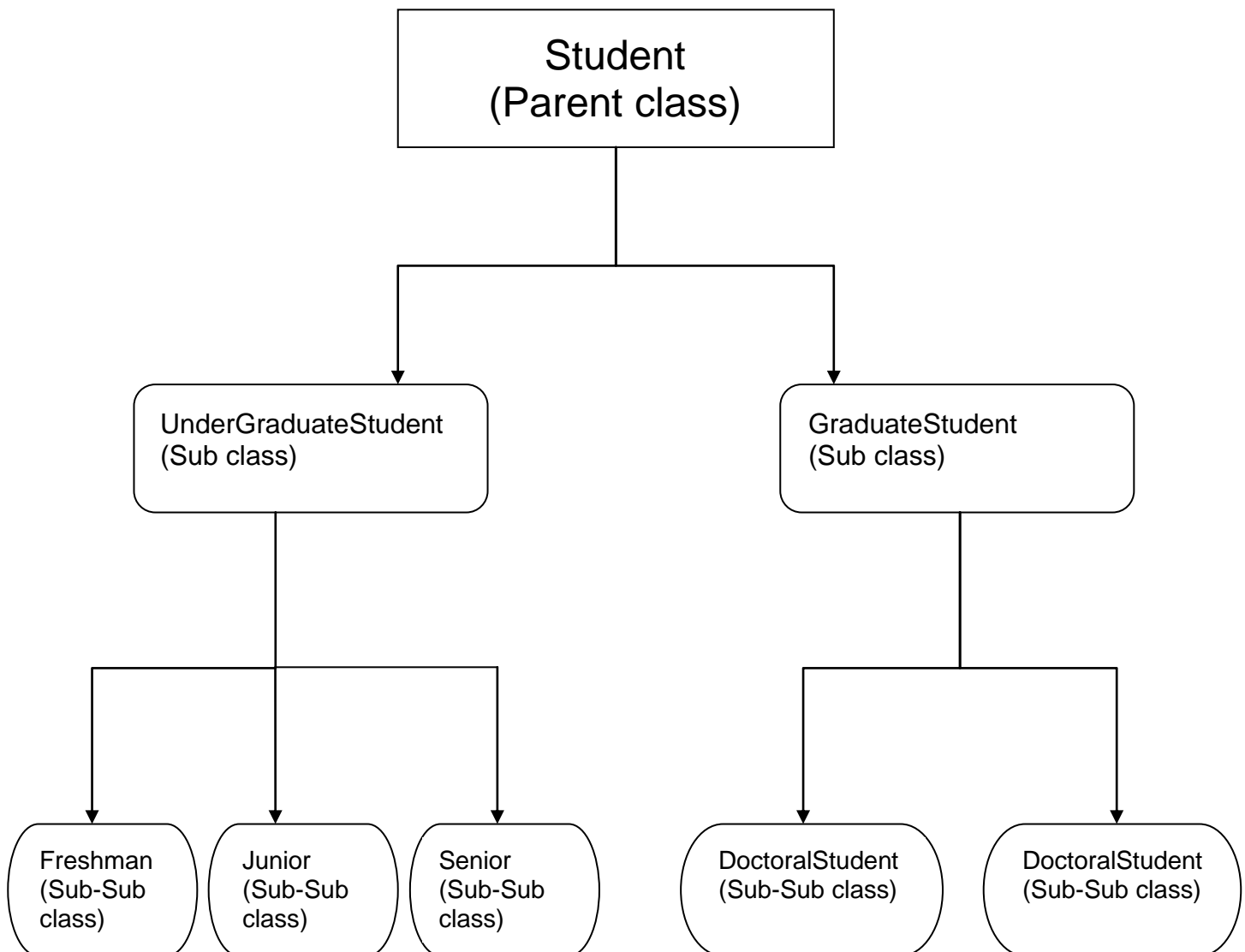**Question2->** Draw an inheritance hierarchy for students at a university. Use Student as the base class of the hierarchy, and then include classes UndergraduateStudent and GraduateStudent that derive from Student. Continue to extend the hierarchy as deep (i.e., as many levels) as possible. For example, Freshman, Junior and Senior might derive from UndergraduateStudent, and DoctoralStudent and MastersStudent might derive from GraduateStudent. After drawing the hierarchy, discuss the relationships that exist between the classes.

Solution:-

```
                        ┌─────────────────────┐
                        │      Student        │
                        │   (Parent class)    │
                        └─────────────────────┘
                                  │
                ┌─────────────────┴─────────────────┐
                ▼                                   ▼
    ┌───────────────────────┐         ┌───────────────────────┐
    │ UnderGraduateStudent  │         │   GraduateStudent      │
    │      (Sub class)      │         │      (Sub class)       │
    └───────────────────────┘         └───────────────────────┘
              │                                   │
      ┌───────┼───────┐                   ┌───────┴───────┐
      ▼       ▼       ▼                   ▼               ▼
  ┌───────┐ ┌───────┐ ┌───────┐    ┌───────────┐   ┌───────────┐
  │Freshman│ │Junior │ │Senior │   │DoctoralStudent│ │DoctoralStudent│
  │(Sub-Sub│ │(Sub-Sub│ │(Sub-Sub│  │(Sub-Sub class)│ │(Sub-Sub class)│
  │ class) │ │ class) │ │ class) │  └───────────┘   └───────────┘
  └───────┘ └───────┘ └───────┘
```

In this solution, *we have Student as parent class and* UnderGraduateStudent*, GraduateStudent as child classes. Then we have UnderGraduateStudent as parent class and* Freshman*, Junior, Senior as child classes, and we have GraduateStudent as parent class and Doctoral*Student*, MasterStudent as child classes. So we can say that Freshman, junior, Senior, Doctoral*Student*, MasterStudent are the grandchild classes of* Student grandparent class.