

1.17 Integration of Concepts

It is possible to show that OOP languages logic originates from molecular biology the programming language of life and then transformed into pseudo notation from there into a scientific language such as OOC and then applied to a variety of OO programming languages.

Let's begin with the development of a cell (**basic unit of life**), which is created from a genetic blueprint in the form of DNA (**responsible for cell functionality inside nucleus**). The gene is a specific section of DNA, which entails a sequence or RNA (**copy of DNA**) that codes for a molecule that has a function, describes attributes or properties and behavior of a cell it creates with a unique internal state. The cell can belong to different classes such as a plant or animal, but all of them are derived from the class cell. The cell has a plasma membrane or cell wall, which encapsulates and protects the internal cell structure from other cells. Furthermore, it can transfer information through its plasma membrane (**cell wall**) using the cell receptors for communication processes. The cell organelles or internal organs of a cell are responsible for the cell internal processes, which occur within the boundaries of the plasma membrane. Some of them for example would be the Golgi apparatus that modifies, packages, and sorts proteins sent from the endoplasmic reticulum or tubes that allow transportation of chemical compounds to and from the nucleus (**stores the cell genetic information**) and mitochondria, which produce energy for the cell. When cells are instantiated at first, they all look the same, but once they diverge or split, they transform themselves into specialties like red blood cells, skin cells, and many others where each cell type has a constructor method or nucleus (**stores the cell genetic information**) precise to its class.

1.18 Self-Checked Questions for Integration of Concepts

1. Where does the cell originate from?
2. What is a gene?
3. How does the cell transfer information?
4. How does the cell communicate with other cells?
5. What are cell organelles?
6. What is a endoplasmic reticulum?