

Problem : Generics

Review the WildCardExtendsDemo, SuperWildCardDemo0, SuperWildCardDemo, and AnyWildCardDemo programs, available on Canvas (Chapter 19). Also, download and read the ManageEmployees program: Your task is to finish this program. What the program does is outlined in the comments and the main method. It contains an Employee class and a few other classes, e.g. Programmer, that extend Employee. You will need to write four methods to make this program work: printNames, addElements, printFavoriteLanguages, and printAll. You are required to use wildcards in implementing these methods:

printNames will print the names of all elements of an array list of some sort of employee objects, e.g. ArrayList<Employee> or ArrayList<Programmer>. It does not remove elements from the array list. You are required to use an extends wildcard in the parameter list for this method.

addElements will add elements from one array list to another array list. It does not remove elements from either array list. You are required to use a super wildcard in the parameter list of addElements.

printAll will print all of the elements in an ArrayList, using the toString method. It does not remove elements from the array list. You are required to use an unbounded wildcard in its parameter list.

printFavoriteLanguages will print the favorite programming languages of an array list of some sort of programmer objects, e.g. ArrayList<Programmer> or ArrayList<WebDeveloper>. It does not remove elements from the array list. Here again, You are required to use an extends wildcard in the parameter list.

YOU ARE NOT PERMITTED TO USE ANY TYPECASTS WHATSOEVER IN COMPLETING THIS PROBLEM. Also, you are not permitted to modify the main method in any way.

The correct output for the program is shown as following ...

```
Web devs:
Sir Timothy Berners-Lee
Brendan Eich
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Sys devs:
Grace Hopper
Donald Knuth
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Designers:

Roberta Williams

Sid Meier

Theorists:

Shafrira Goldwasser

Stephen Cook

General devs:

Richard Stallman

Bill Joy

All employees:

Sir Timothy Berners-Lee

Brendan Eich

Grace Hopper

Donald Knuth

Roberta Williams

Sid Meier

Shafrira Goldwasser

Stephen Cook

Richard Stallman

Bill Joy

Web devs (using toString):

WebDeveloper@15db9742

WebDeveloper@6d06d69c

Objects (using toString):

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Hello

Programmer@7852e922

Among web developers:

Sir Timothy Berners-Lee prefers JavaScript

Brendan Eich prefers JavaScript

Among all developers:

Richard Stallman prefers Java

Bill Joy prefers Java

Sir Timothy Berners-Lee prefers JavaScript

Brendan Eich prefers JavaScript

Grace Hopper prefers C

Donald Knuth prefers C