

# LAB 08

## Inheritance



## Task 01

1. Create a base class called **'Person'** with the following attributes:
  - name (**string**)
  - age (**integer**)
  - gender (**string**)
2. Derive two classes, **'Employee'** and **'Student'**, from the **'Person'** base class. Each derived class should have additional attributes:
  - For **'Employee'**: 'employee\_id' (**integer**), 'position' (**string**)
  - For **'Student'**: 'student\_id' (**integer**), 'major' (**string**)
3. Implement a method in the base class **'Person'** called **'display\_info()'** that prints the name, age, and gender of the person.
4. In each derived class (**'Employee'** and **'Student'**), override the **'display\_info()'** method to include the additional attributes specific to that class.

Create instances of **'Employee'** and **'Student'**, set their attributes, and call the **'display\_info()'** method for each.

## Task 02

1. Create a base class called **'LivingThing'** with an attribute **'alive'** (**boolean**).
2. Derive a class **'Human'** from **'LivingThing'** with additional attributes:
  - 'language\_spoken' (**string**)
  - 'is\_homo\_sapien' (**boolean**)
3. Derive a class **'Superhero'** from both **'Person'** and **'Human'**. This represents a superhero who is a living human.
4. Implement a method in **'Superhero'** called **'save\_the\_day()'** that prints a message indicating that the superhero is saving the day.

Create an instance of **'Superhero'**, set its attributes, and call both **'display\_info()'** and **'save\_the\_day()'**.

## Task 03

1. Create a base class called **'Book'** with the following attributes:
  - title (**string**)
  - author (**string**)
  - publication\_year (**integer**)
2. Derive a class **'EBook'** from **'Book'** with an additional attribute:
  - 'file\_size' (**float**)
3. Derive a class **'PrintedBook'** from **'Book'** with additional attributes:
  - num\_pages (**integer**)
  - is\_hardcover (**boolean**)
4. Implement a method in each class (**'Book'**, **'EBook'**, and **'PrintedBook'**) called **'display\_details()'** that prints out relevant details for each type of book.

Create 10 instances of **EBook** and **PrintedBook**, set their attributes, add them to a list, and call the *display\_details()* method using for each loop.