**Object-Oriented Programming Lab#2**

**Today’s Topics**

* Flow Controls: If, While, For, Do-While
* Recursion
* User Input
* Array

**Code to read user input using Scanner:(**need to import java.util.Scanner)

Scanner scan = new Scanner (System . in ) ;

int inputNum = scan.nextInt();

double input = scan.nextDouble();

**Code to read user input using JOptionPane: (**need to import javax.swing.JOptionPane**)**

**static String** [**showInputDialog**](https://docs.oracle.com/javase/7/docs/api/javax/swing/JOptionPane.html#showInputDialog%28java.awt.Component,%20java.lang.Object%29)([Component](https://docs.oracle.com/javase/7/docs/api/java/awt/Component.html) parentComponent, [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html) message)

String name = JOptionPane.*showInputDialog(****null, "enter name");***

**Problems/Assignments**

1. Write a java program to determine whether a given number is even or odd.

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| --- | --- |
| **Sample Input** | **Expected Output** |
| 7 | odd |
| 8 | even |
| 11 | odd |

1. Program that will read from the console a random positive nonzero number and determine if it is a power of 2.

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| **Sample input** | **Sample output** |
| 1 | Yes |
| 512 | Yes |
| 1022 | No |

1. Write a program in java to display the first n terms of Fibonacci series.
2. Write a java program to determine whether a given number is prime or not.

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| **Sample Input** | **Expected Output** |
| 7 | Prime |
| 9 | Not Prime |
| 11 | Prime |

1. Write a program in java to display the individual digits of a number.

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| **Sample Input** | **Expected Output** |
| 172 | 1,7,2 |
| 90357 | 9,0,3,5,7 |
| 110 | 1,1,0 |

1. Write a program that will take n integer numbers into an array, and then print all the integers into reverse order (from the last valid index to index 0).

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| **Sample input** | **Sample output** |
| {1, 2, 3, 4, 5} | 5 4 3 2 1 |
| {2, 8, 3, 9, 0, 1} | 1 0 9 3 8 2 |

1. Write a program that will take n integer numbers into an array, and then sum up all the even integers in that array.

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| **Sample input** | **Sample output** |
| {1, 2, 3, 4, 5} | 6 |
| {2, 8, 3, 9, 0, 1} | 10 |

1. Write a program that will take n integer numbers into an array, and then find the maximum, minimum among them with its index position.

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| **Sample input** | **Sample output** |
| {1, 2, 3, 4, 5} | Max: 5, Index: 4  Min: 1, Index: 0 |
| {2, 8, 3, 9, 0, 1} | Max: 9, Index: 3  Min: 0, Index: 4 |

1. Write a Java program to show the number pyramid. The program will prompt the user to enter an integer number as input. If the user input is 9 or less, display that many lines of the pyramid. If user input is 10 or above, display only 9 lines. Don’t hard code the values, use logic.

|  |  |
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| Sample Input | Expected Output |
| 5 | 1  1 2 1  1 2 3 2 1  1 2 3 4 3 2 1  1 2 3 4 5 4 3 2 1 |
| 12 | 1  1 2 1  1 2 3 2 1  1 2 3 4 3 2 1  1 2 3 4 5 4 3 2 1  1 2 3 4 5 6 5 4 3 2 1  1 2 3 4 5 6 7 6 5 4 3 2 1  1 2 3 4 5 6 7 8 7 6 5 4 3 2 1  1 2 3 4 5 6 7 8 9 8 7 6 5 4 3 2 1 |