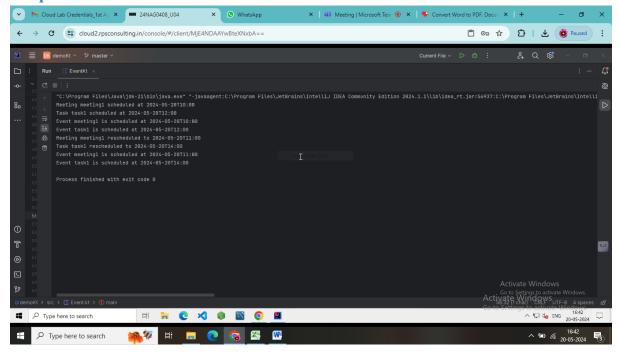
Day-3, Assignment-2

Task 9: Develop a Schedule class that uses interfaces to ensure that all event types can be scheduled and rescheduled.

```
// Define the Schedulable interface
interface Schedulable {
  val id: String
  var time: String // or any other type suitable for your use case, e.g., LocalDateTime
  fun schedule(time: String)
  fun reschedule(newTime: String)
}
// Implement a couple of example event types
class Meeting(override val id: String, override var time: String): Schedulable {
  override fun schedule(time: String) {
    this.time = time
    println("Meeting $id scheduled at $time")
  }
  override fun reschedule(newTime: String) {
    this.time = newTime
    println("Meeting $id rescheduled to $newTime")
  }
}
class Task(override val id: String, override var time: String): Schedulable {
  override fun schedule(time: String) {
    this.time = time
    println("Task $id scheduled at $time")
  }
```

```
override fun reschedule(newTime: String) {
    this.time = newTime
    println("Task $id rescheduled to $newTime")
  }
}
// Define the Schedule class
class Schedule {
  private val events = mutableListOf<Schedulable>()
  fun addEvent(event: Schedulable) {
    events.add(event)
    event.schedule(event.time)
  }
  fun rescheduleEvent(id: String, newTime: String) {
    val event = events.find { it.id == id }
    if (event != null) {
      event.reschedule(newTime)
    } else {
      println("Event with id $id not found")
    }
  }
  fun showSchedule() {
    for (event in events) {
      println("Event ${event.id} is scheduled at ${event.time}")
    }
  }
}
```

```
// Example usage
fun main() {
    val schedule = Schedule()
    val meeting1 = Meeting("meeting1", "2024-05-20T10:00")
    val task1 = Task("task1", "2024-05-20T12:00")
    schedule.addEvent(meeting1)
    schedule.addEvent(task1)
    schedule.showSchedule()
    schedule.rescheduleEvent("meeting1", "2024-05-20T11:00")
    schedule.rescheduleEvent("task1", "2024-05-20T14:00")
    schedule.showSchedule()
}
```



Task 10: Secure the event data with proper encapsulation and visibility modifiers.

```
class Event(private var eventName: String, private var eventDate: String) {
   // Public getter for eventName
  fun getEventName(): String {
```

```
return eventName
  }
  // Public setter for eventName
  fun setEventName(newName: String) {
    if (newName.isNotBlank()) {
      eventName = newName
    } else {
      throw IllegalArgumentException("Event name cannot be blank")
    }
  }
  // Public getter for eventDate
  fun getEventDate(): String {
    return eventDate
  }
  // Public setter for eventDate
  fun setEventDate(newDate: String) {
    if (newDate.matches(Regex("\d{4}-\d{2}-\d{2}"))) { // Simple date format check (YYYY-MM-
DD)
      eventDate = newDate
    } else {
      throw IllegalArgumentException("Invalid date format. Expected format: YYYY-MM-DD")
    }
  }
}
fun main() {
  val event = Event("Conference", "2024-09-15")
  println("Event Name: ${event.getEventName()}")
```

```
println("Event Date: ${event.getEventDate()}")

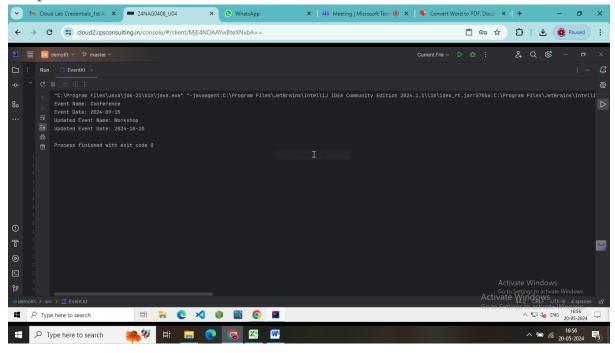
// Update event name and date

event.setEventName("Workshop")

event.setEventDate("2024-10-20")

println("Updated Event Name: ${event.getEventName()}")

println("Updated Event Date: ${event.getEventDate()}")
}
```

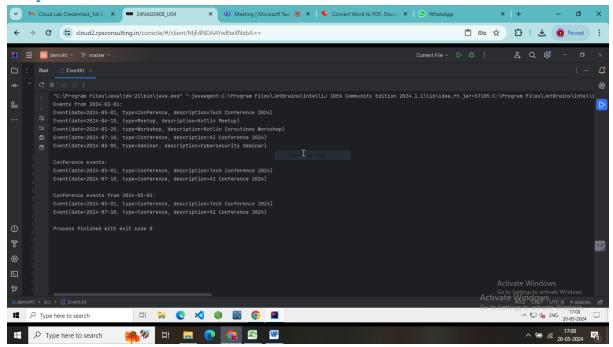


Task 11: Manage a collection of events allowing filtering by date or type using Kotlin's powerful collection operations.

```
import java.time.LocalDate
data class Event(val date: LocalDate, val type: String, val description: String)
val events = listOf(
    Event(LocalDate.of(2024, 5, 1), "Conference", "Tech Conference 2024"),
    Event(LocalDate.of(2024, 6, 15), "Meetup", "Kotlin Meetup"),
    Event(LocalDate.of(2024, 5, 20), "Workshop", "Kotlin Coroutines Workshop"),
    Event(LocalDate.of(2024, 7, 10), "Conference", "Al Conference 2024"),
    Event(LocalDate.of(2024, 5, 5), "Seminar", "Cybersecurity Seminar")
```

```
)
fun filterEventsByDate(events: List<Event>, fromDate: LocalDate): List<Event> {
  return events.filter { it.date >= fromDate }
}
fun filterEventsByType(events: List<Event>, eventType: String): List<Event> {
  return events.filter { it.type.equals(eventType, ignoreCase = true) }
}
fun filterEvents(events: List<Event>, fromDate: LocalDate, eventType: String): List<Event> {
  return events.filter { it.date >= fromDate && it.type.equals(eventType, ignoreCase = true) }
}
fun main() {
  val fromDate = LocalDate.of(2024, 5, 1)
  val eventType = "Conference"
  val filteredByDate = filterEventsByDate(events, fromDate)
  println("Events from $fromDate:")
  filteredByDate.forEach { println(it) }
  val filteredByType = filterEventsByType(events, eventType)
  println("\n$eventType events:")
  filteredByType.forEach { println(it) }
  val filteredByDateAndType = filterEvents(events, fromDate, eventType)
  println("\n$eventType events from $fromDate:")
  filteredByDateAndType.forEach { println(it) }
}
```

class DataManager<T> {



Task 12: Use generics to create a flexible DataManager class capable of handling different data types, including attendees and events.

```
private val dataList: MutableList<T> = mutableListOf()
fun addData(data: T) {
    dataList.add(data)
}
fun removeData(data: T) {
    dataList.remove(data)
}
fun getDataList(): List<T> {
    return dataList.toList()
}

// Example usage:
data class Attendee(val name: String, val age: Int)
data class Event(val eventName: String, val date: String)
```

```
fun main() {
    val attendeeManager = DataManager<Attendee>()
    val eventManager = DataManager<Event>()
    // Adding attendees
    attendeeManager.addData(Attendee("John", 30))
    attendeeManager.addData(Attendee("Alice", 25))
    // Adding events
    eventManager.addData(Event("Conference", "2024-05-20"))
    eventManager.addData(Event("Workshop", "2024-06-10"))
    // Getting lists
    val attendees = attendeeManager.getDataList()
    val events = eventManager.getDataList()
    println("Attendees: $attendees")
    println("Events: $events")
}
```

