

CS Homework #21

Deadline: March 20th, 9:00 pm.

- Save your code as `lastname_homework21.py` and submit on Google Classroom.
- Please, run your code before submitting.
- If you get an error, try to fix it before submitting your homework.
- If you get help from anyone, please, make sure that you actually understand the solution.

Task 1

Create a class “human”. Each human has two user defined attributes: (1) age, and (2) name. In addition, each human starts with a random favorite number between 1 and 10. This number is NOT an argument passed by the user. Instead, this instance attribute is added to an object when the object is created.

Task 2

Add an instance method “intro” that displays introduction, e.g., “Hi, I am John. I am 20 years old.”

Task 3

Add an instance method that wishes (prints) the human happy birthday and increases age by 1.

Task 4

Create a human instance/object and test both methods from Tasks 2 and 3.

Task 5

Create a class “child” which is a subclass of “human”. In addition to age and name, children have another attribute: a grade (integer). The grade value must be a function of age: The initial grade value must be equal to: $\text{age} - 6$.

Task 6

For the child subclass, override the instance method “intro” that displays introduction, e.g., “Hi, I am Max. I am 12 years old and I am in 6th grade.” Yes, you are overriding the superclass method here.

Task 7

Create a child instance/object and display its introduction.

Task 8

Create a class “SNstudent” (School Nova student) which is a subclass of “child”. In addition to age, name, and grade, School Nova students have a *list* of courses that they take at School Nova. For the same of simplicity, assume that each SN student takes exactly two courses.

Task 9

For the SNstudent subclass, add an instance method “intro” that displays introduction, e.g., “Hi, I am Jane. I am 11 years old and I am in 5th grade. My School Nova courses are Physics and Computer Science.” (hint, use `list[0]` and `list[1]` to display the School Nova courses)

Task 10

Use `help(SNstudent)` and explore the Method resolution order for SNstudent, child, and human.