C++ OOP Retake Exam – 27 April 2024

Submit your solutions here: https://judge.softuni.org/Contests/Practice/Index/4741

3. Conference Participants

You have a conference participant management system, which uses the following classes to do its job:

Participant	The base class of all participants.
- Organizer	Base class for all organizers
│	Employee of the organizer
	Manager of the organizer
├─ Visitor	Base class for all visitors
AdultVisitor	Adult (above 18 years' old) participant
│	Minor (below 18 years' old) participant
└─ Sponsor	Base class for an employee of a sponsor
- BronzeEmployee	Employee from a bronze sponsor
├─ SilverEmployee	Employee from a silver sponsor
└─ GoldEmployee	Employee from a gold sponsor

The system reads participant data, depending on each participant type, then builds the hierarchy of participants. For each different class we've got the different input and output. The base classes do not have input, as they cannot exist in the hierarchy.

The input data is classified in the following way for each separate class:

- Each participant data starts with the Type as follows: OE, OM, AV, MV, SE and GE (see below for identification which Type to which class refers)
- The Id of the participant, an int;
- The rest of the fields are only alphanumeric, e.g. cannot contain digits, spaces, or punctuation.
 - o The only exception is the Age field of the MinorVisitor, which is an int like the Id.
- It's guaranteed that the Name + Surname pairs are unique
- It's guaranteed that each MinorVisitor participant will have a corresponding accompanying adult (e.g., there will be an adult with that pair of names)
 - o There's no such guarantee for the Employee <-> Manager connection, and it does not matter from this application's perspective.
- The data will be correct both syntactically and semantically.
- The input ends with end.

Here's the input format of each class:

Participant	Does not have specific input
- Organizer	Does not have specific input
│ ├─ OrganizerEmployee	OE Id Name Surname ManagerName ManagerSurname Example:

















	OE 2 Ivan Popov Stefan Petrov
	OM Id Name Surname Department Example: OM 4 Stefan Petrov Sales
├─ Visitor	Does not have specific input
	AV Id Name Surname accountId Example: AV 6 Doncho Angelov donangel
│	MV Id Name Surname AdultName AdultSurname Age Example: MV 8 Kalina Angelova Doncho Angelov 11
L— Sponsor	Does not have specific input
- SilverEmployee	SE Id Name Surname Company accountId Example: SE 10 Stilyan Petrov CompanA stipe
└─ GoldEmployee	GE Id Name Surname Company TshirtSize Example: GE 11 Marko Markov markma XXXL

The system will read and classify each input line, and then will print out a participation summary and a list of all participants by type. See the Example section for details.

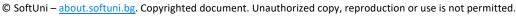
Your task is to study the class hierarchy and complete it, and then provide the needed operators, so that the output is successful. Your ZIP file should should contain the following files: Solution.h, SilverEmployee.h, and Sponsor.h.

Example 1

Input OM 1 Ivan Tenev Sales OE 2 Stanoika Ivanova Ivan Tenev AV 23 Petar Petrov pepet AV 21 Ivan Georgiev ivge GE 8 Golden Aishe Fatctory XXXL end Output Participants: 5, Organizers: 2, Sponsors: 1, Visitors: 2 Organizers: - Tenev, Ivan | Sales | manager - Ivanova, Stanoika | manager: Tenev, Ivan Visitors: - Petrov, Petar | pepet - Georgiev, Ivan | ivge Sponsors: - Gold: Aishe, Golden | Fatctory | XXXL

Example 2



















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SE 10 Stilyan Petrov CompanA stipe
GE 11 Marko Markov markma XXXL
MV 8 Kalina Angelova Doncho Angelov 11
AV 6 Doncho Angelov donangel
OM 4 Stefan Petrov Sales
OE 2 Ivan Popov Stefan Petrov
end
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Output

Participants: 6, Organizers: 2, Sponsors: 2, Visitors: 2 Organizers: - Petrov, Stefan | Sales - Popov, Ivan | manager: Petrov, Stefan Visitors: - Minor: Angelova, Kalina | 11 | accompanied by: Angelov, Doncho - Angelov, Doncho | donangel Sponsors: - Silver: Petrov, Stilyan | CompanA | stipe - Gold: Markov, Marko | markma | XXXL

Example 3

Input AV 6 Doncho Angelov donangel OM 4 Stefan Petrov Sales end **Output** Participants: 2, Organizers: 1, Sponsors: 0, Visitors: 1 Organizers: - Petrov, Stefan | Sales Visitors: - Angelov, Doncho | donangel Sponsors: - none













