Number = random(1,43);     //43(not 42) because random(min,max) loops up to max-1

  time_passed = millis();           //return how long has passed since program began in milliseconds
  time_passed = time_passed/1000; //divide this by ten seconds (1000) to convet to 1.2345.
  time_passed = time_passed%seconds;     //modulus divide to calculate if its divisable by 10 (seconds).
  if(time_passed == 0){
    //call function that prints lotto array
    printTicket(lotto_Numbers,ARRAY_SIZE(lotto_Numbers));
  }else(Serial.println(time_passed));
}

//function to print lotto array
void printTicket(long array_Input[],int arraySize){
    //generate 6 random numbers
```

```
    for(int i = 0; i < arraySize; i++){
      //generate random numer
      random_Number = random(1,43);    //43(not 42) because
random(min,max) loops up to max-1
      //append to lotto array
      array_Input[i] = random_Number;
    }
    //print array
    Serial.print("Lotto_Numbers: [");
    for (int i = 0; i < arraySize -1; i++){
      Serial.print(array_Input[i]);
      Serial.print(",");
    }
    Serial.print(array_Input[arraySize-1]);
    Serial.println("]");
}
```

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