**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:

* Each product has a unique code.
* Product code must be in format <P000000>, 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:

* Add a new product.
* Print out the list of products on the screen.
* Print a list of Smartphones in descending order of price.
* Print a list of Tivis in Ascending order of price.
* Print a list of of Air-conditioner in descending order of price.
* Print information about products with the highest unit price for each product type.
* Update the product information based on the code the user entered (Note: Do not change the code) .
* Delete an product based on the code the user entered.
* Print the total amount of all products ( Total amout = sum(Price\*Quantity)).
* 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 9 products and has all 3 types of products.

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