Message Exceptions

The SaveMessages class now has limited memory and should only be able to hold a maximum of 10 messages at once.

This challenge has three parts, outlined in comments below.

 # 1. Finish creating the TooManyMessagesException class

Fill in the TooManyMessagesException class. Add a custom message!

 # 2. Raise a TooManyMessagesException exception here

Make sure that the SaveMessages class doesn't get over-full and raises an Exception if the max_messages limit is reached.

 # 3. Catch a TooManyMessagesException and print the messages

Modify this code so that, if an exception is raised when the message is sent, the messages are printed out (emptying the message list) and the message is re-sent. Make sure to print out any remaining messages at the end!

In [1]:
```python
from datetime import datetime

def getCurrentTime():
    return datetime.now().strftime("%m-%d-%Y %H:%M:%S")


class Messenger:
    def __init__(self, listeners=[]):
        self.listeners = listeners

    def send(self, message):
        for listener in self.listeners:
            listener.receive(message)

    def receive(self, message):
        # Must be implemented by extending classes
        pass

class TooManyMessagesException(Exception):
    def __init__(self, message):
        super().__init__(f'Message "{message}" could not be added. Please clear

class SaveMessages(Messenger):
    def __init__(self, listeners=[]):
        super().__init__(listeners)
        self.messages = []
        self.max_messages = 10

    def receive(self, message):
        if len(self.messages) >= self.max_messages:
            raise TooManyMessagesException(message)
        self.messages.append({'message': message, 'time': getCurrentTime()})

    def printMessages(self):
        for m in self.messages:
            print(f'Message: "{m["message"]}" Time: {m["time"]}')
        self.messages = []
```

In [2]:
```python
listener = SaveMessages()
sender = Messenger([listener])
```

In [3]:
```python
for i in range(0, 1000):
    try:
        sender.send(f'This is message {i}')
    except TooManyMessagesException:
        listener.printMessages()
        sender.send(f'This is message {i}')

listener.printMessages()
```

```
Message: "This is message 0" Time: 10-02-2022 21:09:44
Message: "This is message 1" Time: 10-02-2022 21:09:44
Message: "This is message 2" Time: 10-02-2022 21:09:44
Message: "This is message 3" Time: 10-02-2022 21:09:44
Message: "This is message 4" Time: 10-02-2022 21:09:44
Message: "This is message 5" Time: 10-02-2022 21:09:44
Message: "This is message 6" Time: 10-02-2022 21:09:44
Message: "This is message 7" Time: 10-02-2022 21:09:44
Message: "This is message 8" Time: 10-02-2022 21:09:44
Message: "This is message 9" Time: 10-02-2022 21:09:44
Message: "This is message 10" Time: 10-02-2022 21:09:44
Message: "This is message 11" Time: 10-02-2022 21:09:44
Message: "This is message 12" Time: 10-02-2022 21:09:44
Message: "This is message 13" Time: 10-02-2022 21:09:44
Message: "This is message 14" Time: 10-02-2022 21:09:44
Message: "This is message 15" Time: 10-02-2022 21:09:44
Message: "This is message 16" Time: 10-02-2022 21:09:44
Message: "This is message 17" Time: 10-02-2022 21:09:44
Message: "This is message 18" Time: 10-02-2022 21:09:44
```

In [ ]: