WIA1002 DATA STRUCTURE
LAB TEST 1
Duration: 1 hour
(Wednesday 4.00pm – 5.00pm)

Question:
Your task is to develop a Java program for managing events in a community center. The program should support different types of events (e.g., Concerts, Workshops, and Sports Games), each with its own set of attributes. The program must be capable of reading event details from a file, employing polymorphism to represent the different event types, and using generics to manage a list of all events.

Requirements**:**

1. **Event Class:** Design an abstract base class named **Event** with common attributes such as **eventId** (String), **eventName** (String), and **eventDate** (String). Include an abstract method **displayEventDetails()** to print the event's details. {2marks}

2. **Concert, Workshop, SportsGame** classes**:** Implement subclasses of **Event** for each event type:
   - **Concert** with an additional property **bandName** (String).
   - **Workshop** with additional properties **topic** (String) and **instructor** (String).
   - **SportsGame** with an additional property **gameType** (String).

   Each subclass should provide its own implementation of **displayEventDetails()**. {3marks}

3. **EventManager Class with Generics:** Create an **EventManager<T extends Event>** class that uses generics to manage a collection/list of events. Include methods to add an event to the collection and to display details of all events. {2marks}

4. **File Input/Output:** Implement functionality to read event details from a file named **events.txt**. Each line in the file represents an event with its type, ID, name, date, and other type-specific information. The application should parse this file, instantiate appropriate event objects, and add them to the **EventManager**. {2marks}

5. **Main Class:** Write a main class **EventManagementSystem** to demonstrate the program's functionality by reading event data from the file, adding events to the **EventManager**, and displaying the details of all events. {1mark}

File format ('events.txt'):

```
Concert,EV100,Spring Jam,2024-07-15,The Good Ones
Workshop,EV101,Creative Writing,2024-08-20,Storytelling Basics,Jane Doe
SportsGame,EV102,Community Rugby Game,2024-09-05,Rugby
```

Sample Output (10%):

```
run:
Concert - ID: EV100, Name: Spring Jam, Date: 2024-07-15, Band: The Good Ones
Workshop - ID: EV101, Name: Creative Writing, Date: 2024-08-20, Topic: Storytelling Basics, Instructor: Jane Doe
Sports Game - ID: EV102, Name: Community Rugby Game, Date: 2024-09-05, Type: Rugby
BUILD SUCCESSFUL (total time: 0 seconds)
```