



Python: The Easy Way

Lab 3

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

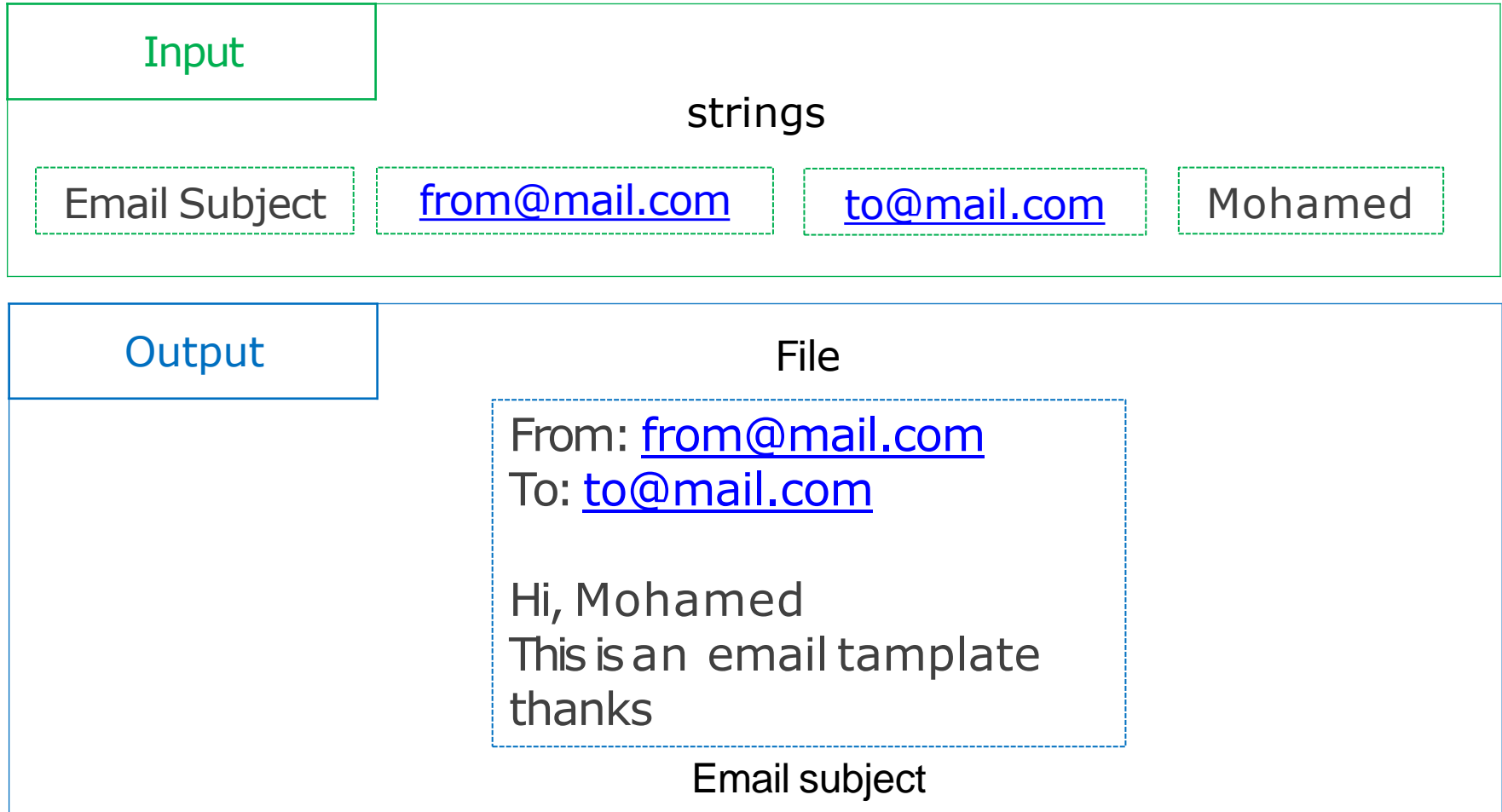
2- Implement the following methods:

- **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 10L.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



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 the destination 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.



Implement Office Methods

3- Implement the following methods:

- get_all_employees ()**: Method in Office Class (Return a list of the current Employees)
- get_employee (empld)**: Method in Office Class (Return the Employees of given id)
- hire (Employee)**: Method in Office Class (Hire the given Employee)
- fire (empld)**: Method in Office Class (Fire Employee with the given id)
- deduct (empld, deduction)**: Method in Office Class (Deduct Money from salary from Employee)
- reward (empld, reward)**: Method in Office Class (add Money to salary from Employee)
- check_lateness (empld, moveHour)**: Method in Office Class (Check if employee is late or not and deduct 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.



Save Office data as JSON

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



Thank You