

Chapter 4:

Exercise 4: What is the purpose of the “def” keyword in Python?

- a) It is slang that means “the following code is really cool”
- b) It indicates the start of a function
- c) It indicates that the following indented section of code is to be stored for later
- d) b and c are both true
- e) None of the above

-> Answer: d) b and c are both true

Exercise 5: What will the following Python program print out?

```
def fred():
```

```
    print("Zap")
```

```
def jane():
```

```
    print("ABC")
```

```
jane()
```

```
fred()
```

```
jane()
```

a) Zap ABC jane fred jane

b) Zap ABC Zap

c) ABC Zap jane

d) ABC Zap ABC

e) Zap Zap Zap

-> Answer: e) Zap Zap Zap

Exercise 6: Rewrite your pay computation with time-and-a-half for overtime and create a function called computepay which takes two parameters (hours and rate).

Enter Hours: 45

Enter Rate: 10

Pay: 475.0

The screenshot shows the VS Code interface with a dark theme. In the top-left, there's a file icon followed by "main.py > ...". Below it is the code editor containing the following Python script:

```
1 def computepay (H, R):
2     if H>40:
3         pay=40*R+(H-40)*R*1.5
4     else:
5         pay=H*R
6     return pay
7 H=float(input("Enter Hours: "))
8 R=float(input("Enter Rate: "))
9 p=computepay(H, R)
10 print("Enter Hours:", H)
11 print("Enter Rate:", R)
12 print("Pay:", p)
```

Below the code editor is a navigation bar with tabs: PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and PORTS. The TERMINAL tab is selected. The terminal window displays the following output:

```
s\vscode-python> & C:/Users/qp301/AppData/Local/Programs/Python/Python313/python.exe c:/Users/qp301/Downloads/vscod
e-python/main.py
Enter Hours: 45.0
Enter Rate: 10.0
Enter Hours: 45.0
Enter Rate: 10.0
Pay: 475.0
PS C:\Users\qp301\Downloads\vscode-python>
```

In the bottom right corner of the terminal area, there are icons for powershell and Python, with the Python icon being active.

Exercise 7: Rewrite the grade program from the previous chapter using a function called computegrade that takes a score as its parameter and returns a grade as a string.

The screenshot shows the VS Code interface with a dark theme. The left pane displays the Python file `main.py` containing a script to compute letter grades based on a score. The right pane shows the terminal output where the script is run, accepting a score of 0.95, printing 'A' as the grade, and then exiting.

```
main.py > ...
1 s=input("Enter Score: ")
2 def computegrade(s):
3     if s < 0.0 or s > 1.0:
4         print("Bad score")
5     elif s >= 0.9:
6         print("A")
7     elif s >= 0.8:
8         print("B")
9     elif s >= 0.7:
10        print("C")
11    elif s >= 0.6:
12        print("D")
13    else:
14        print("F")
15
16 try:
17     # check xem có phải số hay chữ
18     s = float(s)
19     print(f"Enter Score: {s}")
20     computegrade(s)
21 except ValueError:
22     print(f"Enter Score: {s}")
23     print("Bad score")

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\qp301\Downloads\vscode-python> & C:/Users/qp301/AppData/Local/Programs/Python/Python313/python.exe c:/Users/qp301/Downloads/vscode-python/main.py
Enter Score: 0.95
Enter Score: 0.95
A
PS C:\Users\qp301\Downloads\vscode-python>
```

This screenshot is similar to the first one, but it includes a syntax error. The terminal output shows an error message when running the script, indicating a problem with the input score 'perfect'.

```
main.py > ...
1 s=input("Enter Score: ")
2 def computegrade(s):
3     if s < 0.0 or s > 1.0:
4         print("Bad score")
5     elif s >= 0.9:
6         print("A")
7     elif s >= 0.8:
8         print("B")
9     elif s >= 0.7:
10        print("C")
11    elif s >= 0.6:
12        print("D")
13    else:
14        print("F")
15
16 try:
17     # check xem có phải số hay chữ
18     s = float(s)
19     print(f"Enter Score: {s}")
20     computegrade(s)
21 except ValueError:
22     print(f"Enter Score: {s}")
23     print("Bad score")

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\qp301\Downloads\vscode-python> & C:/Users/qp301/AppData/Local/Programs/Python/Python313/python.exe c:/Users/qp301/Downloads/vscode-python/main.py
Enter Score: perfect
Enter Score: perfect
Bad score
PS C:\Users\qp301\Downloads\vscode-python>
```

The screenshot shows a Visual Studio Code (VS Code) interface with a dark theme. In the center-left, there is a code editor window displaying a Python script named `main.py`. The code defines a function `computegrade(s)` that prints a grade based on a score `s`. It includes a try-except block to handle non-numeric input. The terminal tab at the bottom shows the output of running the script, where a user enters a score of 10.0, which is then processed by the script to print "Bad score".

```
main.py > ...
1 s=input("Enter Score: ")
2 def computegrade(s):
3     if s < 0.0 or s > 1.0:
4         print("Bad score")
5     elif s >= 0.9:
6         print("A")
7     elif s >= 0.8:
8         print("B")
9     elif s >= 0.7:
10        print("C")
11    elif s >= 0.6:
12        print("D")
13    else:
14        print("F")
15
16 try:
17     # check xem có phải số hay chữ
18     s = float(s)
19     print(f"Enter Score: {s}")
20     computegrade(s)
21 except ValueError:
22     print(f"Enter Score: {s}")
23     print("Bad score")

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS + v ... | powershell Python
```

PS C:\Users\qp301\Downloads\vscode-python> & C:/Users/qp301/AppData/Local/Programs/Python/Python313/python.exe c:/Users/qp301/Downloads/vscode-python/main.py
Enter Score: 10.0
Enter Score: 10.0
Bad score
PS C:\Users\qp301\Downloads\vscode-python>