Fairy tale

Let’s simulate a tale of fairies, witches and wizards.

In the simulation name and magic power (random int number 5-20) is stored about a participant.

For wizards, the age (21-99) and for witches, the number of cats (1-9) also stored.

*(numbers can be random)*

Each of them can conjure a spell, by that all has an effect on the world (int number).

* Effect of fairies: a random number multiplied by a coefficient valid for all fairies.
* Effect of wizard: a random number multiplied by a coefficient valid for all wizards PLUS age/3.
* Effect of witches: a random number multiplied by a coefficient valid for all witches PLUS the number of cats. Witches are bad, so their effect is multiplied by -1.

Good act increase the power (+1) of participant, bad act decreases (-1) it (until zero).

Each participant can retrieve (toString) its type, name and power. If he/she is a witch, and has power of 0, description is extended by “powerless” word.

Create an application to register participants of any number. After registration, let all of them cast their spell once, and compute the total effect, print out the list and current state of participants.

Select the most powerful one.

Repeat the process (cast, list, top) 10 times.

Book store

Let’s create a management program for book store.

In the store the following type of books are sold: novel, travel guide, language

Travel guides are also described with a value of how deep they guide into the local culture (random 1-5).

Data stored about a book: title, author, page number, price, VAT (27%)

*(numbers can be random)*

Language books support learning, they have difficulty and required vocabulary size (random number). Difficulty is specified by vocabulary

1. base: 0-500
2. intermediate: 501-1000
3. high: 1001-1500

For language books, the difficulty is also presented on the cover.

Each book has a discount:

* Language book: (vocabulary size / 100)% but maximum 15%
* Travel guide: (culture depth \* 3)%
* Novel: fix 10%.

Cover text can be created for each book (toString) contains the author, title, price. For travel guides, cover text is extended by cultural depth.

Create an application in which any number of books (of any type) can be registered.

After registration, compute the total price, total VAT, find the most expensive and cheapest books.