

Name:

Date:

AP Computer Science A Ticket Generator Lab

You are tasked with creating a class to generate tickets for a show. There are three types of tickets that can be purchased:

- A *WalkUp* ticket is purchased on the day of the event and costs \$50.
- *Advance* tickets purchased ten or more days before the event cost \$30. *Advance* tickets purchased fewer than ten days in advance cost \$40.
- *StudentAdvance* tickets are a type of *Advance* but cost only half of the *Advance* ticket price and are available to students with ID.

Each ticket has a unique serial number that is assigned when the ticket is constructed.

Each ticket should have its own serial number, ticket type, and ticket cost. The class should have an instance variable to keep track of the number of the total tickets sold (this will also help with assigning the next serial number to a ticket) and the number of each type of ticket sold.

The ticket class should have two constructors: (1) a default constructor that assumes the ticket is bought the day of the event, and (2) a constructor that has parameters for the ticket type. The constructor should instantiate all appropriate variables and should also account for the change in the static instance variables. Please take this opportunity to practice using the `this` keyword.

You should include a helper method in your class to determine the cost of the ticket.

The class should include accessor and mutator methods for each variables (include one that will return the number of tickets sold). You should also provide a `toString` method that will return a `String` with all relevant information for the ticket object.

Your tester (or driver) class should allow users to purchase as many groups of tickets as necessary. [Imagine the user is a cashier who needs to account for all the people in a line.] For each guest, the user should be able to purchase multiple tickets based on user input. After all tickets are purchased, the user should be provided with the number of each type of ticket sold, the total number of tickets sold, and the total revenue from the sales.

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Tax Calculator

Directions: In the United States, an individual's tax bracket is determined by their income. If your income falls within a certain range, you pay a certain amount of tax. Here are the tax brackets for 2020. <This is a simplified version of how tax is actually calculated.>

Tax Brackets and Rates, 2020

Rate	For Single Individuals, Taxable Income Over	For Married Individuals Filing Joint Returns, Taxable Income Over	For Heads of Households, Taxable Income Over
10%	\$0	\$0	\$0
12%	\$9,875	\$19,750	\$14,100
22%	\$40,125	\$80,250	\$53,700
24%	\$85,525	\$171,050	\$85,500
32%	\$163,300	\$326,600	\$163,300
35%	\$207,350	\$414,700	\$207,350
37%	\$518,400	\$622,050	\$518,400

Source: Internal Revenue Service

You get an exemption based on whether you file as an individual or as a married couple filing taxes together.

2020 Standard Deduction

Filing Status	Deduction Amount
Single	\$12,400
Married Filing Jointly	\$24,800
Head of Household	\$18,650

Source: Internal Revenue Service

You also get credit based on how many children you claim as dependents. In general, up to \$1400 can be refunded for each qualifying child (you can just use \$1400).

Create a TaxCalculator class that calculates an individual's taxes owed based on his or her income. Your TaxCalculator should have a few instance variables: income, single/married, dependents. Use the this keyword and as many (reasonable) helper methods as possible to determine the amount of taxes the individual owes.