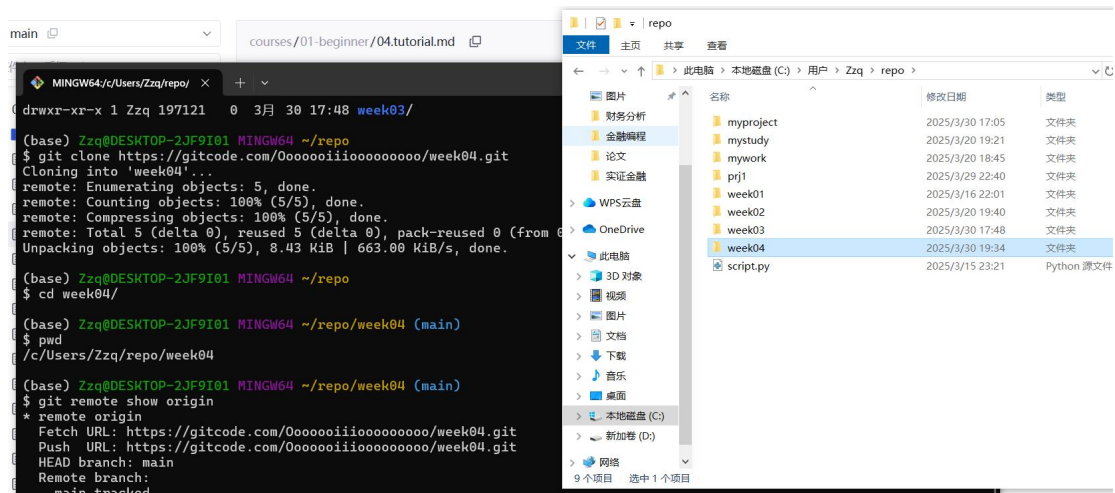
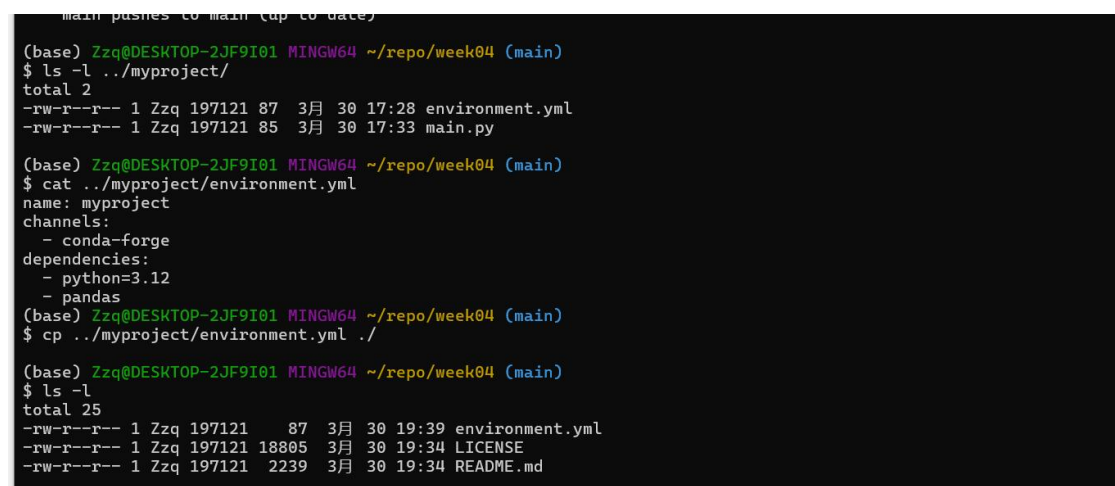


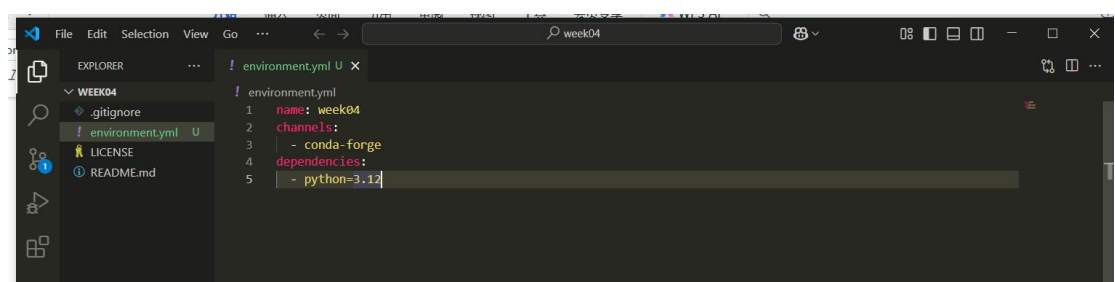
1. Fork 第 04 周打卡 仓库至你的名下，然后将你名下的这个仓库 Clone 到你的本地计算机



2. 用 VS Code 打开项目目录，新建一个 environment.yml 文件，指定安装 Python 3.12，



指定安装 Python 3.12



然后运行 `conda env create` 命令创建 Conda 环境

```
MINGW64/c/Users/Zzq/repo/ x + v
$ cat ../myproject/environment.yml
name: myproject
channels:
  - conda-forge
dependencies:
  - python=3.12
  - pandas
(base) Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$ cp ../myproject/environment.yml ./

(base) Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$ ls -l
total 25
-rw-r--r-- 1 Zzq 197121 87 3月 30 19:39 environment.yml
-rw-r--r-- 1 Zzq 197121 18805 3月 30 19:34 LICENSE
-rw-r--r-- 1 Zzq 197121 2239 3月 30 19:34 README.md

(base) Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$ ls -l
total 25
-rw-r--r-- 1 Zzq 197121 72 3月 30 19:41 environment.yml
done
#
# To activate this environment, use
#
# $ conda activate week04
#
# To deactivate an active environment, use
#
# $ conda deactivate
```

3.新建一个 contacts.txt 文件，每行写一个联系人，每个联系人都包含姓名、性别、邮箱三个字段，用空格分隔

```
File Edit Selection View Go ... < ->
EXPLORER
WEEK04
  .gitignore
  contacts.txt U
  environment.yml U
  LICENSE
  README.md
  contacts.txt
    1 白展堂 男 baizhantang@163.com
    2 佟湘玉 女 tongxiangyu@163.com
    3 吕轻侯 男 lvqinghou@126.com
    4 郭芙蓉 女 guofurong@126.com
    5 李秀莲 男 lixiulian@163.com
    6 祝无双 女 zhuwushuang@163.com

MINGW64/c/Users/Zzq/repo/ x + v
# To activate this environment, use
#
# $ conda activate week04
#
# To deactivate an active environment, use
#
# $ conda deactivate

(base) Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$ ls -l
total 25
-rw-r--r-- 1 Zzq 197121 0 3月 30 19:46 contacts.txt
-rw-r--r-- 1 Zzq 197121 72 3月 30 19:41 environment.yml
-rw-r--r-- 1 Zzq 197121 18805 3月 30 19:34 LICENSE
-rw-r--r-- 1 Zzq 197121 2239 3月 30 19:34 README.md

(base) Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$ cat contacts.txt

(base) Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$ cat contacts.txt
白展堂 男 baizhantang@163.com
佟湘玉 女 tongxiangyu@163.com
吕轻侯 男 lvqinghou@126.com
郭芙蓉 女 guofurong@126.com
李秀莲 男 lixiulian@163.com
祝无双 女 zhuwushuang@163.com
(base) Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$
```

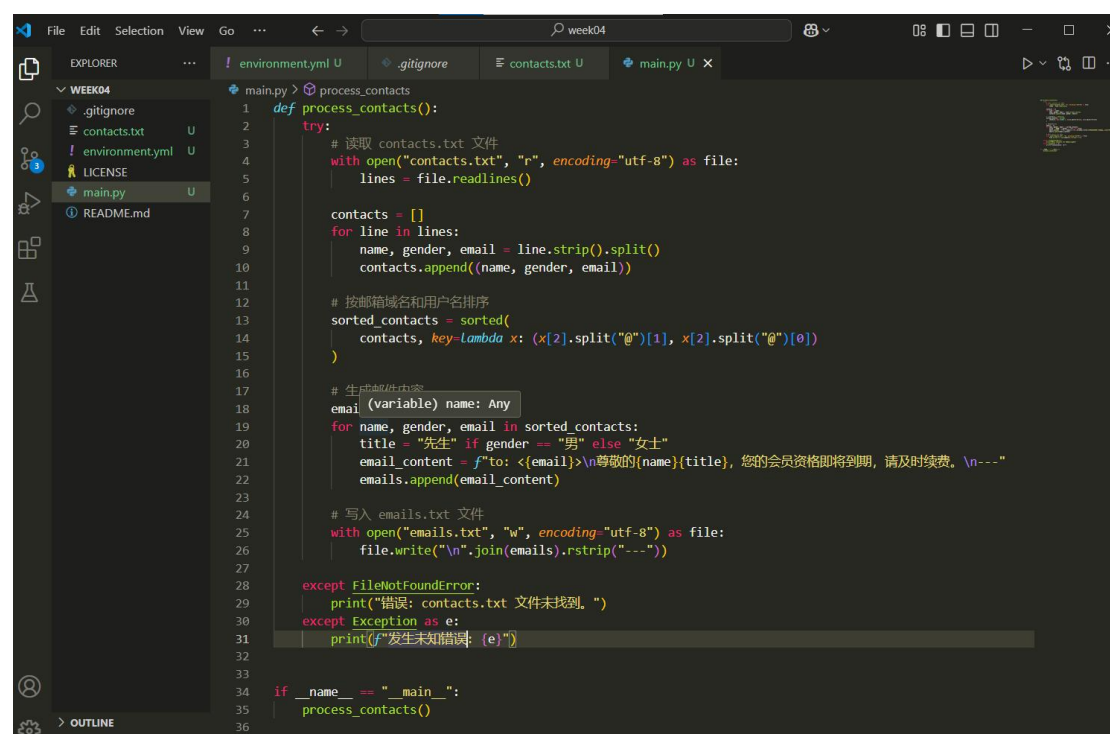
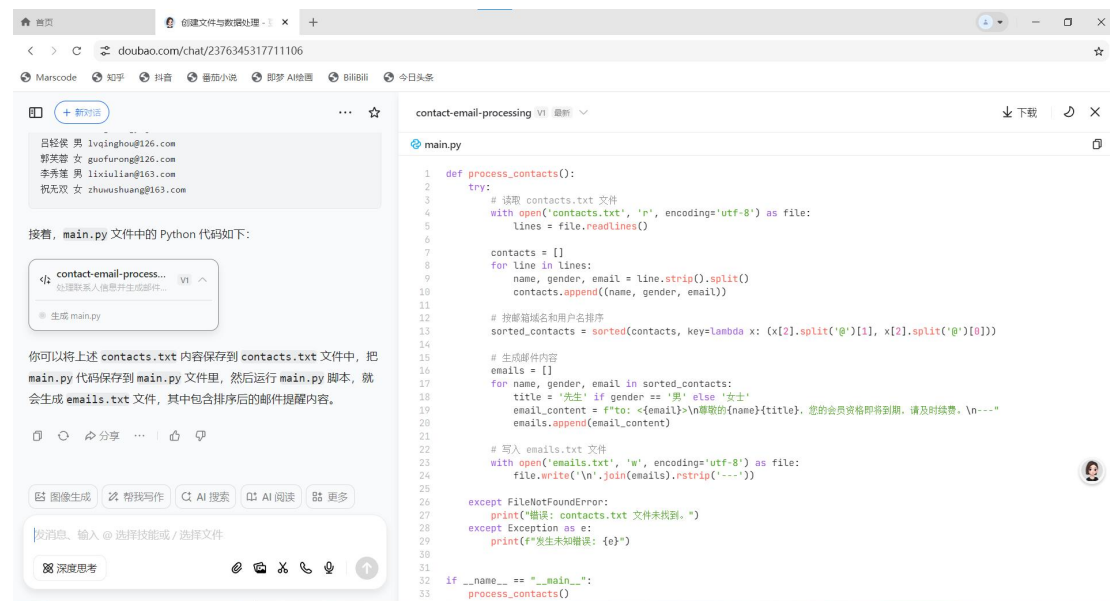
拼接两个文件在终端打开，可以在 VScode 上加一个空白的换行

```
开始 插入 页面 引用 查询 视图 T
File Edit Selection View Go ... < ->
EXPLORER
WEEK04
  .gitignore
  contacts.txt U
  environment.yml U
  LICENSE
  README.md
  contacts.txt
    1 白展堂 男 baizhantang@163.com
    2 佟湘玉 女 tongxiangyu@163.com
    3 吕轻侯 男 lvqinghou@126.com
    4 郭芙蓉 女 guofurong@126.com
    5 李秀莲 男 lixiulian@163.com
    6 祝无双 女 zhuwushuang@163.com
    7

MINGW64/c/Users/Zzq/repo/ x + v
- conda-forge
dependencies:
  - python=3.12
(base) Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$ cat contacts.txt environment.yml
白展堂 男 baizhantang@163.com
佟湘玉 女 tongxiangyu@163.com
吕轻侯 男 lvqinghou@126.com
郭芙蓉 女 guofurong@126.com
李秀莲 男 lixiulian@163.com
祝无双 女 zhuwushuang@163.comname: week04
channels:
  - conda-forge
dependencies:
  - python=3.12
(base) Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$ cat contacts.txt environment.yml
白展堂 男 baizhantang@163.com
佟湘玉 女 tongxiangyu@163.com
吕轻侯 男 lvqinghou@126.com
郭芙蓉 女 guofurong@126.com
李秀莲 男 lixiulian@163.com
祝无双 女 zhuwushuang@163.com
name: week04
channels:
  - conda-forge
dependencies:
  - python=3.12
(base) Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$
```

4.新建一个 **main.py** 文件，里面写 **Python** 代码，要求读取 **contacts.txt** 文件的内容，进行数据处理后，输出一个 **emails.txt** 文件

将以上“任务要求”的文本，复制粘贴到大模型（比如豆包、DeepSeek）里，请 **AI** 来帮助编写程序初稿



运行 **python -m pdb main.py** 命令（作用是以调试模式 (debug mode) 启动 **Python** 解释器，准备执行 **main.py** 里的代码）

```
MINGW64~/c/Users/Zzq/repof + v
$ cat contacts.txt
白展堂 男 baizhantang@163.com
佟湘玉 女 tongxiangyu@163.com
吕轻侯 男 lvqinghou@126.com
郭芙蓉 女 guofurong@126.com
李秀莲 男 lixiulian@163.com
祝无双 女 zhuwushuang@163.com
(week04)
Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$ cat main.py
def process_contacts():
    try:
        # 读取 contacts.txt 文件
        with open("contacts.txt", "r", encoding="utf-8") as file:
            lines = file.readlines()

        contacts = []
        for line in lines:
            name, gender, email = line.strip().split()
            contacts.append((name, gender, email))

        # 按邮箱域名和用户名排序
        sorted_contacts = sorted(
            contacts, key=lambda x: (x[2].split("@")[1], x[2].split("@")[0])
        )

        # 生成邮件内容
        emails = []
        for name, gender, email in sorted_contacts:
            title = "先生" if gender == "男" else "女士"
```

```
File Edit Selection View Go ... week04
EXPLORER ... / environment.yml U contacts.txt U main.py U
WEEK04
  .gitignore
  contacts.txt U
  emails.txt U
  environment.yml U
  LICENSE
  main.py U
  README.md
1 to: <guofurong@126.com>
2 尊敬的郭芙蓉女士，您的会员资格即将到期，请及时续费。
3 ---
4 to: <lvqinghou@126.com>
5 尊敬的吕轻侯先生，您的会员资格即将到期，请及时续费。
6 ---
7 to: <baizhantang@163.com>
8 尊敬的白展堂先生，您的会员资格即将到期，请及时续费。
9 ---
10 to: <lixiulian@163.com>
11 尊敬的李秀莲先生，您的会员资格即将到期，请及时续费。
12 ---
13 to: <tongxiangyu@163.com>
14 尊敬的佟湘玉女士，您的会员资格即将到期，请及时续费。
15 ---
16 to: <zhuwushuang@163.com>
17 尊敬的祝无双女士，您的会员资格即将到期，请及时续费。
18 ---
emails.append(email_content)
# 写入 emails.txt 文件
with open("emails.txt", "w", encoding="utf-8") as file:
    file.write("\n".join(emails).rstrip("----"))

except FileNotFoundError:
    print("错误: contacts.txt 文件未找到。")
except Exception as e:
    print(f"发生未知错误: {e}")

if __name__ == "__main__":
    process_contacts()
(week04)
Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$ python main.py
(week04)
Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$ ls -l
total 31
-rw-r--r-- 1 Zzq 197121 204 3月 30 19:49 contacts.txt
-rw-r--r-- 1 Zzq 197121 661 3月 30 20:19 emails.txt
-rw-r--r-- 1 Zzq 197121 72 3月 30 19:41 environment.yml
-rw-r--r-- 1 Zzq 197121 18805 3月 30 19:34 LICENSE
-rw-r--r-- 1 Zzq 197121 1228 3月 30 19:57 main.py
-rw-r--r-- 1 Zzq 197121 2239 3月 30 19:34 README.md
(week04)
Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$
```

5.在 (pdb) 提示符下练习使用 l (显示代码)、n (执行当前行)、p (打印表达式)、s (步入调用)、pp (美观打印)、c (继续执行) 等命令

l 全称 list 显示即将运行但是还没有运行的代码

N 全称 next one

P 全称 print 打印或显示表达式

S 全称 step in,

C 一直走到底

箭头说的是即将运行但还没有运行的东西

```

Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$ python -m pdb main.py
> c:\users\zzq\repo\week04\main.py(1)<module>()
-> def process_contacts():
(Pdb) l
1  -> def process_contacts():
2      try:
3          # 读取 contacts.txt 文件
4          with open("contacts.txt", "r", encoding="utf-8") as file:
5              lines = file.readlines()
6
7              contacts = []
8              for line in lines:
9                  name, gender, email = line.strip().split()
10                 contacts.append((name, gender, email))
11
(Pdb) n
> c:\users\zzq\repo\week04\main.py(34)<module>()
-> if __name__ == "__main__":
(Pdb) l
29     print("错误: contacts.txt 文件未找到。")
30     except Exception as e:
31         print(f"发生未知错误: {e}")
32
33
34 -> if __name__ == "__main__":
35     process_contacts()
[EOF]

```

```

MINGW64:/c:/Users/Zzq/repo/ x + v
16
17     # 生成邮件内容
18     emails = []
19     for name, gender, email in sorted_contacts:
20         title = "先生" if gender == "男" else "女士"
21         email_content = f"to: <{email}>\n尊敬的{name}{title}, 您的会员资格即将到期, 请及时续费。 \n---"
22         emails.append(email_content)
23
24     # 写入 emails.txt 文件
25     with open("emails.txt", "w", encoding="utf-8") as file:
26         file.write("\n".join(emails).rstrip("---"))
27
28     except FileNotFoundError:
29         print("错误: contacts.txt 文件未找到。")
30     except Exception as e:
31         print(f"发生未知错误: {e}")
32
33
34 -> if __name__ == "__main__":
35     process_contacts()
(Pdb) s
> c:\users\zzq\repo\week04\main.py(35)<module>()
-> process_contacts()
(Pdb) n
--Return--
> c:\users\zzq\repo\week04\main.py(35)<module>()->None
-> process_contacts()
(Pdb) p process_contacts
<function process_contacts at 0x000002460F0039C0>
(Pdb)

```

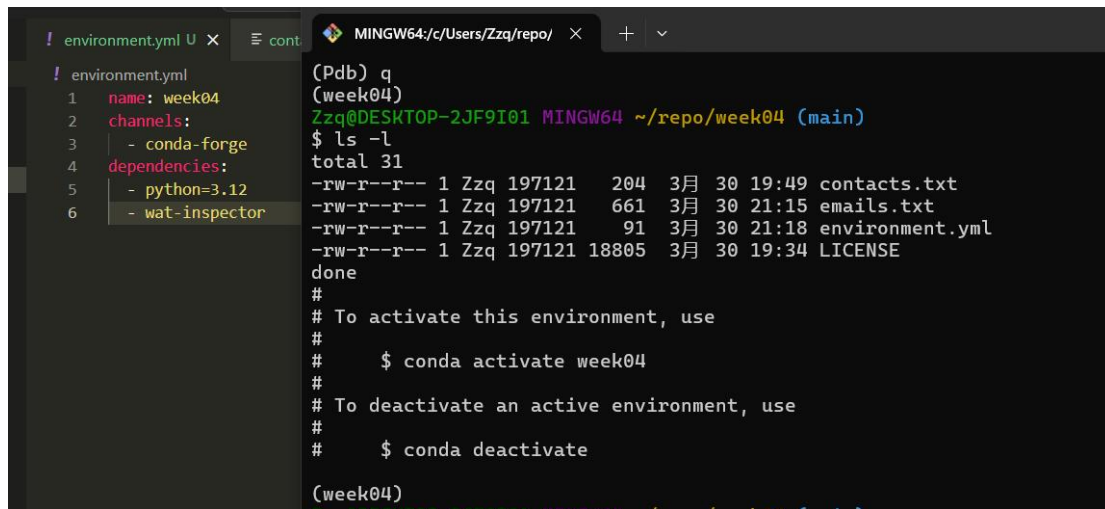
L 1,5:看第一行到第五行; l.看当前这一行上下五行

```

(Pdb) l .
30     except Exception as e:
31         print(f"发生未知错误: {e}")
32
33
34     if __name__ == "__main__":
35 ->     process_contacts()
[EOF]
(Pdb) l 1.5
*** Error in argument: '1.5'
(Pdb) l 1,5
1     def process_contacts():
2         try:
3             # 读取 contacts.txt 文件
4             with open("contacts.txt", "r", encoding="utf-8") as file:
5                 lines = file.readlines()
(Pdb)

```


6.在调试过程中, 利用 **wat-inspector** (第三方软件包, 需要安装) 检查 (inspect) 各种对象



The screenshot shows a terminal window with a dark background. On the left, there is a file explorer pane showing a file named `environment.yml` with the following content:

```
! environment.yml
1 name: week04
2 channels:
3   - conda-forge
4 dependencies:
5   - python=3.12
6   - wat-inspector
```

The main terminal area shows the following commands and output:

```
(Pdb) q
Pdb>
Zzq@DESKTOP-2JF9I01 MINGW64 ~/repo/week04 (main)
$ ls -l
total 31
-rw-r--r-- 1 Zzq 197121 204 3月 30 19:49 contacts.txt
-rw-r--r-- 1 Zzq 197121 661 3月 30 21:15 emails.txt
-rw-r--r-- 1 Zzq 197121 91 3月 30 21:18 environment.yml
-rw-r--r-- 1 Zzq 197121 18805 3月 30 19:34 LICENSE
done
#
# To activate this environment, use
#
#   $ conda activate week04
#
# To deactivate an active environment, use
#
#   $ conda deactivate
#
Pdb>
```