



WORKSHEET – 4

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Branch: CSE

Section/Group: 619 - A

Subject Name: JAVA

Subject Code: 22-CSH-359

1. Problem 1:

Autoboxing And Unboxing

2. Source Code 1:

```
import java.util.*;

public class AutoboxingUnboxing {

    public static void main(String[] args) {

        String[] numberStrings = {"10", "20", "30", "40"};

        List<Integer> integerList = new ArrayList<>();

        for (String number : numberStrings) {

            integerList.add(Integer.parseInt(number));

        }

        int sum = 0;

        for (Integer num : integerList) {

            sum += num;

        }

        System.out.println("Sum of integers: " + sum);

    }

}
```

3. Output 1:

```
PROBLEMS 1 OUTPUT TERMINAL DEBUG CONSOLE PORTS AZURE QUERY RESULTS (PREVIEW) SQL HISTORY

Active code page: 65001

(.venv) C:\Users\hp5cd\OneDrive\Desktop\All Language Codes>cd "c:\Users\hp5cd\OneDrive\Desktop\All Language Codes\Java 6th sem\Exp 5"
(.venv) c:\Users\hp5cd\OneDrive\Desktop\All Language Codes\Java 6th sem\Exp 5>cd "c:\Users\hp5cd\OneDrive\Desktop\All Language Codes\Java 6th sem\Exp 5"
vac AutoboxingUnboxing.java && java AutoboxingUnboxing
Picked up JAVA_TOOL_OPTIONS: -Dstdout.encoding=UTF-8 -Dstderr.encoding=UTF-8
Picked up JAVA_TOOL_OPTIONS: -Dstdout.encoding=UTF-8 -Dstderr.encoding=UTF-8
Sum of integers: 100

(.venv) c:\Users\hp5cd\OneDrive\Desktop\All Language Codes\Java 6th sem\Exp 5>
```

4. Problem 2:

Serialize and Deserialize a student object.

5. Source Code 2:

```
import java.io.*;

class Student implements Serializable {
    private static final long serialVersionUID = 1L;
    private String name;
    private int age;
    private String course;
    public Student(String name, int age, String course) {
        this.name = name;
        this.age = age;
        this.course = course;
    }
}
```

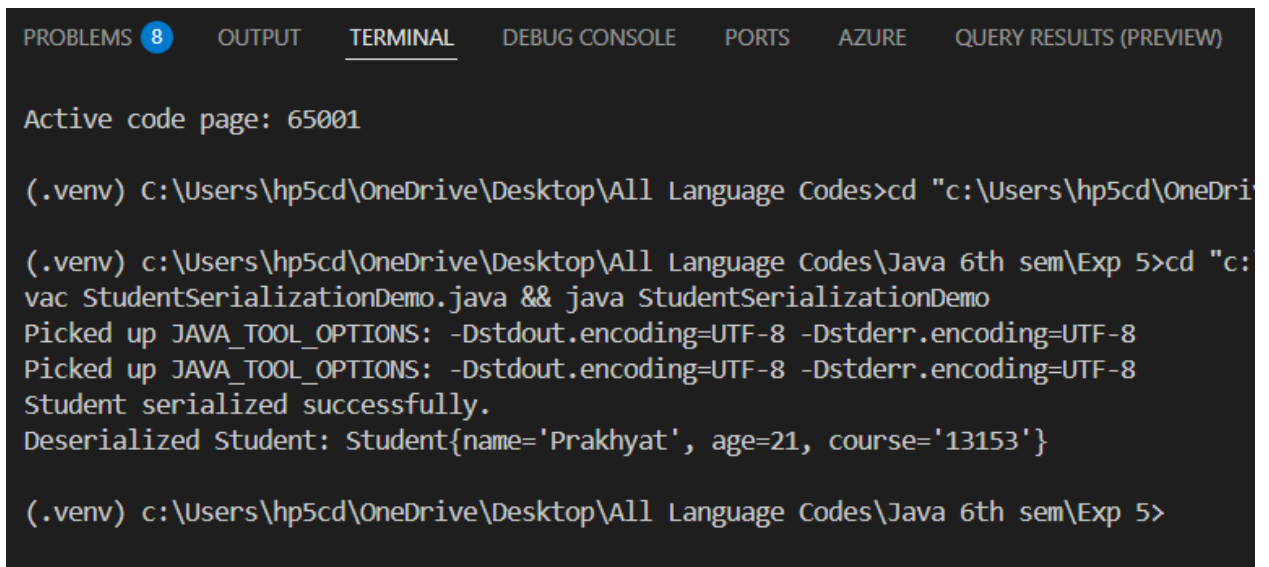
```
@Override
public String toString() {
    return "Student{name='" + name + "', age=" + age + ", course='" + course
+ "'}";
}
}

import java.io.*;

public class StudentSerializationDemo {
    public static void main(String[] args) {
        Student student = new Student("Prakhyat", 21, "13153");
        String filename = "student.ser";
        // Serialization
        try (ObjectOutputStream out = new ObjectOutputStream(new
FileOutputStream(filename))) {
            out.writeObject(student);
            System.out.println("Student serialized successfully.");
        } catch (IOException e) {
            e.printStackTrace();
        }
        // Deserialization
        try (ObjectInputStream in = new ObjectInputStream(new
FileInputStream(filename))) {
            Student deserializedStudent = (Student) in.readObject();
            System.out.println("Deserialized Student: " + deserializedStudent);
        }
    }
}
```

```
        } catch (IOException | ClassNotFoundException e) {  
            e.printStackTrace();  
        }  
    }  
}
```

6. Output 2:



```
PROBLEMS 8 OUTPUT TERMINAL DEBUG CONSOLE PORTS AZURE QUERY RESULTS (PREVIEW)  
  
Active code page: 65001  
  
(.venv) C:\Users\hp5cd\OneDrive\Desktop\All Language Codes>cd "c:\Users\hp5cd\OneDrive\Desktop\All Language Codes\Java 6th sem\Exp 5"  
  
(.venv) c:\Users\hp5cd\OneDrive\Desktop\All Language Codes\Java 6th sem\Exp 5>cd "c:\Users\hp5cd\OneDrive\Desktop\All Language Codes\Java 6th sem\Exp 5" && java StudentSerializationDemo  
Picked up JAVA_TOOL_OPTIONS: -Dstdout.encoding=UTF-8 -Dstderr.encoding=UTF-8  
Picked up JAVA_TOOL_OPTIONS: -Dstdout.encoding=UTF-8 -Dstderr.encoding=UTF-8  
Student serialized successfully.  
Deserialized Student: Student{name='Prakhyat', age=21, course='13153'}  
  
(.venv) c:\Users\hp5cd\OneDrive\Desktop\All Language Codes\Java 6th sem\Exp 5>
```

7. Problem 3:

Employee Management System

8. Source Code 3:

```
import java.io.*;
```



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```
class Employee implements Serializable {  
    private static final long serialVersionUID = 1L;  
  
    private String name;  
  
    private int id;  
  
    private String designation;  
  
    private double salary;  
  
    public Employee(String name, int id, String designation, double salary) {  
        this.name = name;  
  
        this.id = id;  
  
        this.designation = designation;  
  
        this.salary = salary;  
    }  
  
    @Override  
    public String toString() {  
        return "Employee ID: " + id + "\nName: " + name + "\nDesignation: " +  
        designation + "\nSalary: " + salary;  
    }  
}  
  
import java.io.*;
```



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```
import java.util.*;

public class EmployeeManagementSystem {

    private static final String FILE_NAME = "employees.dat";

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        while (true) {

            System.out.println("\nEmployee Management System");

            System.out.println("1. Add Employee");

            System.out.println("2. Display All Employees");

            System.out.println("3. Exit");

            System.out.print("Choose an option: ");

            int choice = scanner.nextInt();

            scanner.nextLine();

            switch (choice) {

                case 1:

                    addEmployee(scanner);

                    break;

                case 2:

                    displayEmployees();

                    break;
```

```
        case 3:

            System.out.println("Exiting...");

            return;

        default:

            System.out.println("Invalid choice. Try again.");

    }

}

}

private static void addEmployee(Scanner scanner) {

    System.out.print("Enter Name: ");

    String name = scanner.nextLine();

    System.out.print("Enter Employee ID: ");

    int id = scanner.nextInt();

    scanner.nextLine();

    System.out.print("Enter Designation: ");

    String designation = scanner.nextLine();

    System.out.print("Enter Salary: ");

    double salary = scanner.nextDouble();

    Employee employee = new Employee(name, id, designation, salary);

    List<Employee> employees = readEmployees();
```

```
        employees.add(employee);

        writeEmployees(employees);

        System.out.println("Employee added successfully!");
    }

    private static void displayEmployees() {

        List<Employee> employees = readEmployees();

        if (employees.isEmpty()) {

            System.out.println("No employees found.");

        } else {

            for (Employee emp : employees) {

                System.out.println(emp);

                System.out.println("-----");

            }

        }

    }

}
```

```
private static List<Employee> readEmployees() {

    List<Employee> employees = new ArrayList<>();

    File file = new File(FILE_NAME);

    if (!file.exists()) return employees;
```



```
try (ObjectInputStream in = new ObjectInputStream(new
FileInputStream(file))) {

    employees = (List<Employee>) in.readObject();

} catch (IOException | ClassNotFoundException e) {

    System.out.println("Error reading employees.");

}

return employees;

}

private static void writeEmployees(List<Employee> employees) {

    try (ObjectOutputStream out = new ObjectOutputStream(new
FileOutputStream(FILE_NAME))) {

        out.writeObject(employees);

    } catch (IOException e) {

        System.out.println("Error writing employees.");

    }

}

}
```

9. Output 3:



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PROBLEMS **7** OUTPUT TERMINAL DEBUG CONSOLE PORTS AZURE QUERY RESULTS (PREVIEW)

Picked up JAVA_TOOL_OPTIONS: -Dstdout.encoding=UTF-8 -Dstderr.encoding=UTF-8

Employee Management System

1. Add Employee
2. Display All Employees
3. Exit

Choose an option: 1

Enter Name: Prakhyat

Enter Employee ID: 13153

Enter Designation: Software Developer

Enter Salary: 100000

Employee added successfully!

Employee Management System

1. Add Employee
2. Display All Employees
3. Exit

Choose an option: 2

Employee ID: 1123

Name: Prakhyat

Designation: CSE

Salary: 100000.0

Employee ID: 13153

Name: Prakhyat

Designation: Software Developer

Salary: 100000.0

Employee ID: 13153

Name: Prakhyat

Designation: Software Developer

Salary: 100000.0

Employee Management System

1. Add Employee
2. Display All Employees
3. Exit

Choose an option: 3

Exiting...