Python Programming

Polymorphism Homework 2

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Teaching, Training and Coaching since more than a decade!

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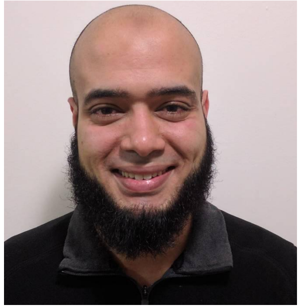


Problem #1: Expedia Travel Site

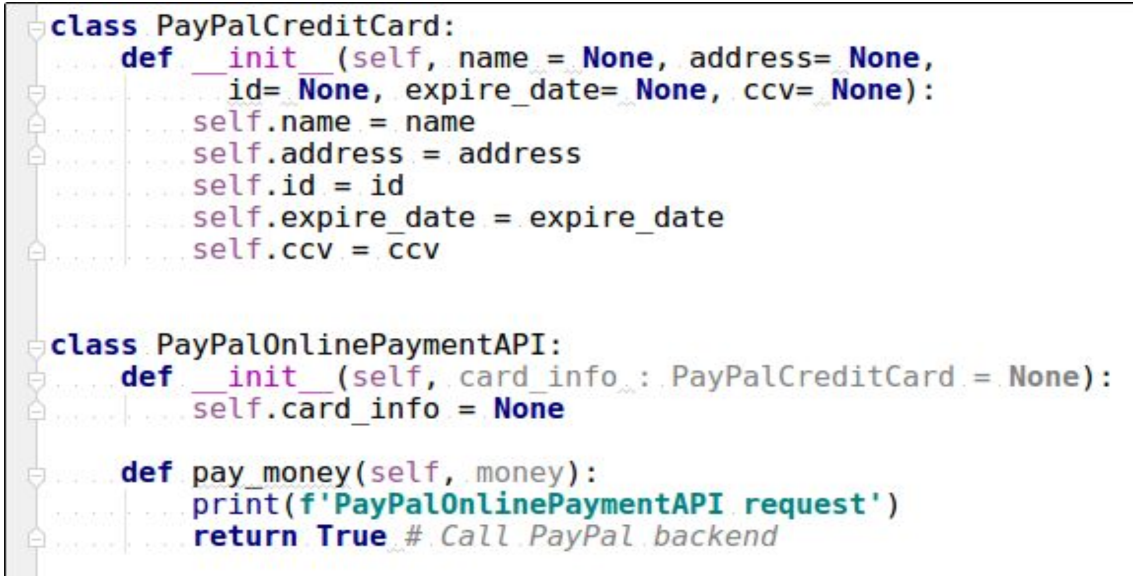
- In expedia a user creates several itineraries, each **itinerary** consists of several **reservations** as following
  - 0 or more flights, hotels, cars, etc. E.g. 4 flights, 2 hotels and 2 cars.
- Each reservation may has its own info
  - E.g. Hotel cost: total nights x price per night
- The itinerary cost = sum of its inner reservations
- Design the set of classes that help developing the system
  - Don’t go in the classes details. This is a high-level question
  - Keep it simple, but smart
  - For now: Model flights and hotels
  - Design needs to be **extensible** (e.g. in future we can add more types: cars / cruise)

Problem #2: Payment Services

- Craigslist website (classified-ads) is adding new feature for customers payment.
  - There are a lot of API to use. Each API has **fees** in some style
    - E.g. 1 dollar per 25 payments
    - The rules might change from time to time
    - New APIs with new fees might be available on web
    - All APIs provide similar functionalities, but different interfaces
  - At the moment, developers want to support to payment methods: **PayPal and Stripe**
  - Coding tips:
    - The project code shouldn't depend on one of the APIs.
    - Otherwise, a lot of code has to be changed with every a change in the selected API
- **Focus on high level**. Develop simple main.

Problem #2: Payment Services

- Paypal payment API. This is 3rd party we call. You can’t change methods names



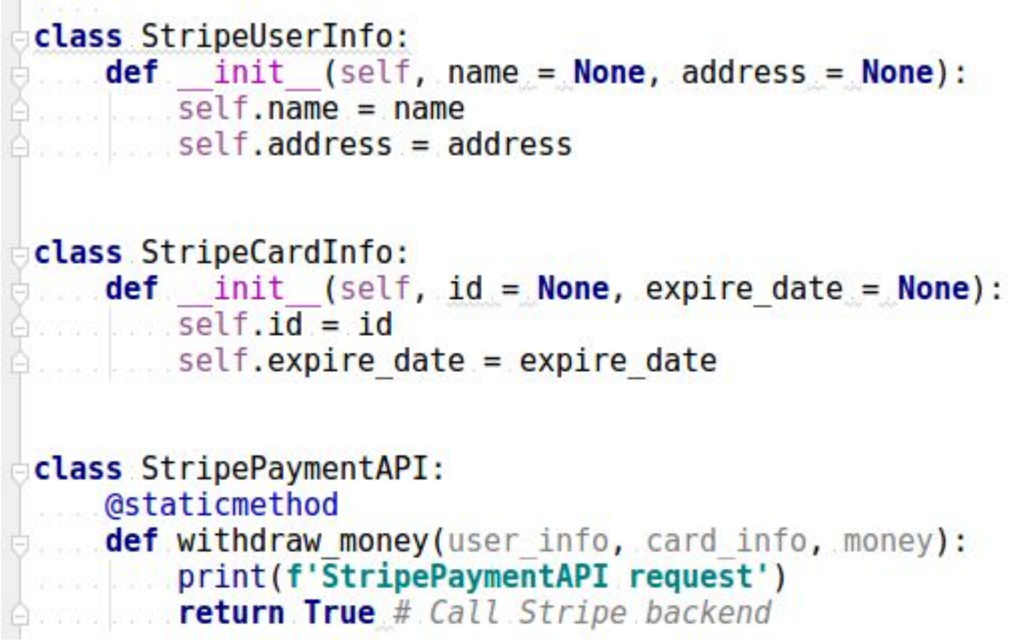
```python
class PayPalCreditCard:
    def __init__(self, name = None, address= None,
          id= None, expire_date= None, ccv= None):
        self.name = name
        self.address = address
        self.id = id
        self.expire_date = expire_date
        self.ccv = ccv


class PayPalOnlinePaymentAPI:
    def __init__(self, card_info : PayPalCreditCard = None):
        self.card_info = None

    def pay_money(self, money):
        print(f'PayPalOnlinePaymentAPI request')
        return True # Call PayPal backend
```

Problem #2: Payment Services

- Stripe payment API



```python
class StripeUserInfo:
    def __init__(self, name = None, address = None):
        self.name = name
        self.address = address


class StripeCardInfo:
    def __init__(self, id = None, expire_date = None):
        self.id = id
        self.expire_date = expire_date


class StripePaymentAPI:
    @staticmethod
    def withdraw_money(user_info, card_info, money):
        print(f'StripePaymentAPI request')
        return True # Call Stripe backend
```

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”