



LAB PRACTICE № 5: CONDITIONALS AND FLOW CONTROL

COMP1010 Introduction to Programming

Week 05

Lab Practice Submission Instructions:

- This is an individual lab practice and will typically be assigned in the laboratory (computer lab).
- Your program should work correctly on all inputs. If there are any specifications about how the program should be written (or how the output should appear), those specifications should be followed.
- Your code and functions/modules should be appropriately commented. However, try to avoid making your code overly busy (e.g., include a comment on every line).
- Variables and functions should have meaningful names, and code should be organized into functions/methods where appropriate.
- Academic honesty is required in all work you submit to be graded. You should **NOT** copy or share your code with other students to avoid plagiarism issues.
- Use the template provided to prepare your solutions.
- You should upload your .py file(s) to the Canvas before the end of the laboratory session unless the instructor gave a specified deadline.
- Late submission of lab practice without an approved extension will incur the following penalties:
 - (a) No submission by the deadline will incur 0.25 point deduction for each problem (most of the problems are due at the end of the lab session).
 - (b) The instructor will deduct an additional 0.25 point per problem for each day past the deadline.
 - (c) The penalty will be deducted until the maximum possible score for the lab practice reaches zero (0%) unless otherwise specified by the instructor.

Problem 1 – [A basic if-else statement] Work more or if you need to take vacation time

You are doing a job where you must spend a certain number of hours per week. If you've exceeded that number, let's say you have to take the excess hours as vacation in future weeks. If you haven't exceeded that number, you'll have to work the remainder of the hours.

Write a program to ask the user to enter the number of hours they are supposed to work a week and how many she's worked thus far. The program will then print the appropriate output, asking the user to either work more hours, or take vacation. **Finally, submit your code to CMS.**

Sample Program Run #1

```
How many hours are you supposed to work?
25
How many hours have you worked this week?
44
You must take 19 hours of vacation.
```

Sample Program Run #2

```
How many hours are you supposed to work?
56
How many hours have you worked this week?
44
You must still work 12 hours this week.
```

Problem 2 – [The if-elif-else statement] Grading

Write a program that prints out the grade a student should get based on the percentage they earned in a class. In this example, we'll use the following grading scheme.

Range	Grade
85 – 100	A
70 – 84	B
55 – 69	C
40 – 54	D
0 – 39	F

Finally, submit your code to CMS.

Sample Program Run #1

```
What is your percentage in class?
89
```

You got an A!

Sample Program Run #2

What is your percentage in class?

60

You got a B!

Sample Program Run #3

What is your percentage in class?

35

Sorry, you got a F.

Problem 3 – [The if-else statement with boolean variables] Scholarship

You are applying for Vingroup scholarship program. In order to obtain it, you need to have at least a 3.5 GPA and a 1200 SAT score. Write a program that determines if a student qualifies for the scholarship or not. In this example, you ask the user to enter the GPA and SAT score.

[Submit your code to CMS.](#)

Sample Program Run 1

What is your SAT score?

1245

What is your GPA?

3.7

Great, you qualify for the scholarship!

Sample Program Run 2

What is your SAT score?

1140

What is your GPA?

2.9

Sorry, you don't qualify for the scholarship

Problem 4 – [The nested if-else statement] Banking transaction

[Hard] Write a program to simulate the following banking transactions:

- (a) Account Balance: to retrieve the account balance.
- (b) Deposit: to credit the deposit amount into the account balance.

(c) Withdraw: to debit the withdrawal amount from the account balance.

(d) Exchange: to exchange the available balance into another currency (e.g., VND).

Requirements:

1. Assume the account is in USD currency.
2. Set the initial account balance to \$1,000.00.
3. Accept user's input in lowercase and uppercase letter. E.g., "B" or "b" for account balance.
4. Show the insufficient funds amount when the user is trying to withdraw more than account balance.
5. Use the exchange rate of \$1:VND23,175
6. Follow the sample output in the following page for each banking service.
7. Use the following menu in your program.

```
Welcome to VinUni Banking Service
B: Account Balance
D: Deposit
W: Withdraw
E: Exchange
```

Submit your solution to CMS.

Sample Output:

1. Check the account balance.

```
Welcome to VinUni Banking Service
B: Account Balance
D: Deposit
W: Withdraw
E: Exchange

Please select your transaction: B
Your account balance is $1,000.00
Thank you for using our service

Process finished with exit code 0
```

2. Deposit money into the account.

```
Welcome to VinUni Banking Service
B: Account Balance
D: Deposit
W: Withdraw
E: Exchange

Please select your transaction: d
Enter deposit amount: 500
Your new account balance is $1,500.00
Thank you for using our service

Process finished with exit code 0
```

3. Withdraw money from the account.

Case A:

```
Welcome to VinUni Banking Service
B: Account Balance
D: Deposit
W: Withdraw
E: Exchange

Please select your transaction: W
Enter withdrawal amount: 2100
Insufficient Funds of -$1,100.00
Your available balance is $1,000.00
Thank you for using our service

Process finished with exit code 0
```