Lab1

Create a console program that meets the following requirements:

1. Use the capabilities of OOP: classes, inheritance, polymorphism, encapsulation.

2. Each class should have a meaningful name and an informative composition.

3. Imitation should only be used when it makes sense.

4. When coding, the java code convention should be used.

5. Classes should be divided into packages.

6. The console menu should be minimal.

7. You can use files to save the initialization parameters.

8. All code must be covered by unit tests Use Junit 4 or 5, Mockito.

1. Flower Shop. Determine the color hierarchy. Create several flower objects. Collect a bouquet (using accessories) and determine its value. Sort the flowers in the bouquet based on the level of freshness. Find the flower in the bouquet that corresponds to the given range of stem lengths.

2. New Year's gift. Determine the hierarchy of candies and other sweets. Create several candy objects. Collect a child's gift with the determination of its weight. Sort the candies in the gift based on one of the parameters. Find the candy in the gift that matches the given range of sugar content.

3. Household electrical appliances. Determine the hierarchy of electrical appliances. Plug some in. Calculate the power consumption Sort appliances in the apartment based on power. Find a device in the apartment that corresponds to the specified range of parameters.

4. Chef. Determine the hierarchy of vegetables. Make a salad. Calculate the calorie content. Sort vegetables for salad based on one of the parameters. Find vegetables in the salad that correspond to the given range of calories.

5. Sound recording. Determine the hierarchy of musical compositions. Record a collection of songs on a disc. Calculate the duration. Rearrange the compositions of the disc, taking into account belonging to the style. Find a composition that matches a given range of track lengths.

6. Stones. Determine the hierarchy of precious and semi-precious stones. Select stones for a necklace. Calculate the total weight (in carats) and value. Sort necklace stones based on value. Find the stones in the necklace that match the given range of transparency parameters.

7. Knight. Determine the knight's ammunition hierarchy. Equip a knight. Calculate the cost. Sort ammunition based on weight. Find ammunition items that match a given range of price parameters.

8. Transport. Determine the hierarchy of rolling stock of railway transport. Create a passenger train. Calculate the total number of passengers and luggage. Sort cars based on comfort level. Find carriages in the train corresponding to the given range of parameters of the number of passengers.

9. Airline. Determine the hierarchy of aircraft. Create an airline. Calculate the total capacity and carrying capacity. Sort the company's planes by flight range. Find an aircraft in the company that corresponds to a given range of fuel consumption parameters.

10. Taxi park. Determine the hierarchy of passenger cars. Create a taxi fleet. Calculate the cost of the car fleet. Sort cars in the fleet based on fuel consumption. Find a car in the company that corresponds to a given range of speed parameters.

11. Insurance. Determine the hierarchy of insurance obligations. Collect derivatives from liabilities. Calculate the cost. Sort liabilities in the derivative based on risk mitigation. Find the commitment in the derivative corresponding to the given range of parameters.

12. Mobile communication. Determine the hierarchy of tariffs of the mobile company. Create a list of company tariffs. Count the total number of customers. Sort tariffs based on the size of the subscription fee. Find the tariff in the company that corresponds to the specified range of parameters.

13. Coffee van. Load a van of a certain volume with cargo for a certain amount of different types of coffee in different physical states (grain, ground, soluble in cans and bags). Take into account the volume of coffee together with the packaging. Sort goods based on the ratio of price and weight. Find a product in the van that meets the given range of quality parameters.

14. Game room. Prepare a playroom for children of different age groups. There should be a fixed number of toys within the allocated amount of money. Toys of family groups should meet, for example: small, medium and large cars, dolls, balls, cubes. Sort the toys in the room according to one of the parameters. Find toys in the room that match a given range of parameters.

15. Taxes. Determine the number and amount of tax payments of an individual for the year, taking into account income from the main and additional jobs, royalties, sale of property, receipt of money and property as a gift, transfers from abroad, benefits for children and material assistance. Sort taxes by amount.