Variables :

1. Create one employee class and in that class create instance variable, local variable and static variable ?

Program :

```
package Assignments;

public class Employee {
	String name; // instance
	int salary;
	static String company = "Wipro"; // static
	void Details(int salary1,String name1)   { // local
		name = name1;
		salary = salary1;
		System.out.println("Employee Name : " + name);// instance variable
		System.out.println("Salary : " + salary);// instance variable
		System.out.println("Company name : " + company); // static variable
	}
	public static void main(String[] args) {
		// TODO Auto-generated method stub
      System.out.println("Employee Info:");
      Employee e= new Employee();
      e.Details(20000, "Dev");
	}
}
```

Output :

```
Employee Info:
Employee Name : Dev
Salary : 20000
Company name : Wipro
```

2. Create addition of two numbers using variables ?

Program :

```
package Assignments;


public class Day3_Variables {
	public static void main(String[] args) {
		int a = 2;
		int  b = 5;
		int sum = a + b;
		System.out.println(sum);
	}
}
```

Output: 7

3. Swap two numbers using third variable?

Program :

```
package Assignments;


public class Day3_Variables {
	public static void main(String[] args) {
		int x = 5;
		int y = 10;
		int temp;
		temp = x;
		x = y;
		y = temp;
		System.out.println("x: " + x + ", y: " + y);
	}
}
```

Output : x: 10 y: 5

4. Calculate area of rectangle ?

Program :

```
package Assignments;


public class Day3_Variables {
	public static void main(String[] args) {
		int length = 10;
		intvbreadth = 5;
		int area = length * breadth;
		System.out.println("Area: " + area);
	}
}
```

Output : Area : 50

5. Calculate simple interest ?

Program :

```
package Assignments;

public class Day3_Variables {
	public static void main(String[] args) {
		double principal = 1000;
		double rate = 5;
		double time = 2;
		double si = (principal * rate * time) / 100;
		System.out.println("Simple Interest: " + si);
	}
}
```

Output: Simple Interest: 100.0

String :

1. Count number of vowels in a string(input=”Programming”, output=3 Vowels) ?

Program :

```
package Assignments;
public class Day3_Strings {
	public static void main(String[] args) {
		String str = "Programming";
		int vowelCount = 0;
		for (int i = 0; i < str.length(); i++) {
		   char ch = Character.toLowerCase(str.charAt(i));
		   if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {
			vowelCount++;
		   }
		}
		System.out.println("Vowel Count: " + vowelCount);
	}
}
```

Output : Vowel Count: 3

2. Replace all Spaces with Hyphens ?

Program :

```
package Assignments;
public class Day3_Strings {
	public static void main(String[] args) {
		String s = "Hello World Java";
		String replaced = "";
		for (int i = 0; i < s.length(); i++) {
		   if (s.charAt(i) == ' ') {
			replaced += '-';
		   } else {
			replaced += s.charAt(i);
		   }
```

```
                }
                System.out.println(replaced);
        }
}
```

Output : Hello-World-Java

3. Check if a string is Palindrome ?

Program :

```
package Assignments;
public class Day3_Strings {
        public static void main(String[] args) {
                String str = "madam";
                boolean isPalindrome = true;
                for (int i = 0; i < str.length() / 2; i++) {
                   if (str.charAt(i) != str.charAt(str.length() - 1 - i)) {
                      isPalindrome = false;
                      break;
                   }
                }
                If(isPalindrome) {
                        System.out.println(str + " is  a Palindrome");
                } else {
                        System.out.println(str + " is not  a Palindrome");
                }
        }
}
```

Output : madam is a Palindrome

4. Count words in a Sentence?

Program :

```
package Assignments;
public class Day3_Strings {
        public static void main(String[] args) {
```

```
		String sentence = "This is Java code";
		int wordCount = 1; // Words = spaces + 1 so that i taken it as 1
		for (int i = 0; i < sentence.length(); i++) {
		   if (sentence.charAt(i) == ' ') {
			wordCount++;
		   }
		}
		System.out.println("Word count: " + wordCount);
	}
}
```

Output : Word count: 4

5. Check if String starts with “j” and end with “a” . eg. “java”?

Program :

```
package Assignments;
public class Day3_Strings {
	public static void main(String[] args) {
		String str = "java";
		if (str.startsWith("j") && str.endsWith("a")) {
			System.out.println("Yes");
		} else {
			System.out.println("No");
		}
	}
}
```

Output : Yes

6. Split a sentence into words ?

Program :

```
package Assignments;
public class Day3_Strings {
	public static void main(String[] args) {
```

```
		String sen = "Java is awesome";
		String word = "";
		for (int i = 0; i < sen.length(); i++) {
		   if (sen.charAt(i) != ' ') word += sen.charAt(i);
		   else {
		      System.out.println(word);
		      word = "";
		   }
		}
		System.out.println(word);
	}
}
```

Output : Java

is

awesome

7. Write a program to find the frequency of each character in a string?

Program :

```
package Assignments;
public class Day3_Strings {
	public static void main(String[] args) {
		String freqStr = "hello";
		String checked = "";
		for (int i = 0; i < freqStr.length(); i++) {
			char ch = freqStr.charAt(i);
			if (checked.indexOf(ch) != -1)
				continue;
			int count = 0;
			for (int j = 0; j < freqStr.length(); j++) {
				if (freqStr.charAt(j) == ch) {
					count++;
				}
```

```
                        }
                        System.out.println(ch + ": " + count);
                        checked += ch;
                    }
            }
}
```

Output : h: 1

e: 1

l: 2

o: 1

8. Write a program to remove all white Spaces from string?

Program :

```
package Assignments;
public class Day3_Strings {
        public static void main(String[] args) {
                String str = "Java Code";
                String newStr = "";
                for (int i = 0; i < str.length(); i++) {
                   if (str.charAt(i) != ' ') {
                        newStr += str.charAt(i);
                   }
                }
                System.out.println(newStr);
        }
}
```

Output: JavaCode

9. Write a Program to count digits, letters, spaces and Special characters?

Program :

```
package Assignments;
public class Day3_Strings {
        public static void main(String[] args) {
```

```
                String str5 = "Hello 123!@#";
                int letters = 0;
                int digits = 0;
                int spaces = 0;
                int specials = 0;
                for (int i = 0; i < str5.length(); i++) {
                   char ch = str5.charAt(i);
                   if (Character.isLetter(ch)) {
                           letters++;
                   } else if (Character.isDigit(ch)) {
                           digits++;
                   } else if (Character.isWhitespace(ch)) {
                           spaces++;
                   }else {
                           specials++;
                   }
                }

                System.out.println("Letters: " + letters + ");
                System.out.println("Digits: " + digits);
                System.out.println("Spaces: " + spaces);
                System.out.println("Specials: " + specials);
        }
}
```

Output : Letters: 5

Digits: 3

Spaces: 1

Specials: 3

10. Write a program to sort characters of a String Alphabetically?

Program :

```
package Assignments;
```

```
public class Day3_Strings {
	public static void main(String[] args) {
		String str = "coding";
		char[] arr = str.toCharArray();
		for (int i = 0; i < arr.length - 1; i++) {
		   for (int j = i + 1; j < arr.length; j++) {
		      if (arr[i] > arr[j]) {
		         char temp= arr[i];
		         arr[i] = arr[j];
		         arr[j] = temp;
		      }
		   }
		}
		System.out.println("Sorted: " + new String(arr));
	}
}
```

Output: cdgino

Arrays :

1. Write a program to find the sum of all elements in an integer array ?

Program :

```
package Assignments;
public class Day3_Arrays {
	public static void main(String[] args) {
		int[] arr = {5, 2, 7, 2, 3, 5, 11, 4};
		int sum = 0;
		for (int i = 0; i < arr.length; i++) sum += arr[i];
		System.out.println("Sum: " + sum);
	}
}
```

Output : Sum: 39

2. Write a program to count even and odd numbers from an array ?

Program :

```
package Assignments;
public class Day3_Arrays {
	public static void main(String[] args) {
		int[] arr = {5, 2, 7, 2, 3, 5, 11, 4};
		int even = 0;
		int odd = 0;
		for (int i = 0; i < arr.length; i++) {
		   if (arr[i] % 2 == 0) {
			even++;
		} else  {
			odd++;
		}
		}
		System.out.println("Even: " + even + ", Odd: " + odd);
	}
}
```

Output : Even: 3, Odd: 5

3. find maximum and minimum elements from an array.?

Program :

```
package Assignments;
public class Day3_Arrays {
	public static void main(String[] args) {
		int max = arr[0];
		int min = arr[0];
		for (int i = 1; i < arr.length; i++) {
		   if (arr[i] > max) {
			max = arr[i];
		}
		 if (arr[i] < min) {
```

```
                    min = arr[i];
                }
                }
                System.out.println("Max: " + max + ", Min: " + min);
        }
}
```

Output: Max: 11, Min: 2

4. write a program to find out second highest element from an array ?

Program :

```
package Assignments;
import java.util.Arrays;
public class Day3_Arrays {
        public static void main(String[] args) {
                int first = Integer.MIN_VALUE;
                int second = Integer.MIN_VALUE;
                for (int i = 0; i < arr.length; i++) {
                   if (arr[i] > first) {
                      second = first;
                      first = arr[i];
                   } else if (arr[i] > second && arr[i] != first) {
                      second = arr[i];
                   }
                }
                System.out.println("Second highest: " + second);
        }
}
```

Output : Second highest: 7

5. write a program to search for a number entered by the user in an array ?

Program :

```
package Assignments;
import java.util.Scanner;
```

```
public class Day3_Arrays {
	public static void main(String[] args) {
		Scanner sc = new Scanner(System.in);
		System.out.print("Enter a number to search: ");
		int num = sc.nextInt();
		boolean found = false;
		for (int i = 0; i < arr.length; i++) {
			if (arr[i] == num) {
				System.out.println(num + " found at position " + (i + 1));
				found = true;
				break;
			}
		}
		if (!found) {
			System.out.println(num + " not found in the array.");
		}
	}
}
```

Output : Enter a number to search: 11

11 found at position 7

6. write a program to print an array in reverse order?

Program :

```
package Assignments;
public class Day3_Arrays {
	public static void main(String[] args) {
		for (int i = arr.length - 1; i >= 0; i--) {
			System.out.print(arr[i] + " ");
		}
		System.out.println();
	}
}
```

Output : 4 11 5 3 2 7 2 5

7. remove duplicate elements from an array ?

Program :

```
package Assignments;
public class Day3_Arrays {
	public static void main(String[] args) {
		for (int i = 0; i < arr.length; i++) {
		   boolean duplicate = false;
		   for (int j = 0; j < i; j++) {
		      if (arr[i] == arr[j]) {
		         duplicate = true;
		         break;
		      }
		   }
		   if (!duplicate) {
		         System.out.print(arr[i] + " ");
		   }
		}
		System.out.println();
	}
}
```

Output : 5 2 7 3 11 4

8. copy all elements from one array to another.?

Program :

```
package Assignments;
import java.util.Arrays;
public class Day3_Arrays {
	public static void main(String[] args) {
		int[] copy = new int[arr.length];
		for (int i = 0; i < arr.length; i++) {
			copy[i] = arr[i];
```

```
                }
                System.out.println("Copied: " + Arrays.toString(copy));
        }
}
```

Output : Copied: [5, 2, 7, 2, 3, 5, 11, 4]

9. Sort an array in ascending order ?

Program :

```
package Assignments;
import java.util.Arrays;
public class Day3_Arrays {
        public static void main(String[] args) {
                for (int i = 0; i < arr.length - 1; i++) {
                   for (int j = i + 1; j < arr.length; j++) {
                      if (arr[i] > arr[j]) {
                         int t = arr[i];
                         arr[i] = arr[j];
                         arr[j] = t;
                      }
                   }
                }
                System.out.println("Sorted: " + Arrays.toString(arr));
        }
}
```

Output : Sorted: [2, 2, 3, 4, 5, 5, 7, 11]

10. print only prime numbers from array?

Program :

```
package Assignments;
public class Day3_Arrays {
        public static void main(String[] args) {
                System.out.print("Primes: ");
                for (int i = 0; i < arr.length; i++) {
```

```
                int num = arr[i];
                if (num < 2) continue;
                boolean isPrime = true;
                for (int j = 2; j <= num / 2; j++) {
                    if (num % j == 0) {
                        isPrime = false;
                        break;
                    }
                }
                if (isPrime) {
                        System.out.print(num + " ");
                }
            }
            System.out.println();
        }
}
```

Output : Primes: 2 2 3 5 5 7 11

11. find out frequency of each element ?

Program :

```
package Assignments;
public class Day3_Arrays {
        public static void main(String[] args) {
            for (int i = 0; i < arr.length; i++) {
                boolean counted = false;
                for (int j = 0; j < i; j++) {
                    if (arr[i] == arr[j]) {
                        counted = true;
                        break;
                    }
                }
                if (!counted) {
```

```
                    int count = 1;
                    for (int k = i + 1; k < arr.length; k++) {
                        if (arr[i] == arr[k]) count++;
                    }
                    System.out.println(arr[i] + " appears " + count + " times");
                }
            }
        }
}
```

Output : 2 appears 2 times

3 appears 1 times

4 appears 1 times

5 appears 2 times

7 appears 1 times

11 appears 1 times

12. Rotate array elements(left or right)?

Program :

```
package Assignments;
import java.util.Arrays;
public class Day3_Arrays {
    public static void main(String[] args) {
        int last = arr[arr.length - 1];
        for (int i = arr.length - 1; i > 0; i--) {
            arr[i] = arr[i - 1];
        }
        arr[0] = last;
        System.out.println("Rotated: " + Arrays.toString(arr));
    }
}
```

Output : Rotated: [11, 2, 2, 3, 4, 5, 5, 7]

13. merge two arrays and sort them?

Program :

```
package Assignments;
import java.util.Arrays;
public class Day3_Arrays {
	public static void main(String[] args) {
		int[] a1 = {3, 1};
		int[] a2 = {4, 2};
		int[] merged = new int[a1.length + a2.length];
		for (int i = 0; i < a1.length; i++) {
			merged[i] = a1[i];
		}
		for (int i = 0; i < a2.length; i++) {
			merged[i + a1.length] = a2[i];
		}
		for (int i = 0; i < merged.length - 1; i++) {
		   for (int j = i + 1; j < merged.length; j++) {
		      if (merged[i] > merged[j]) {
		         int t = merged[i];
		         merged[i] = merged[j];
		         merged[j] = t;
		      }
		   }
		}
		System.out.println("Merged and Sorted: " + Arrays.toString(merged));
	}
}
```

Output : Merged and Sorted: [1, 2, 3, 4]

14. check if array is palindrome or not?

Program :

```
package Assignments;
```

```
public class Day3_Arrays {
	public static void main(String[] args) {
		boolean isPalindrome = true;
		for (int i = 0; i < arr.length / 2; i++) {
		   if (arr[i] != arr[arr.length - 1 - i]) {
		      isPalindrome = false;
		      break;
		   }
		}
		if(isPalindrome) {
			System.out.println("Array is Palindrome");
		} else {
			System.out.println("Array is not Palindrome");
		}
	}
}
```

Output : Array is not Palindrome

15. segregate even and odd numbers ?

Program :

```
package Assignments;
public class Day3_Arrays {
	public static void main(String[] args) {
		System.out.print("Even: ");
		for (int i = 0; i < arr.length; i++) {
			if (arr[i] % 2 == 0) {
				System.out.print(arr[i] + " ");
			}
		}
		System.out.print("\nOdd: ");
		for (int i = 0; i < arr.length; i++) {
```

```
                        if (arr[i] % 2 != 0) {
                                System.out.print(arr[i] + " ");
                        }
                }
                System.out.println();
        }
}
```

Output : Even: 2 2 4

Odd: 11 3 5 5 7