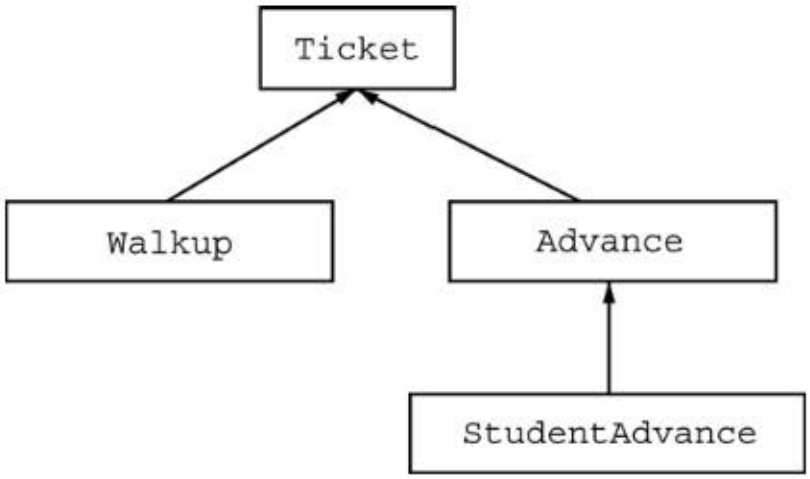
Inheritance: Ticket FRQ

A set of classes is used to handle the different ticket types for a theater. The class hierarchy is shown in the following diagram.



All tickets have a serial number and a price. The class *Ticket* is specified as shown in the following declaration.

```
public class Ticket
{
  private static int serialNumber;  // unique ticket id number

  public Ticket()
  {  serialNumber = getNextSerialNumber();  }

  // returns a string with information about the ticket
  public String toString()
  {  return "Number: " + serialNumber;  }

  // returns a new unique serial number
  private int getNextSerialNumber()
  {  /* implementation not shown */  }
}
```

Each ticket has a unique serial number that is assigned when the ticket is constructed. For all ticket classes, the `toString()` method returns a `String` containing the information for that ticket. Three additional classes are used to represent the different types of tickets and are described in the table below.

Class	Description	Sample `toString()` Output
`Walkup`	These tickets are purchased on the day of the event and cost 50 dollars.	`Number: 712` `Price: 50.0`
`Advance`	Tickets purchased ten or more days in advance cost 30 dollars. Tickets purchased fewer than ten days in advance cost 40 dollars.	`Number: 357` `Price: 40.0`

`StudentAdvance`	These tickets are a type of `Advance` ticket that costs half of what that `Advance` ticket would normally cost.	`Number: 134`
		`Price: 15.0`
		`(student ID required)`

Using the class hierarchy and specifications given above, you will write complete class declarations for the `Advance` and `StudentAdvance` classes.

(a) Write the complete class declaration for the class `Advance`. Include all necessary instance variables and implementations of its constructor and method(s). The constructor should take a parameter that indicates the number of days in advance that this ticket is being purchased. Tickets purchased ten or more days in advance cost $30; tickets purchased nine or fewer days in advance cost $40.

(b) Write the complete class declaration for the class `StudentAdvance`. Include all necessary instance variables and implementations of its constructor and method(s). The constructor should take a parameter that indicates the number of days in advance that this ticket is being purchased. The `toString()` method should include a notation that a student ID is required for this ticket. A `StudentAdvance` ticket costs half of what that `Advance` ticket would normally cost. If the pricing scheme for Advance tickets changes, the `StudentAdvance` price should continue to be computed correctly with no code modifications to the `StudentAdvance` class.