Python: The Easy Way

Lab 4

Lab 3 Assignments

we chose for you

Write a program that choose a random website name from list and open it in your browser :

Input

No Input

Hint: Use Standard Library Modules

Output

Website Visit on Web Browser

Story

“Samy is an Employee, He works in ITI and He has a car.
He goes everyday except weekends to ITI Smart Village
Office by his fiat 128 car”

Story Members

Samy

`Employee`

`Person`

ITI

`Office`

Fiat128

`Car`

Additional Info

- **ITI** is an Office that has many employees and **Samy** is one of them.

- **Samy** is an Employee and He has a **fiat 128** Car.

- The distance from **Samy** Home to **ITI** Smart Village Office is **20 km**.

- **Samy** should arrive to **ITI** at before **9:00** unless that he will be late.

- **Velocity** (v) = Distance(d) / time(t).

- **FuelRate** decrease by **10%** every **10km** distance.

Setup All Classes

1 Create the following classes:

- Person Class:
  - attributes (**name**, money, mood, healthRate).
  - methods (sleep, eat, buy).

- Employee Class (is a Person):
  - attributes (id , **car**, **email**, salary, **distanceToWork**)
  - methods (work, drive, refuel, send_mail)

- Office Class:
  - attributes (**name**, employees)
  - methods (get_all_employees, get_employee, hire, fire, calculate_lateness, deduct, reward)

- Car Class:
  - attributes (**name**, fuelRate, velocity)
  - methods (run, stop)

Implement Employee Methods

2- Implement the following methods:

- **sleep (**hours**):** - Method in Person Class (7 hours → happy, <7 hours → tired, >7 hours → Lazy)
- **eat (**meals**):** - Method in Person Class (3 meals → 100% hth , 2 meals → 75% , 1 meal → 50%)
- **buy (**items**):** - Method in Person Class (1 item → decrease money 10 L.E)
- **work (**hours**):** - Method in Employee Class (8 hours → happy, >8 hours → tired, <8 hours → Lazy)

- **send_mail(**to, subject, msg, receiver_name**):** *(optional)*
  - Create Email File like the next page specification (Email Composer)

- **salary** Property**:** must be 1000 or more.
- **email** Property**:** must be valid.
- **healthRate** Property**:** must be between 0 to 100.
- There is **moods** class variable which is tuple of happy, tired and lazy

Email Composer

Write a program that generate a file that contains a structured email message

Input

strings

Email Subject	from@mail.com	to@mail.com	Mohamed

Output

File

```
From: from@mail.com
To: to@mail.com

Hi, Mohamed
This is an email tamplate
thanks
```

Email subject

Implement Car Methods

3 - Implement the following methods:

- **drive (**distance**):**
  - Method in Employee Class (Give the order to run method and give it distance and velocity).
- **refuel (**gasAmount = 100**):**
  - Method in Employee Class (add gasAmount to **fuelRate**).
- **run (**velocity, distance**):**
- Method in Car Class (When invoked it decreases the **fuelRate** and change the velocity to the input parameter of velocity . And it invoke the stop method and give it the remain distance (It is possible to stop before arrive thedestination because **fuelRate** become 0).
- **stop ():**
- Method in Car Class (Stop make the velocity changed to 0 and print notification with the remain distance or that you arrive the destintation)
- **Velocity** Property**:** must be between 0 to 200.
- **Fuel Rate** Property: must be between 0 to 100.

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Implement Office Methods

3- Implement the following methods:

-**get_all_employees ():** Method in Office Class (Return a list of the current Employees)

-**get_employee (**empId**):** Method in Office Class (Return the Employees of given id)

-**hire (**Employee**):** Method in Office Class (Hire the given Employee)

-**fire (**empId**):** Method in Office Class (Fire Employee with the given id)

-**deduct (**empId, deduction**):** Method in Office Class (Deduce Money from salary from Employee)

-**reward (**empId, reward**):** Method in Office Class (add Money to salary from Employee)

-**check_lateness (**empId, moveHour**):** Method in Office Class (Check if employee is late or not and deduce if he is late -10 and reward if he is not late +10)

-**calculate_lateness (**targetHour , moveHour, distance, velocity**): Static** Method in Office Class (Calculate If employee is late or not)

- **employeesNum** class variable which declared the number of Employees in all offices.

- **change_emps_num (**num**)** class method which modify the number of Employees in all offices.

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Save Office data as JSON

Save the previous data of the ITI office in a json file.

Thank You