

INTRODUCTION A

Source Code:

```

package introduction;
import java.util.Scanner;
public class BSCS2_Marasigan_IntroductionA
{
    public static void main(String[] args)
    {
        Scanner in = new Scanner(System.in);

        int input, choice = 0;
        char d='N';
        do
        {
            //user input here
            System.out.print("Input Integer Value:\t");
            input = in.nextInt();
            do
            {
                //options here
                System.out.print("\nWhat do you want to do?\n1.\tSum of digits\n2.\tReverse the number"
                    + "\n3.\tDisplay all the prime number from 2 to n (n is the user's input).\n\t"
                    + " Apply the algorithm of Sieve of Eratosthenese\n"
                    + "4.\tPalindrome Checking\n5.\tOdd or even number"
                    + "\n6.\tExit\n\n Enter option [1..6]:\t");
                choice = in.nextInt();

                //make methods for clarity
                switch (choice)
                {
                    case 1: sumOfDigit(input); break;
                    case 2: System.out.println(reverse(input)); break;
                    case 3: seiveOfEratosthenese(input); break;
                    case 4: System.out.println(palindrome(input)); break;
                    case 5: System.out.println(oddOrEven(input)); break;
                    case 6: d = 'N'; break;
                }

                if (choice < 6)
                {
                    System.out.print("\nWant to try other options? [Y/N]:\t");
                    String decide = in.next().toUpperCase();
                    d = decide.charAt(0);
                }
            }while (d == 'Y');
        }
    }
}

```

GDRIVE: <https://drive.google.com/drive/folders/1txtKDEpaUgWstM6bZ4I7ZoXGq8buQbcG?usp=sharing>

Video: https://drive.google.com/file/d/1thwi8ahEqz_zTgjAPXFdLBjpfyTe-0J/view?usp=sharing

DATA STRUCTURES & ALGORITHM

Marasigan, Vem Aiensi A.
1-BCS-2

Ma'am Mary Jane Lima
Feb. 10, 2022

```
    if (choice < 6)
    {
        System.out.print("Want to try other Integer input? [Y/N]:\t");
        String decide = in.next().toUpperCase();
        d = decide.charAt(0);
        System.out.println();//just a space
    }
    while (d == 'Y');
    end();
    in.close();
}
```

//methods here

```
//          Tools Here (-.-;)
//digit analyzer
static int[] getDigits(int a)
{
    String numbers = Integer.toString(a);
    long limit = numbers.chars().count();
    int l = (int)limit;
    int storage[] = new int [l];
    for (int set = 0; set < l; set++)
    {
        storage[set] = a % 10;
        a = a /10;
    }
    return storage;
}
//get sum of array element (for integer elements only)
static int arraySum(int []a)
{
    int w = 0;
    for (int d = 0; d<a.length; d++)
    {
        w += a[d];
    }
    return w;
}
```

```
//          User choices here (~.~!)
//choice 1
static void sumOfDigit(int a)
{
    System.out.print("The digits are:");
    int[] set = getDigits(a);
```

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```
int sum = 0;
for (int digits = set.length - 1; digits > -1; digits--)
{
    System.out.print(" " + set[digits]);
    sum += set[digits];
    if (digits != 0)
    {
        System.out.print(" +");
    }
}
System.out.println("\nThe sum of the digits is: " + sum);
}
```

//choice 2

```
static String reverse(int a)
{
    int [] set = getDigits(a);
    String show = "";
    for (int digits = 0; digits < set.length; digits++)
    {
        show += set[digits];
    }
    return show;
}
```

//choice 3 (Oh globb!! I hate you so much!!!)

```
static void seiveOfErathosthenese(int a)
{
    int limit = a;          //a is integer input
    int deduct = limit-1;
    int array[] = new int [limit];
    int arrayBackUp[] = new int [limit];
    int first=1, second=0; //contains the sum of array[] and arrayBackup[] for simple comparison
    for (int s = 0; s < limit; s++) //gives the array's elements from 1...a
    {
        array[s] = limit - (deduct);
        deduct--;
    }
    for (int s = 1; s<limit; s++ ) //prints 2..a in the first row
    {
        System.out.print(array[s]+"\\t");
    }
    System.out.println();//moves the cursor next line for upcoming array prints
    int remainder;
    for (int n = 1; first != second ; n++)
    {
        if (array[n] !=0)
```

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```
{
    for (int s = 0; s < limit; s++)
    {
        //this loop is placed here so that if array[n] = 0, it will skip too and won't create backup
        arrayBackUp[s] = array[s];
    }
    //creates a backup of the array[] bago dumaan ung array[] sa paguupdate of elements
    second = arraySum(arrayBackUp); //separate program that adds the value of array elements

    for (int s = array[n]; s < limit; s++)
    {
        remainder = array[s] % array[n]; //filters out the numbers that has a factor of whatever the value
        if (remainder == 0) // of array[n] is.
        {
            // arrays[s] whatever the number it is will be converted to zero when it has a factor of array[n]
            array[s] = 0;
        }
        //this is the array updater I'm talking about in no. 142
    }

    first = arraySum(array);
    if (first == second) //this only prints a space if the first and second is already similar
    {
        System.out.println();
    }
    for (int s = 1; s < limit; s++)
    {
        if (array[s] != 0)
        {
            //this skips the element that is zero
            System.out.print(array[s] + "\t");
        }
    }
    System.out.println(); //This only moves the cursor to next line for upcoming array prints
}
}
System.out.println("Above are the prime numbers inside " + limit);
}
```

//choice 4

```
static String palindrome(int a)
{
    String answer = "";
    String comp = reverse(a);
    int b = Integer.parseInt(comp);
    if (b == a)
    {
        answer = comp + " is Palindrome";
    }
    else
    {
        answer = comp + " is not Palindrome";
    }
}
```

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```

    }
    return answer;
}

//choice 5
static String oddOrEven(int a)
{
    String answer = "";
    double result = (a % 2);
    if (result == 0)
        answer = a + " is an Even number."; //sorry I forgot to include a space >.<
    else
        answer = a + " is an Odd number.";
    return answer;
}

//choice 6
static void end()
{
    System.out.println("\n\t\tThank You po for Using my Program\n"
        + "\t\t\t-Vem Aiensi ^_^");
}
}

```

Output:

The screenshot shows a Java IDE with two tabs: "BSCS2_Marasigan_IntroductionA.java" and "BSCS2_Marasigan_IntroductionB.java". The active tab is "BSCS2_Marasigan_IntroductionA.java", which contains the following code:

```
1 package introduction;  
2 import java.util.Scanner;  
3 public class BSCS2_Marasigan_IntroductionA
```

Below the code editor is a console window titled "Console - X". It displays the output of the program:

```
BSCS2_Marasigan_IntroductionA [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (10 Feb 2022, 11:43:05 am)  
Input Integer Value: 1234321  
  
What do you want to do?  
1. Sum of digits  
2. Reverse the number  
3. Display all the prime number from 2 to n (n is the user's input).  
   Apply the algorithm of Sieve of Eratosthenese  
4. Palindrome Checking  
5. Odd or even number  
6. Exit  
  
Enter option [1..6]: 1  
The digits are: 1 + 2 + 3 + 4 + 3 + 2 + 1  
The sum of the digits is: 16  
  
Want to try other options? [Y/N]: n  
Want to try other Integer input? [Y/N]: y  
  
Input Integer Value: 123456  
  
What do you want to do?  
1. Sum of digits  
2. Reverse the number  
3. Display all the prime number from 2 to n (n is the user's input).  
   Apply the algorithm of Sieve of Eratosthenese  
4. Palindrome Checking  
5. Odd or even number  
6. Exit  
  
Enter option [1..6]: 1  
The digits are: 1 + 2 + 3 + 4 + 5 + 6  
The sum of the digits is: 21  
  
Want to try other options? [Y/N]:
```

The console window also shows a status bar at the bottom with the following information: "Writable", "Smart Insert", "50 : 42 : 1571".

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DATA STRUCTURES & ALGORITHM

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1-BSCS-.2

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Feb. 10, 2022

```
1 package introduction;
2 import java.util.Scanner;
3 public class BSCS2_Marasigan_IntroductionA
```

Console X
<terminated> BSCS2_Marasigan_IntroductionA [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (10 Feb 2022, 11:43:05 am - 11:45:52 am)

Input Integer Value: 123456

What do you want to do?

1. Sum of digits
2. Reverse the number
3. Display all the prime number from 2 to n (n is the user's input).
 Apply the algorithm of Sieve of Eratosthenes
4. Palindrome Checking
5. Odd or even number
6. Exit

Enter option [1..6]: 1

The digits are: 1 + 2 + 3 + 4 + 5 + 6

The sum of the digits is: 21

Want to try other options? [Y/N]: y

What do you want to do?

1. Sum of digits
2. Reverse the number
3. Display all the prime number from 2 to n (n is the user's input).
 Apply the algorithm of Sieve of Eratosthenes
4. Palindrome Checking
5. Odd or even number
6. Exit

Enter option [1..6]: 2

654321

Want to try other options? [Y/N]: n

Want to try other Integer input? [Y/N]: n

Thank You po for Using my Program
-Vem Aiensi ^_^

```
1 package introduction;
2 import java.util.Scanner;
3 public class BSCS2_Marasigan_IntroductionA
```

Console X
<terminated> BSCS2_Marasigan_IntroductionA [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (10 Feb 2022, 11:46:31 am - 11:46:53 am)

Input Integer Value: 14578

What do you want to do?

1. Sum of digits
2. Reverse the number
3. Display all the prime number from 2 to n (n is the user's input).
 Apply the algorithm of Sieve of Eratosthenes
4. Palindrome Checking
5. Odd or even number
6. Exit

Enter option [1..6]: 2

87541

Want to try other options? [Y/N]: n

Want to try other Integer input? [Y/N]: n

Thank You po for Using my Program
-Vem Aiensi ^_^

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DATA STRUCTURES & ALGORITHM

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Feb. 10, 2022

```
2nd Sem - CCC122-18/src/introduction/BSCS2_Marasigan_IntroductionA.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help

BSCS2_Marasigan_IntroductionA.java BSCS2_Marasigan_IntroductionB.java
1 package introduction;
2 import java.util.Scanner;
3 public class BSCS2_Marasigan_IntroductionA
4 {
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7         System.out.print("Input Integer Value: ");
8         int n = scanner.nextInt();
9
10        What do you want to do?
11        1. Sum of digits
12        2. Reverse the number
13        3. Display all the prime number from 2 to n (n is the user's input).
14           Apply the algorithm of Sieve of Eratosthenese
15        4. Palindrome Checking
16        5. Odd or even number
17        6. Exit
18
19        Enter option [1..6]: 3
20        2 3 4 5 6 7 8 9 10 11 12 13 14 15
21        2 3 5 7 9 11 13 15
22        2 3 5 7 11 13
23
24        2 3 5 7 11 13
25        Above are the prime numbers inside 15
26
27        Want to try other options? [Y/N]: n
28        Want to try other Integer input? [Y/N]: y
29
30        Input Integer Value: 6
31
32        What do you want to do?
33        1. Sum of digits
34        2. Reverse the number
35        3. Display all the prime number from 2 to n (n is the user's input).
36           Apply the algorithm of Sieve of Eratosthenese
37        4. Palindrome Checking
38        5. Odd or even number
39        6. Exit
40
41        Enter option [1..6]: 3
42        2 3 4 5 6
43        2 3 5
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45        2 3 5
46        Above are the prime numbers inside 6
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48        Want to try other options? [Y/N]:
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DATA STRUCTURES & ALGORITHM

Marasigan, Vem Aiensi A.
1-BSCS-.2

Ma'am Mary Jane Lima
Feb. 10, 2022

```
Console x
BSCS2_Marasigan_IntroductionA [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (10 Feb 2022, 11:47:14 am)

Input Integer Value: 1234567

What do you want to do?
1. Sum of digits
2. Reverse the number
3. Display all the prime number from 2 to n (n is the user's input).
   Apply the algorithm of Sieve of Eratosthenese
4. Palindrome Checking
5. Odd or even number
6. Exit

Enter option [1..6]: 4
7654321 is not Palindrome

Want to try other options? [Y/N]: n
Want to try other Integer input? [Y/N]: y

Input Integer Value: 6543456

What do you want to do?
1. Sum of digits
2. Reverse the number
3. Display all the prime number from 2 to n (n is the user's input).
   Apply the algorithm of Sieve of Eratosthenese
4. Palindrome Checking
5. Odd or even number
6. Exit

Enter option [1..6]: 4
6543456 is Palindrome

Want to try other options? [Y/N]: n
Want to try other Integer input? [Y/N]: y

Input Integer Value:

-terminated- BSCS2_Marasigan_IntroductionA [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (10 Feb 2022, 11:52:58 am - 11:53:23 am)
Input Integer Value: 123471391

What do you want to do?
1. Sum of digits
2. Reverse the number
3. Display all the prime number from 2 to n (n is the user's input).
   Apply the algorithm of Sieve of Eratosthenese
4. Palindrome Checking
5. Odd or even number
6. Exit

Enter option [1..6]: 5
123471391 is an Odd number.

Want to try other options? [Y/N]: y

What do you want to do?
1. Sum of digits
2. Reverse the number
3. Display all the prime number from 2 to n (n is the user's input).
   Apply the algorithm of Sieve of Eratosthenese
4. Palindrome Checking
5. Odd or even number
6. Exit

Enter option [1..6]: 6

Thank You po for Using my Program
-Vem Aiensi ^_^

-terminated- BSCS2_Marasigan_IntroductionA [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (10 Feb 2022, 11:53:58 am - 11:54:07 am)
Input Integer Value: 12321

What do you want to do?
1. Sum of digits
2. Reverse the number
3. Display all the prime number from 2 to n (n is the user's input).
   Apply the algorithm of Sieve of Eratosthenese
4. Palindrome Checking
5. Odd or even number
6. Exit

Enter option [1..6]: 4
12321 is Palindrome

Want to try other options? [Y/N]: N
Want to try other Integer input? [Y/N]: n

Thank You po for Using my Program
-Vem Aiensi ^_^
```

GDRIVE: <https://drive.google.com/drive/folders/1txtKDEpaUgWstM6bZ4I7ZoXGq8buQbcG?usp=sharing>

Video: https://drive.google.com/file/d/1thwi8ahEqz_zTgiAPXFdLBjpfyeTe-OJ/view?usp=sharing