TRƯỜNG ĐẠI HỌC VĂN LANG
VIỆN ĐÀO TẠO QUỐC TẾ

ĐỀ THI, ĐÁP ÁN/RUBRIC VÀ THANG ĐIỂM
THI KẾT THÚC HỌC PHẦN
Học kỳ 2, năm học 2024-2025

I. Thông tin chung

Tên học phần:	**Computer Science 1**		
Mã học phần:	73COMS30023	Số tín chỉ:	3
Mã nhóm lớp học phần:	241_73COMS30023_01		

Hình thức thi: **Tự luận**		Thời gian làm bài: **90**	phút
☐ Đề thi có sử dụng phần mềm riêng	GV ghi cụ thể tên phần mềm: ………… ……………………………………………..		
Thí sinh được tham khảo tài liệu:	☐ Có	☒ Không	

Gợi ý:

Upload file bài làm (word, excel, pdf)

Question 1 (60 marks)

You are required to build a simple number-guessing game where the computer randomly selects a number, and the user has to guess it. The user will be given limited chances to guess the number. If the user guesses the number correctly, the game will end, and the user will win. Otherwise, the game will continue until the user runs out of chances.

Requirements

It is a Command-Line Interface-based game, so you must use the command line to interact with it. The game should work as follows:

- When the game starts, it should display a welcome message along with the game's rules.
- The computer should randomly select a number between 1 and 100.
- Users should select the difficulty level (easy, medium, hard) to determine their chances of guessing the number.
- The user should be able to enter their guess.
- If the user's guess is correct, the game should display a congratulatory message along with the number of attempts it took to guess the number.

- If the user's guess is incorrect, the game should display a message indicating whether the number is greater or less than the user's guess.

- The game should end when the user guesses the correct number or runs out of chances.

Here is a sample output of the game:

```
Welcome to the Number Guessing Game!
I'm thinking of a number between 1 and 100.
Please select the difficulty level:
    1. Easy (10 chances)
    2. Medium (5 chances)
    3. Hard (3 chances)
Enter your choice: 2

Great! You have selected the Medium difficulty level.
Let's start the game!

Enter your guess: 50
Incorrect! The number is less than 50.

Enter your guess: 25
Incorrect! The number is greater than 25.

Enter your guess: 35
Incorrect! The number is less than 35.

Enter your guess: 30
Congratulations! You guessed the correct number in 4 attempts.
```

To make the game more interesting, you can add the following feature:

- Allow the user to play multiple rounds of the game (i.e., keep playing until the user decides to quit). After each round, you can ask the user if they want to play again.

Question 2 (40 marks)

Suppose that we have an array of integers that is declared as:

int array[] = {8, 13, 7, 19, 65, 16, 81, 47, 63}

Write functions using the C++ programming language that

1. Print all elements of the array

2. Print elements that are primes and calculate the summary of these primes.

3. Sort the array in ascending order

---End---