

# IT314 - Software Engineering

## Lab 5 - Static Analysis

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### Outputs:

Repository: <https://github.com/geekcomputers/Python>

File: [communication/socket\\_conn.py](#)

```
5 import sys
6 import os
7 import socket
8 import sys
9
10
11 def slice(mink, maxk):
12     s = 0.0
13     for k in range(mink, maxk):
14         s += 1.0 / (2 * k + 1) / (2 * k + 1)
15     return s
16
17
18 def pi(n):
19     childs = {}
20     unit = n // 10
21     for i in range(10): # 分10个子进程
22         mink = unit * i
23         maxk = mink + unit
24         rsock, wsock = socket.socketpair()
25         pid = os.fork()
26         if pid > 0:
27             childs[pid] = rsock
28             wsock.close()
29         else:
30             rsock.close()
31             s = slice(mink, maxk) # 子进程开始计算
32             wsock.send(str(s))
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```

Failed (exit code: 1) (3165 ms)

```
main.py: note: In function "slice":
main.py:11: error: Function is missing a type annotation [no-untyped-def]
main.py: note: In function "pi":
main.py:18: error: Function is missing a type annotation [no-untyped-def]
main.py:31: error: Call to untyped function "slice" in typed context [no-untyped-call]
main.py:32: error: Argument 1 to "send" of "socket" has incompatible type "str"; expected "Union[bytes, Union[bytearray, memoryview, array[Any], mmap, _CData, PickleBuffer]]" [arg-type]
main.py: note: At top level:
main.py:43: error: Call to untyped function "pi" in typed context [no-untyped-call]
Found 5 errors in 1 file (checked 1 source file)
```

Main errors are due to missing type annotations in functions

## File: `communication/pipe.py`

```
7 import sys
8
9
10 def slice(mink, maxk):
11     s = 0.0
12     for k in range(mink, maxk):
13         s += 1.0 / (2 * k + 1) / (2 * k + 1)
14     return s
15
16
17 def pi(n):
18     childs = {}
19     unit = n / 10
20     for i in range(10): # 分10个子进程
21         mink = unit * i
22         maxk = mink + unit
23         r, w = os.pipe()
24         pid = os.fork()
25         if pid > 0:
26             childs[pid] = r # 将子进程的pid和读描述符存起来
27             os.close(w) # 父进程关闭写描述符, 只读
28         else:
29             os.close(r) # 子进程关闭读描述符, 只写
30             s = slice(mink, maxk) # 子进程开始计算
31             os.write(w, str(s))
32             os.close(w) # 写完了, 关闭写描述符
```

Failed (exit code: 1) (3052 ms)

```
main.py: note: In function "slice":
main.py:10: error: Function is missing a type annotation [no-untyped-def]
main.py: note: In function "pi":
main.py:17: error: Function is missing a type annotation [no-untyped-def]
main.py:30: error: Call to untyped function "slice" in typed context [no-untyped-call]
main.py:31: error: Argument 2 to "write" has incompatible type "str"; expected "Union[bytes, Union[bytearray, memoryview, array[Any], mmap, _CData, PickleBuffer]]" [arg-type]
main.py: note: At top level:
main.py:43: error: Call to untyped function "pi" in typed context [no-untyped-call]
Found 5 errors in 1 file (checked 1 source file)
```

Errors: incompatible types and missing type annotations

## File: `communication/file.py`

```
15
16 ~ def pi(n):
17     pids = []
18     unit = n / 10
19 ~     for i in range(10): # 分10个子进程
20         mink = unit * i
21         maxk = mink + unit
22         pid = os.fork()
23 ~         if pid > 0:
24             pids.append(pid)
25 ~         else:
26             s = slice(mink, maxk) # 子进程开始计算
27 ~             with open("%d" % os.getpid(), "w") as f:
28                 f.write(str(s))
29                 sys.exit(0) # 子进程结束
30     sums = []
31 ~     for pid in pids:
32         os.waitpid(pid, 0) # 等待子进程结束
33 ~         with open("%d" % pid, "r") as f:
34             sums.append(float(f.read()))
35         os.remove("%d" % pid) # 删除通信的文件
36     return math.sqrt(sum(sums) * 8)
37
38
39 ~ if __name__ == "__main__":
40     print("start")
41 ~     print(pi(10000000))
```

Failed (exit code: 1) (3423 ms)

```
main.py: note: In function "slice":
main.py:9: error: Function is missing a type annotation [no-untyped-def]
main.py: note: In function "pi":
main.py:16: error: Function is missing a type annotation [no-untyped-def]
main.py:26: error: Call to untyped function "slice" in typed context [no-untyped-call]
main.py: note: At top level:
main.py:41: error: Call to untyped function "pi" in typed context [no-untyped-call]
Found 4 errors in 1 file (checked 1 source file)
```

Errors: no mention of types and missing type annotations

## File: **BlackJack\_game/blackjack.py**

```
90 ~     if sum(p_cards) < 21 and sum(p_cards) < sum(d_cards):
91 ~         print(f'***23}Dealer is the Winner !!{***18}')
92 ~     if sum(p_cards) == 21:
93 ~         print(f'***22}Player is winner !!{***22}')
94 ~     if 21 > sum(p_cards) > sum(d_cards):
95 ~         print(f'***22}Player is winner !!{***22}')
96 ~
97 ~     else:
98 ~         if sum(p_cards) < 21:
99 ~             print(f'***22}Player is winner !!{***22}')
100 ~         elif sum(p_cards) == 21:
101 ~             print(f'***22}Player is winner !!{***22}')
102 ~         else:
103 ~             print(f'***23}Dealer is the Winner !!{***18}')
104 ~
105 ~
106 ~ while sum(p_cards) < 21:
107 ~
108 ~     # to continue the game again and again !!
109 ~     k = input("Want to hit or stay?\n Press 1 for hit and 0 for stay ")
110 ~     if k == 1:
111 ~         random.shuffle(deck)
112 ~         p_cards.append(deck.pop())
113 ~         print("You have a total of " + str(sum(p_cards)) + " with the cards ", p_cards)
114 ~         if sum(p_cards) > 21:
115 ~             print(f'***13}You are BUSTED !!{***13}\n Dealer Wins !!')
116 ~         if sum(p_cards) == 21:
117 ~             print(f'***19}You are the Winner !!{***29}')
118 ~
119 ~     else:
120 ~         dealer_choice()
121 ~         break
```

Failed (exit code: 1) (3356 ms)

```
main.py:34: error: Need type annotation for "d_cards" (hint: "d_cards: List[<type>] = ...") [var-annotated]
main.py:35: error: Need type annotation for "p_cards" (hint: "p_cards: List[<type>] = ...") [var-annotated]
Found 2 errors in 1 file (checked 1 source file)
```

Errors:missing type annotations

## File: **JustDialScrapperGUI/Justdial Scrapper GUI.py**

```
8 class ScrapperLogic:
9     def __init__(self, query, location, file_name, progressbar, label_progress):
10         self.query = query
11         self.location = location
12         self.file_name = file_name
13         self.progressbar = progressbar
14         self.label_progress = label_progress
15
16     @staticmethod
17     def inner_html(element):
18         return element.decode_contents(formatter="html")
19
20     @staticmethod
21     def get_name(body):
22         return body.find("span", {"class": "jcn"}).a.string
23
24     @staticmethod
25     def which_digit(html):
26         mapping_dict = {
27             "icon-ji": 9,
28             "icon-dc": "+",
29             "icon-fe": "(",
30             "icon-hg": ")",
31             "icon-ba": "-",
32             "icon-lk": 8,
33             "icon-nm": 7,
```

Failed (exit code: 1) (3744 ms)

```
main.py:5: error: Cannot find implementation or library stub for module named "bs4" [import]
main.py:5: note: See https://mypy.readthedocs.io/en/stable/running_mypy.html#missing-imports
main.py:255: error: Name "Tk" is not defined [name-defined]
Found 2 errors in 1 file (checked 1 source file)
```

Errors: no inclusion of libraries ex. Tkinter

## File: `brickout-game/brickout-game.py`

```
362     paddle.update()
363
364     if ball.update(paddle, brickWall):
365         isGameOver = True
366         gameStatus = False
367
368     if brickWall.hasWin():
369         gameStatus = False
370
371     ball.draw()
372
373     else: # game isn't running.
374         if isGameOver: # player lose
375             screen.blit(textsurfaceGameOver, (0, 0))
376             textsurfaceScore = mgScore.render("score: " + str(score), False, (0, 0, 0))
377             screen.blit(textsurfaceScore, (300, 0))
378         elif brickWall.hasWin(): # player win
379             screen.blit(textsurfaceWin, (0, 0))
380             textsurfaceScore = mgScore.render("score: " + str(score), False, (0, 0, 0))
381             screen.blit(textsurfaceScore, (300, 0))
382
383     # --- Go ahead and update the screen with what we've drawn.
384     pygame.display.flip()
385
386     # --- Limit to 60 frames per second
387     clock.tick(60)
388
389     # Close the window and quit.
390     pygame.quit()
```

Failed (exit code: 1) (3868 ms)

```
main.py:21: error: Cannot find implementation or library stub for module named "pygame" [import]
main.py:21: note: See https://mypy.readthedocs.io/en/stable/running\_mypy.html#missing-imports
Found 1 error in 1 file (checked 1 source file)
```

Errors: missing library for pygame module