**Assignment**

Develop the product management application of FPT ShopThe company. The company specializes in trading 3 types of products:Smartphone, Tivi, Air-conditioner .

* The Smartphone includes the following information: code, name, brand, Ram, CPU, Size, price, Quantity.
* The TV includes the following information: code, name, brand, size, price, Quantity.
* The Air-conditioner includes the following information: code, name, brand, power, price, Quantity.

Constraints:

1. Each product has a unique code.

* Smart phone code must be in format <SM000>, 0 is a digit.
* Tivi code must be in format <TI000>, 0 is a digit.
* Air-conditioner code must be in format <AIR000>, 0 is a digit.
* All product information must not be empty.
* Quantity,Price >0.
* Use package utils to check the validate of input data.

Create a program menu that includes the following features:

1. Add a new product.
2. Print out the list of products on the screen.
3. Print a list of Smartphones in descending order of price.
4. Print a list of Tivis in Ascending order of price.
5. Print a list of Air-conditioner in descending order of price.
6. Print information about products with the highest prices.
7. Update the product information based on the code the user entered.
8. Delete an product based on the code the user entered.
9. Print the total amount of all products ( Total amount = sum(Price\*Quantity)).
10. Exit the program.

Note

* Use ArrayList to manage products. One-dimensional arrays cannot be used.
* Use Generic to limit type in a list.
* The list has at least 8 products and has all 3 types of products.

**---The End---**