# OODP Workshop 8

**Submitted by**

**Sabbir Hasan Rabbi**

**Id: k240175**

1. **What is the difference between Array and ArrayList?**

The difference between array and arraylist in a table:

|  |  |  |
| --- | --- | --- |
| **No.** | **Array** | **ArrayList** |
| 1 | Arrays are of fixed size; must be defined at the time of creation. | Arraylists are Dynamic in size; can grow or shrink as needed. |
| 2 | Can only hold objects (no primitives like int, char). | Can only hold objects (no primitives like int, char). |
| 3 | |  |  | | --- | --- | |  | Requires manual iteration using loops. | | |  | | --- | |  |  |  | | --- | | Supports enhanced for-loop and Iterator. | |
| 4 | It can be initialized with primitive data types. | It has to be initialized with wrapper class data types. |
| 5 | |  | | --- | |  |  |  | | --- | | Cannot resize once created (fixed length). | | Automatically resizes when elements are added or removed. |
| 6 | |  | | --- | | Limited built-in methods (e.g., length). |  |  | | --- | |  | | Rich set of built-in methods (e.g., add(), remove(), size()). |

1. **Create an arrayList named List which will store string values and demonstrate add names, delete names, insert names of your friends into it and print them using loop.**

*/\*\**

*\* Date: 01/09/24*

*\* NAME: Sabbir Hasan Rabbi.*

*\*/*

 package **week8**;

 import **java.util.ArrayList**;

 import **java.util.Iterator**;

**public** **class** FriendsList {

**public** **static** **void** main(**String**[] args) {

**ArrayList**<**String**> list = new **ArrayList**<>();

*//adding names*

        list.add("John");

        list.add("Alice");

        list.add("Bob");

        list.add("Daisy");

*// Insert a name at a specific position*

        list.add(2, "Charlie");

*// Delete a name*

        list.remove("Alice");

*// Printing the lists*

        System.out.println("\nFriends list after deleting Alice:");

        for (**String** name : list) {

            System.out.println(name);

        }

    }

}

1. **Think about yourself as an object, identify attributes and behavior that you can possess in one payroll system.**

Myself as an object in a payroll system,

Attributes I can have :

1. **Name**: My full name
2. **Employee ID**: A unique identifier assigned to me .
3. **Position**: My job title or role within the company.
4. **Salary**: My monthly or annual salary.
5. **Work Hours**: The number of hours I work.
6. **Overtime Hours**: The number of overtime hours I’ve worked (e.g., 5 hours).
7. **Leave Balance**: The remaining number of leave days I have (e.g., 10 days).

Behaviour I can have:

1. **Calculate Pay** :A method to calculate my total pay based on my salary, work hours, and overtime.
2. **Receive salary**: A method that receives my salary.
3. **Apply for Leave**: A method that allows me to apply for leave by deducting days from my leave balance.
4. **Record Work Hours**: A method to log the number of hours I’ve worked, including regular and overtime hours.
5. **Think about a product that you have in front of you, find out attributes and behavior that can possessed by this product.**

For the role of the product here I chose my mobile phone in front of me.

**Attributes my mobile phone can have:**

**Brand:** The manufacturer of the phone.

**Model:** The specific model.

**Operating System:** The software that runs on the phone.

**Storage Capacity**: The amount of internal storage available.

**RAM:** The memory available for running applications.

**Color:** Thecolor of the phone.

**Screen Size:** The size of the display.

**Serial Number:** A unique identifier for the phone.

**Behavior that can possessed by my mobile phone:**

**Make a Call:** Allows the user to make a phone call by dialing a number.

**Send a Text Message:** Allows the user to send an SMS or MMS to a contact.

**Take a Photo:** Uses the camera to capture an image.

**Browse the Internet:** Uses the mobile browser to access websites.

**Install an App:** Allows the user to download and install applications from an app store.