

IF184101 Basic Programming (IUP)

Quiz 1

Starting date: 09 October 2020
Deadline: 16 October 2020, 23:59 WIB. **Penalty: 0.15% of grade/minute of tardiness.**
Exam type: Open
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File type and format: A zip file containing all of the .c source files & the declaration
Filename format: IF184101_BASPRO_IUP_Q1_StudentID_Name.ZIP

Instruction

Please do these steps as in the following.

1. Create a program in C, namely `01_basic_geometry_[your_name].c`, as in the following. [20 points]

Input:

```
float base;  
float base1;  
float base2;  
float height;  
float side_length;  
float radius;
```

Ask the user about above inputs by using `scanf()` function.

Output:

```
"Area of a Rectangle: " = base × height  
"Area of a Square: " = side_length2  
"Area of Triangle: " = ½(base × height)  
"Area of Parallelogram: " = base × height  
"Area of Trapezoid: " = ½(base1 + base2) × height  
"Area of Circle: " = π(radius)2
```

Print out the results by using `printf()` function.

2. Create a program in C, namely `02_guess_[your_name].c`, as in the following. [20 points]

Input:

```
int answer;
int guess;
```

Ask the user to input the answer of the guessing game by using `scanf()` function. Then, input the guess. Do this until `guess = answer`;

Output:

- If guess is lower than answer (e.g, guess = 5, answer = 10) print "Your guess is too low!"
- Else, if guess is higher than answer (e.g, guess = 20, answer = 10) print "Your guess is too high!"
- If guess is still wrong, tell the user to input another guess until guess is correct.
- If guess is correct, then print "Congratulations! Your guess is correct!" and exit the program.

Print out the results by using `printf()` function.

3. Create a program and name it `03_hundreds_power_[your_name].c` for printing a 100^n with n is an integer input! [20 points]

Hint: integer has 32 bits so that it has the range of [-2147483648 .. 2147483647]

4. Create a program in C, imitating the classic game "rock paper scissors", namely `04_rps_[your_name].c`, as in the following. [20 points]

In this game, the players will input numbers instead of words. 1 denotes rock, 2 denotes paper, and 3 denotes scissors. In the end, the computer will decide the results of the game.

The process:

- The first player will be asked a number (1-3).
- The second player will be asked a number (1-3).
- If either player enters an invalid input (anything other than 1, 2, or 3), they will be asked to enter a valid input until they do.
- The computer will then announce the result.

As long as the process is the same, everything is a fair game.

5. Create a program to solve the following problem and name it `05_goblin_slayer_[your_name].c`. [20 points]

The world is in ruins. Monsters are roaming around the world, in a certain part of the remote forest stood a little boy with a stick on his hand. He could feel his feet shaking, looking at the despair in front of his eyes. Three monsters with the greenish body and the appearance that of a human child surrounded him.

The world is surely unfair to give such a little boy to his death bed, but every cloud has its silver lining. One of the goblins possesses an item that the boy has searched for a month, the item to cure his mother's illness, a full moon grass tapped in its belt.

Gripping tight the cypress stick in his hand the boy makes his determination. He is no longer the boy that would cry every time he failed. He surveys his stats and his enemies' stats.

The boy's hp is 200

goblins hp is 165

goblin 1 attack is 3

goblin 2 attack is 4

goblin 3 attack is 1

The boy attack is 10 and every 3rd turn the boy can unleash his skill that deals 20 damage

Every turn each side attack another side; the boy will attack goblin 1 first till it died, and then attack goblin 2 and lastly attack goblin 3; as long as the goblins alive it will attack the boy for each turn (the dead goblin won't attack as it's already dead)

Print the course of the battle of the boy, the battle ends when if either party wiped out (all goblins died or boy's HP reach 0)! [20 points]

Input : - (there's no input required)

Example Output :

turn 1

boy attacked goblin1 for 10 damage; goblin1 hp: 155

goblin 1 attacked boy for 3 damage; boy hp: 197

goblin 2 attacked boy for 4 damage; boy hp: 193

goblin 3 attacked boy for 1 damage; boy hp: 192

turn 2

boy attacked goblin1 for 10 damage; goblin1 hp: 145

goblin 1 attacked boy for 3 damage; boy hp: 189

goblin 2 attacked boy for 4 damage; boy hp: 185

goblin 3 attacked boy for 1 damage; boy hp: 184

At the end of the battle, print the total turns that been happened and the remaining cumulative HP of the winning party.

6. To avoid plagiarism/cheating, every student needs to pledge and declare, then she/he must submit her/his **signed pledge and declaration** as in the following. Failed to do so will be resulted in getting 0 (zero) grade. Attach the **scanned/photo** of your *declaration* in your report.

“By the name of Allah (God) Almighty, herewith I pledge and truly declare that I have solved quiz 1 by myself, didn’t do any cheating by any means, didn’t do any plagiarism, and didn’t accept anybody’s help by any means. I am going to accept all of the consequences by any means if it has proven that I have been done any cheating and/or plagiarism.”

[Place, e.g., Surabaya], [date, e.g., 16 October 2020]

<Signed>

[Full name, e.g., Sekar Arum Lestari]

[StudentID, e.g., 502520xxxx]

7. ZIP the files of 01_basic_geometry_[your_name].c, 02_guess_[your_name].c, 03_hundreds_power_[your_name].c, 04_rps_[your_name].c, 05_goblin_slayer_[your_name].c and your declaration (e.g., Declaration.PDF) into 1 (one) only .ZIP file, namely IF184101_BASPRO_IUP_Q1_StudentID_Name.ZIP. Send this .ZIP file (IF184101_BASPRO_IUP_Q1_StudentID_Name.ZIP) to yifana@gmail.com and CC-ed to rosalamora@gmail.com, dicksenan@gmail.com & jamesrafe10@gmail.com.

8. Have a great day! Good luck! 😊