**Implementation description for Proof IT Recruitment Technical Task solution.**

For tasks solution was created two packages – objects and calculators. It was done to sort all classes. Package “objects” contains all objects classes that are described in task description – Policy, PolicyObject and PolicySubObject. The package also contains enum classes – ObjectType, PolicyStatus, SubObjectType and RiskType. This decision will help make changes and add new type of risks, objects and sub-objects in the future.

Package “calculators” contains classes that store premium calculation algorithms and formulas. Class PremiumCalculator summarizes all risk premiums. Classes FirePremiumCalculator and TheftPremiumCalculator were created to calculate the premium of each type of risk separately. This decision allows adding and changing type of insurance risks. To search for coefficients was created classes FireRiskCoefficientDetector and TheftRiskCoefficientDetector, that return default or overpriced coefficient in depending on the total sum insured of policy`s sub-objects with the necessary type of risk. Coefficients in classes were defined as constants that can be changed at any time.

To demonstrate that task solution works correctly, was created class – PremiumCalculatorDemo. As well, tests were created that test methods for correct operation.

1) FireRiskCoefficientDetectorTest and FirePremiumCalculatorTest:

* V1 : total sum insured of all policy`s sub-objects with type “Fire” < 100
* V2 : total sum insured of all policy`s sub-objects with type “Fire” = 100
* V3: total sum insured of all policy`s sub-objects with type “Fire” > 100

2) TheftRiskCoefficientDetectorTest and TheftPremiumCalculatorTest:

* V1 : total sum insured of all policy`s sub-objects with type “Theft” < 15
* V2 : total sum insured of all policy`s sub-objects with type “Theft” = 15
* V3: total sum insured of all policy`s sub-objects with type “Theft” > 15

3) PremiumCalculatorTest:

* V1 : contains one policy, one object and two sub-objects, that total sum insured with type “Fire” = 100 and that total sum insured with type “Theft” = 8
* V2: contains one policy, one object and two sub-objects, that total sum insured with type “Fire” = 500 and that total sum insured with type “Theft” = 102.51
* V3: contains two policy’s, two objects and four sub-objects, that total sum insured with type “Fire” = 600 and that total sum insured with type “Theft” = 110.51