You can view this report online at : https://www.hackerrank.com/x/tests/1662941/candidates/55109568/report

| | |
|---|---|
| Full Name: | Breeha Qasim |
| Email: | bq08283@st.habib.edu.pk |
| Test Name: | **CS 224 Lab# 01 - Fall 23** |
| Taken On: | 23 Aug 2023 11:47:29 PKT |
| Time Taken: | 1674 min 19 sec/ 3000 min |
| Work Experience: | < 1 years |
| Invited by: | Nadia |
| Skills Score: | |
| Tags Score: | Easy 50/50<br>Functions 50/50<br>Input 50/50 |

**100%**

**510/510**

scored in **CS 224 Lab# 01 - Fall 23** in 1674 min 19 sec on 23 Aug 2023 11:47:29 PKT

**Recruiter/Team Comments:**

*No Comments.*

**Plagiarism flagged**

We have marked questions with suspected plagiarism below. Please review it in detail here - https://www.hackerrank.com/x/tests/1662941/candidates/55109568/report

| | Question Description | Time Taken | Score | Status |
|---|---|---|---|---|
| Q1 | Multiply by 2 > Coding | 20 min 3 sec | 0/ 0 | ✓ |
| Q2 | Add and Subtract > Coding | 10 min 14 sec | 0/ 0 | ✓ |
| Q3 | Quotient, Reminder > Coding | 10 min 30 sec | 30/ 30 | ! |
| Q4 | Swap Two Numbers > Coding | 7 min | 30/ 30 | ✓ |
| Q5 | Case converter > Coding | 11 min 4 sec | 30/ 30 | ✓ |
| Q6 | Data Type Sizes > Coding | 9 min 26 sec | 10/ 10 | ✓ |
| Q7 | Body Temperature - C++ > Coding | 6 min 27 sec | 15/ 15 | ✓ |
| Q8 | Hurricane Harvey - C++ > Coding | 5 min 6 sec | 15/ 15 | ✓ |
| Q9 | How tall are you? - C++ > Coding | 17 min 47 sec | 30/ 30 | ✓ |

| | | | | |
|---|---|---|---|---|
| Q10 | Count Currency - C++ > Coding | 13 min 5 sec | 50/ 50 | |
| Q11 | Quick if-else statement recap > Coding | 6 min 9 sec | 40/ 40 | |
| Q12 | Real Steel > Coding | 19 min 43 sec | 60/ 60 | |
| Q13 | Fibonacci's Rule > Coding | 8 min 40 sec | 60/ 60 | |
| Q14 | The Power in Multiplication > Coding | 26 min 27 sec | 90/ 90 | |
| Q15 | Holes in a Number CPP > Coding | 2 hour 14 min 59 sec | 50/ 50 | |

QUESTION 1

Correct Answer

Score 0

## Multiply by 2 > Coding

QUESTION DESCRIPTION

Write a program that asks the user to enter an integer, then tells them what 2 times that number is. The program should produce the following output (assume number entered is 4 as input):

```
Enter an integer: 6
Double that number is: 12
```

CANDIDATE ANSWER

Language used: **C++14**

```
#include <iostream>


using namespace std;
int main() {
    int input = 4 ;
    int doubling;
    cin >> input;
    doubling = input * 2;
    cout << "Enter an integer: " << input << "\n" ;
    cout << "Double that number is: " << doubling;


    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    return 0;
}
```

No Comments

QUESTION 2

Correct Answer

Score 0

## Add and Subtract > Coding

QUESTION DESCRIPTION

Write a program that asks the user to enter a number, and then enter a second number. The program should tell the user what the result of adding and subtracting the two numbers is.

The output of the program should match the following (assuming inputs of 6 and 4):

```
Enter an integer: 7
Enter another integer: 4
7 + 4 is 11.
7 - 4 is 3.
```

**CANDIDATE ANSWER**

Language used: **C++14**

```
#include <iostream>


using namespace std;
int main() {
    int integer1 = 6;
    int integer2 = 4;
    cin >> integer1;
    cin >> integer2;
    int adding;
    int subtracting;
    adding = integer1 + integer2;
    subtracting = integer1 - integer2;
    cout << "Enter an integer: " << integer1 << "\n" ;
    cout << "Enter another integer: " << integer2 << "\n" ;
    cout << integer1 << " + " << integer2 << " is " << adding << "." << "\n"
;
    cout << integer1 << " - " << integer2 << " is " << subtracting << "." <<
"\n" ;



    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    return 0;
}
```

No Comments

**QUESTION 3**

Needs Review

Score 30

## Quotient, Reminder › Coding

QUESTION DESCRIPTION

Write a program that takes dividend and divisor as input calculates the Quotient and Reminder of its division.

Example:
Input: 14 5
Output: 2 4

INTERVIEWER GUIDELINES

```
int main()
{
    int a;
    cin>>a;
    int b;
```

```
    cin>>b;
    cout<<a/b<<" "<<a%b;
    return 0;
}
```

**CANDIDATE ANSWER**

Language used: **C++**

```
1
2  using namespace std;
3
4  int main()
5  {
6      int input1;
7      int input2;
8      int quotient;
9      int remainder;
10     cin >> input1;
11     cin >> input2;
12     quotient = input1/input2 ;
13     remainder = input1%input2;
14     cout << quotient << " " << remainder;
15
16
17
18     /* Enter your code here. Read input from STDIN. Print output to STDOUT */
19     return 0;
20 }
```

| TESTCASE | DIFFICULTY | TYPE | STATUS | SCORE | TIME TAKEN | MEMORY USED |
|---|---|---|---|---|---|---|
| Testcase 0 | Easy | Sample case | Success | 10 | 0.0237 sec | 8.8 KB |
| Testcase 1 | Easy | Hidden case | Success | 10 | 0.095 sec | 8.68 KB |
| Testcase 2 | Easy | Hidden case | Success | 10 | 0.0357 sec | 8.88 KB |

No Comments

**QUESTION 4**

Correct Answer

Score 30

## Swap Two Numbers › Coding

QUESTION DESCRIPTION

Write a program that swaps the values of two variables.
For example, If:
variable1 = 2
variable2 = 5

Your program should swap the values of variable1 and variable2 with each other. Output would be:
variable1 = 5
variable2 = 2

INTERVIEWER GUIDELINES

```
#include<iostream>
using namespace std;

int main()
{
    int value1, value2;
    cin>>value1;
    cin>>value2;

    // Write logic to swap value1 and value2
    int temp = value1;
    value1 = value2;
    value2 = temp;

    cout<<value1<<" "<<value2;
}
```

**CANDIDATE ANSWER**

Language used: **C++**

```
1
2  int main()
3  {
4      int value1, value2;
5      cin>>value1;
6      cin>>value2;
7      int swap;
8      swap=value1;
9      value1=value2;
10     value2=swap;
11     cout<<value1<<" "<<value2;
12 }
```

| TESTCASE | DIFFICULTY | TYPE | STATUS | SCORE | TIME TAKEN | MEMORY USED |
|---|---|---|---|---|---|---|
| Testcase 0 | Easy | Sample case | Success | 10 | 0.0529 sec | 8.71 KB |
| Testcase 1 | Easy | Hidden case | Success | 10 | 0.0255 sec | 8.84 KB |
| Testcase 2 | Easy | Hidden case | Success | 10 | 0.023 sec | 8.77 KB |

No Comments

**QUESTION 5**

Correct Answer

Score 30

## Case converter › Coding

QUESTION DESCRIPTION

Write a program which takes a small character as input and covert it into capital character.

input: a
output: A

Note: Using built-in functions is not allowed.

hint: use ASCII codes

INTERVIEWER GUIDELINES

```
int main()
{
    char c;
    cin>>c;
    cout<<char(c-32);
    return 0;
}
```

**CANDIDATE ANSWER**

Language used: **C++**

```
#include <map>
#include <set>
#include <list>
#include <cmath>
#include <ctime>
#include <deque>
#include <queue>
#include <stack>
#include <string>
#include <bitset>
#include <cstdio>
#include <limits>
#include <vector>
#include <climits>
#include <cstring>
#include <cstdlib>
#include <fstream>
#include <numeric>
#include <sstream>
#include <iostream>
#include <algorithm>
#include <unordered_map>

using namespace std;
int main()
{
    char input;
    cin >> input;
    int newletter;
    newletter = int(input) - 32;
    cout << char(newletter);
    return 0;
}
```

| TESTCASE | DIFFICULTY | TYPE | STATUS | SCORE | TIME TAKEN | MEMORY USED |
|---|---|---|---|---|---|---|
| Testcase 0 | Easy | Sample case | Success | 10 | 0.0529 sec | 8.88 KB |
| Testcase 1 | Easy | Hidden case | Success | 10 | 0.0535 sec | 8.81 KB |
| Testcase 2 | Easy | Hidden case | Success | 10 | 0.0613 sec | 8.98 KB |

No Comments

QUESTION 6

Correct Answer

Score 10

## Data Type Sizes › Coding

QUESTION DESCRIPTION

You have been given a task as a programmer on a Habib Super Computer. In order to do some calculations, you need to know how many bytes the following data types use: `char`, `int`, `float`, `double`, long, short and bool.

You don't have any manuals so you can't look this information up. Write a C++ program that will determine the amount of memory used by these types and display the information on the screen.

**Hint:** Use `sizeof()` operator.

**Expected Output:**

```
The size of char is: 1 bytes
The size of int is: 4 bytes
The size of float is: 4 bytes
The size of double is: 8 bytes
The size of long is: 8 bytes
The size of short is: 2 bytes
The size of bool is: 1 bytes
```

INTERVIEWER GUIDELINES

```
#include <iostream>
using namespace std;

int main()
{
    cout << "The size of char is: " << sizeof(char) << " bytes" << endl;
    cout << "The size of int is: " << sizeof(int) << " bytes" << endl;
    cout << "The size of float is: " << sizeof(float) << " bytes" <<
endl;
    cout << "The size of double is: " << sizeof(double) << " bytes" <<
endl;
    cout << "The size of long is: " << sizeof(long) << " bytes" << endl;
    cout << "The size of short is: " << sizeof(short) << " bytes" <<
endl;
    cout << "The size of bool is: " << sizeof(bool) << " bytes" << endl;
    return 0;
}
```

### CANDIDATE ANSWER

Language used: **C++**

```
1  #include <iostream>
2  using namespace std;
3
4  int main()
5  {
6      cout << "The size of char is: " << sizeof(char) << " bytes" << endl;
7      cout << "The size of int is: " << sizeof(int) << " bytes" << endl;
8      cout << "The size of float is: " << sizeof(float) << " bytes" << endl;
9      cout << "The size of double is: " << sizeof(double) << " bytes" << endl;
10     cout << "The size of long is: " << sizeof(long) << " bytes" << endl;
```

```
    cout << "The size of short is: " << sizeof(short) << " bytes" << endl;
    cout << "The size of bool is: " << sizeof(bool) << " bytes" << endl;
    return 0;
}
```

| TESTCASE | DIFFICULTY | TYPE | STATUS | SCORE | TIME TAKEN | MEMORY USED |
|---|---|---|---|---|---|---|
| Testcase 0 | Easy | Sample case | Success | 10 | 0.0246 sec | 8.96 KB |

No Comments

**QUESTION 7**

Correct Answer

Score 15

## Body Temperature - C++ › Coding

QUESTION DESCRIPTION

### Problem

You are feeling unwell and the thermometer shows your body temperature as `temp` F. You know that normal body temperature is 37C.

You are required to take `fahrenheit` as input and print how many Celsius above normal temperature the temperature is.

### Calculation

You can convert from F to C using the formula, **C = (F - 32) / 1.8**

### Sample

Input: 100.4
Output: 100.4 F is 1 C above normal body temperature.

### Implementation notes

The output should be in exactly the same format as shown above.

INTERVIEWER GUIDELINES

```
#include<iostream>
using namespace std;

int main()
{
    float F;
    cin>>F;
    float C = (F-32)/1.8;
    C = C-37;
    cout<< F << " F is "<< C << " C above normal body temperature."
<<endl;
}
```

**CANDIDATE ANSWER**

Language used: **C++**

```

int main(){
    float farenheit;
    int conversion;
    int difference;
```

```
    cin >> farenheit;
    conversion = (farenheit - 32) / 1.8;
    difference = conversion - 37;
    cout << farenheit << " F is " << difference << " C above normal body
temperature.";
    return 0;
}
```

| TESTCASE | DIFFICULTY | TYPE | STATUS | SCORE | TIME TAKEN | MEMORY USED |
|---|---|---|---|---|---|---|
| Testcase 0 | Easy | Sample case | Success | 5 | 0.0284 sec | 8.86 KB |
| Testcase 1 | Easy | Sample case | Success | 10 | 0.0933 sec | 8.67 KB |

No Comments

**QUESTION 8**

Correct Answer

Score 15

## Hurricane Harvey - C++ › Coding

QUESTION DESCRIPTION

### Problem

Your relatives in Houston are reliving their Pakistan days by experiencing power cuts caused by Hurricane Harvey. They tell you that they are experiencing wind speeds up to 130 miles per hour. Your only measure of speed is through your car's speedometer which shows speed in km per hour.

You are required to take `mph` as input and prints its equivalent in km/h.

### Calculation

You may assume that **1 mile = 1.6 km**

### Sample

Input: 130
Output: 130 mi/h are equivalent to 208.0 km/h.

### Implementation notes

Strictly observe the output format.

INTERVIEWER GUIDELINES

```
#include<iostream>
using namespace std;

int main()
{
    float wind_speed;
    cin>>wind_speed;
    float car_speed = wind_speed*1.6;
    cout<<wind_speed<<" mi/h are equivalent to "<<car_speed<<" km/h.";
}
```

CANDIDATE ANSWER

Language used: **C++**

```

int main(){
    float input;
```

```
    float conversion;
    cin >> input;
    conversion = input * 1.6;
    cout << input << " mi/h are equivalent to " << conversion << " km/h.";
    return 0;
}
```

| TESTCASE | DIFFICULTY | TYPE | STATUS | SCORE | TIME TAKEN | MEMORY USED |
|---|---|---|---|---|---|---|
| Testcase 0 | Easy | Sample case | Success | 5 | 0.0374 sec | 8.91 KB |
| Testcase 1 | Easy | Sample case | Success | 10 | 0.0237 sec | 8.98 KB |

No Comments

**QUESTION 9**

Correct Answer

Score 30

## How tall are you? - C++ › Coding

QUESTION DESCRIPTION

### Problem

Your friend from the United Kingdom has come over for the winter holidays. Shocked by how tall they are, you inquire about their height. Your friend responds with a numerical value that is given in meters. You are required to perform the necessary calculations as below to display their height in feet and inches.

### Calculation

There are 100 centimeter in a meter.
1 inch corresponds to 2.54 centimeter.
1 foot corresponds to 12 inches.

### Sample

Input: 2.5
Output: 2.5 m is approximately equivalent to 8 ft and 2 inches!

### Implementation notes

The output should be in exactly the same format as shown above.
When calculating the total number of inches, **convert the obtained value to an integer**
You may assume that all values entered by the user will be up to 1 decimal place only

INTERVIEWER GUIDELINES

```
#include<iostream>
using namespace std;

int main()
{
    float height_m;
    cin>> height_m;

    float height_cm = height_m * 100;
    int height_in = height_cm / 2.54;
    int feet = height_in / 12;
    int inches = height_in % 12;

    cout << height_m << " m is approximately equivalent to " << feet << "
ft and " << inches << " inches!";
}
```

CANDIDATE ANSWER

Language used: **C++**

```cpp

int main(){
    float height;
    int centimeter;
    int inch;
    int foot;
    int convert_to_cm;
    int convert_to_inch;
    int convert_to_foot;
    int finalinch;
    cin>> height;
    convert_to_cm = height * 100;
    convert_to_inch = convert_to_cm/2.54;
    convert_to_foot =  convert_to_inch /12;
    finalinch = convert_to_inch % 12;
    cout << height <<" m is approximately equivalent to " << convert_to_foot
<< " ft and " << finalinch << " inches!";
    return 0;
}
```

| TESTCASE | DIFFICULTY | TYPE | STATUS | SCORE | TIME TAKEN | MEMORY USED |
|---|---|---|---|---|---|---|
| Testcase 0 | Easy | Sample case | Success | 10 | 0.0285 sec | 8.9 KB |
| Testcase 1 | Easy | Sample case | Success | 10 | 0.0514 sec | 8.89 KB |
| Testcase 2 | Easy | Sample case | Success | 10 | 0.0284 sec | 8.87 KB |

No Comments

**QUESTION 10**

Needs Review

Score 50

## Count Currency - C++ › Coding

QUESTION DESCRIPTION

### Problem

Write a program that takes an `amount` as input and find the minimum number of notes of different denominations that sum up to the given amount. Starting from the highest denomination note, try to accommodate as many notes possible for given amount.

We may assume that we have infinite supply of notes of values: 5000, 1000, 500, 100, 50, 20, 10, 5, 2 and 1.

**Note**

You are **not** allowed to use loops or any other concepts that have not been taught in class as yet

### Sample

```
Input:
int amount = 10200

Output:
Total number of notes:
5000 : 2
```

```
1000 : 0
500 : 0
100 : 2
50 : 0
20 : 0
10 : 0
5 : 0
2 : 0
1 : 0

================================================================================
===============
Input:
int amount = 2769

Output:
Total number of notes:
5000 : 0
1000 : 2
500 : 1
100 : 2
50 : 1
20 : 0
10 : 1
5 : 1
2 : 2
1 : 0
```

INTERVIEWER GUIDELINES

```
#include <iostream>
using namespace std;


int main() {
    /* Enter your code here. Read input from STDIN. Print output to
STDOUT */
    int amount;
    cin>>amount;
    int fiveth = amount / 5000;
    amount = amount % 5000;
    int th = amount/1000;
    amount = amount % 1000;
    int fhund = amount/500;
    amount = amount % 500;
    int hund = amount / 100;
    amount = amount % 100;
    int fifty = amount / 50;
    amount = amount % 50;
    int twenty = amount / 20;
    amount = amount % 20;
    int tens = amount / 10;
    amount = amount % 10;
    int five = amount / 5;
    amount = amount % 5;
    int two = amount / 2;
    int one = amount % 2 / 1;

    cout<<"Total number of notes:"<<endl;
    cout<<5000<<" : "<<fiveth<<endl;
    cout<<1000<<" : "<< th <<endl;
    cout<<500<<" : "<< fhund<<endl;
    cout<<100<<" : "<< hund<<endl;
    cout<<50<<" : "<< fifty<<endl;
    cout<<20<<" : "<< twenty<<endl;
    cout<<10<<" : "<< tens<<endl;
    cout<<5<<" : "<< five<<endl;
    cout<<2<<" : "<< two<<endl;
```

```
    cout<<1<<" : "<< one<<endl;
    return 0;
}
```

**CANDIDATE ANSWER**

Language used: **C++**

```
#include <iostream>
using namespace std;


int main() {
    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    int amount, min_notes;
    cin>> amount;
    cout<< "Total number of notes:" << "\n";
    min_notes=amount/5000;
    cout<< "5000 : " << min_notes << "\n";
    amount=amount%5000;

    min_notes=amount/1000;
    cout<< "1000 : " << min_notes << "\n";
    amount=amount%1000;

    min_notes=amount/500;
    cout<< "500 : " << min_notes << "\n";
    amount=amount%500;

    min_notes=amount/100;
    cout<< "100 : " << min_notes << "\n";
    amount=amount%100;

    min_notes=amount/50;
    cout<< "50 : " << min_notes << "\n";
    amount=amount%50;

    min_notes=amount/20;
    cout<< "20 : " << min_notes << "\n";
    amount=amount%20;

    min_notes=amount/10;
    cout<< "10 : " << min_notes << "\n";
    amount=amount%10;

    min_notes=amount/5;
    cout<< "5 : " << min_notes << "\n";
    amount=amount%5;

    min_notes=amount/2;
    cout<< "2 : " << min_notes << "\n";
    amount=amount%2;

    min_notes=amount/1;
    cout<< "1 : " << min_notes << "\n";
    amount=amount%1;


    return 0;
```

```
52 }
```

| TESTCASE | DIFFICULTY | TYPE | STATUS | SCORE | TIME TAKEN | MEMORY USED |
|---|---|---|---|---|---|---|
| TestCase 0 | Easy | Sample case | Success | 10 | 0.0427 sec | 8.86 KB |
| TestCase 1 | Easy | Hidden case | Success | 10 | 0.099 sec | 8.71 KB |
| TestCase 2 | Easy | Hidden case | Success | 10 | 0.0333 sec | 8.94 KB |
| TestCase 3 | Easy | Hidden case | Success | 10 | 0.0228 sec | 8.13 KB |
| TestCase 4 | Easy | Hidden case | Success | 10 | 0.0315 sec | 8.67 KB |

No Comments

**QUESTION 11**

Needs Review

Score 40

## Quick if-else statement recap › Coding

QUESTION DESCRIPTION

Write a program that asks the user to enter an float, then tells them whether the number is greater than 10 or not.
The program should produce the following output:

Sample test case 1:

```
Enter a number: 15
15 is greater than 10
```

Sample test case 2:

```
Enter a number: 4
4 is not greater than 10
```

**CANDIDATE ANSWER**

Language used: **C++14**

```
1  #include <iostream>
2
3
4  using namespace std;
5  int main() {
6      float input;
7      cin >> input;
8      if (input>10){
9          cout << input << " is greater than 10";
10     }
11     else
12     {
13       cout << input << " is not greater than 10";
14     }
15     return 0;
16 }
```

| TESTCASE | DIFFICULTY | TYPE | STATUS | SCORE | TIME TAKEN | MEMORY USED |
|---|---|---|---|---|---|---|
| Testcase 0 | Easy | Sample case | Success | 10 | 0.0734 sec | 9.01 KB |

| | | | | | | |
|---|---|---|---|---|---|---|
| Testcase 1 | Easy | Sample case | Success | 10 | 0.0574 sec | 8.91 KB |
| Testcase 2 | Easy | Sample case | Success | 10 | 0.0546 sec | 9.07 KB |
| Testcase 3 | Easy | Sample case | Success | 10 | 0.1035 sec | 8.91 KB |

No Comments

QUESTION 12

Correct Answer

Score 60

## Real Steel › Coding

QUESTION DESCRIPTION

A certain grade of steel is graded according to the following conditions:

1. Hardness must be greater than 50
2. Carbon content must be less than 0.7
3. Tensile strength must be greater than 5600

The grades are as follows:

- Grade 10 if all three conditions are met
- Grade 9 if conditions 1 and 2 are met
- Grade 8 if conditions 2 and 3 are met
- Grade 7 if conditions 1 and 3 are met
- Grade 6 if only one condition is met
- Grade 5 if none of the conditions are met

We want to be able to compute the grade of the steel given values of hardness, carbon content, and tensile strength.

For example, a steel with *hardness = 60, carbon_content = 0.9, tensile_strength = 5000*, satisfies conditions 1 only. Its grade is therefore 6.

**Function Description**

Write a function *steel_grade* that returns the grade of the steel as an integer and takes the following parameters:

- *hardness:* an integer
- *carbon_content:* a floating point value
- *tensile_strength:* an integer

**Note**

This question requires you to know: comparison operations, conditionals (*if-else*), and logical operators. Feel free to ask about them or to look them up online.

**▼ Input Format For Custom Testing**

The input contains 3 lines containing the values of *hardness, carbon_content, tensile_strength* respecitvely. You do not have to take input or produce output. The input will be read and your function's return value will be output automatically.

**▼ Sample Case 0**

**Sample Input For Custom Testing**

```
60
0.9
5000
```

**Sample Output**

```
6
```

INTERVIEWER GUIDELINES

**Solution**

```
int steel_grade(int hardness, float carbon_content, int tensile_strength)
{
  bool one = hardness > 50;
  bool two = carbon_content < 0.7;
  bool three = tensile_strength > 5600;
  if (one and two and three) {
    return 10;
  }
  if (one and two) {
    return 9;
  }
  if (two and three) {
    return 8;
  }
  if (one and three) {
    return 7;
  }
  if (one or two or three) {
    return 6;
  }
  return 5;
}

int main() {
    /* Enter your code here. Read input from STDIN. Print output to
STDOUT */
    int hardness;
    cin>>hardness;
    float carbon_content;
    cin>>carbon_content;
    int tensile_strength;
    cin>>tensile_strength;

    cout<<steel_grade(hardness, carbon_content, tensile_strength);
    return 0;
}
```

**CANDIDATE ANSWER**

Language used: **C++**

```
1
2  int steel_grade(int hardness,float carbon_content,int tensile_strength){
3      if (hardness>50 and carbon_content<0.7 and tensile_strength>5600){
4          return 10;
5      }
6      if (hardness>50 and carbon_content<0.7){
7          return 9;
8      }
9      if (carbon_content<0.7 and tensile_strength>5600){
10         return 8;
11     }
12     if (hardness>50 and tensile_strength>5600){
13         return 7;
14     }
15     if (hardness>50 or carbon_content<0.7 or tensile_strength>5600){
16         return 6;
17     }
18     return 5;
19 }
20
```

| TESTCASE | DIFFICULTY | TYPE | STATUS | SCORE | TIME TAKEN | MEMORY USED |
|---|---|---|---|---|---|---|
| Testcase 0 | Easy | Sample case | Success | 10 | 0.0213 sec | 8.84 KB |
| Testcase 1 | Easy | Sample case | Success | 10 | 0.0353 sec | 8.96 KB |
| Testcase 2 | Easy | Sample case | Success | 10 | 0.0238 sec | 8.86 KB |
| Testcase 3 | Easy | Sample case | Success | 10 | 0.0245 sec | 8.92 KB |
| Testcase 4 | Easy | Sample case | Success | 10 | 0.0325 sec | 8.85 KB |
| Testcase 5 | Easy | Sample case | Success | 10 | 0.0235 sec | 8.94 KB |

No Comments

**QUESTION 13**

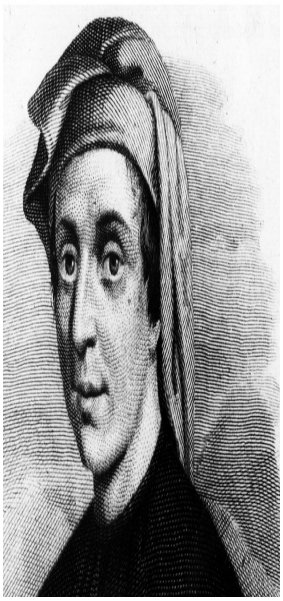
Correct Answer

Score 60

## Fibonacci's Rule › Coding

QUESTION DESCRIPTION

### Problem



Leonardo Fibonacci (1170 – c. 1250)
Picture credit: The Famous People

The Fibonacci series begins with 0 and 1. Each subsequent term is computed as the sum of the last 2 terms, thus yielding

```
0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, ...
```

There are variations to this series that start with different terms but generate the remaining terms the same way. For example, the Lucas series begins with 2 and 1 and is as follows.

```
2, 1, 3, 4, 7, 11, 18, 29, 47, 76, 123, ...
```

We want to compute series like the above by applying the Fibonacci rule given the first 2 terms.

**Function Description**

Write a function named `series` to print the first `n` terms of the series given the following integer parameters: `term0`, `term1`, `n`.

**Constraints**

- `n >= 0` is `true`.

**Note**

This question requires you to know: loops (*for*). Feel free to ask about them or to look them up online.

**Input Format For Custom Testing**

The input contains 3 lines containing the values of respecitvely of `term0`, `term1`, and `n` respectively. You do not have to take input. The input will be read and passed to your function automatically. Your function will then have to print the corresponding terms of the series.

**Sample Case 0**

Sample Input For Custom Testing

```
0
1
```

```
0
```

Sample Output

```
0
```

Explanation

`term0` is 0, `term1` is 1 and `n` is 0. The series contains just 1 term, i.e. the 0-th term, which is 0.

**Sample Case 1**

Sample Input For Custom Testing

```
0
1
1
```

Sample Output

```
0, 1
```

Explanation

`term0` is 0, `term1` is 1 and `n` is 1. The desired series is up to the 1st term and that is what is printed.

INTERVIEWER GUIDELINES

**Solution**

```
void series(int term0, int term1, int n) {
  if (n >= 0) {
    std::cout << term0;
  }
  if (n >= 1) {
    std::cout << ", " << term1;
  }
  int next_term;
  for (int i = 2; i <= n; i++) {
    next_term = term0 + term1;
    term0 = term1;
    term1 = next_term;
    std::cout << ", " << term1;
  }
}

int main() {
    int term0, term1, term2;
    cin>>term0>>term1>>term2;
    series(term0, term1, term2);
    return 0;
}
```

**CANDIDATE ANSWER**

Language used: **C++**

```
1 using namespace std;
2 int series(int term0, int term1, int n){
3     int nexterm;
4     int temp;
5     if (n<=0){
6         cout<< term0;
```

```
        return 0;
    }
    cout<< term0 << ", ";
    for (int i=0; i<=n-1;i++){
        if (i==n-1){
            cout<< term1;
            return 0;
        }
        cout<<term1<<", ";
        nexterm=term0+term1;
        temp=term1;
        term0=temp;
        term1=nexterm;
    }
    return 0;
}
```

| TESTCASE | DIFFICULTY | TYPE | STATUS | SCORE | TIME TAKEN | MEMORY USED |
|---|---|---|---|---|---|---|
| Testcase 0 | Easy | Sample case | Success | 10 | 0.0235 sec | 8.34 KB |
| Testcase 1 | Easy | Sample case | Success | 10 | 0.0504 sec | 8.91 KB |
| Testcase 2 | Easy | Sample case | Success | 10 | 0.0407 sec | 8.79 KB |
| Testcase 3 | Easy | Sample case | Success | 10 | 0.0833 sec | 8.98 KB |
| Testcase 4 | Easy | Sample case | Success | 10 | 0.0282 sec | 8.7 KB |
| Testcase 5 | Easy | Sample case | Success | 10 | 0.049 sec | 8.75 KB |

No Comments

**QUESTION 14**

Correct Answer

Score 90

## The Power in Multiplication › Coding

QUESTION DESCRIPTION

Exponential values can be calculated by using multiplication iteratively. Write a program that takes two inputs:

- **base** - An integer value between 1 and 10 (both inclusive)
- **exponent** - A positive integer between 0 and 5 (both inclusive)

For each input, if the user does not enter value in the given range, it should print an error message saying **"Invalid input!"** and exit the program.

Once the correct inputs have been entered, calculate the exponential value by performing multiplication using a loop. It should then print the output and exit the program. Don't forget to handle the **exponent** value of 0 in the loop.

**Constraints**

- *1 <= **base** <= 10*
- *0 <= **exponent** <= 5*

**▼ Input Format For Custom Testing**

The first line contains an integer, **base** representing the base value needed for calculation
The second line contains an integer, **exponent** representing the power/exponent value needed for calculation

**▼ Sample Case 0**

**Sample Input For Custom Testing**

```
2
5
```

**Sample Output**

```
2 to the power of 5 is: 32
```

**Explanation**

It takes the first input as the base value and second as the exponent value to calculate $2^5 = 32$

### ▼ Sample Case 1

**Sample Input For Custom Testing**

```
-1
-1
```

**Sample Output**

```
Invalid input!
```

**Explanation**

If either of the base or exponent is out of given range, it should print an error message and exit

### ▼ Sample Case 2

**Sample Input For Custom Testing**

```
3
0
```

**Sample Output**

```
3 to the power of 0 is: 1
```

**Explanation**

Checking for exponent value of 0

INTERVIEWER GUIDELINES

```
#include <iostream>
using namespace std;

int main()
{
        int base, exponent, val = 1;

        cin >> base;
        cin >> exponent;

        if (base < 1 || base > 10 || exponent < 0 || exponent > 5)
            cout << "Invalid input!";

        else if (exponent == 0)
            cout << base << " to the power of " << exponent << " is: " <<
val;

    else
        {
            for(int i = 1; i <= exponent; i++)
                val = val * base;

            cout << base << " to the power of " << exponent << " is: " <<
val;
        }

        return 0;
}
```

**CANDIDATE ANSWER**

Language used: **C++**

```
int main()
{
     /* Enter your code here. Read input from STDIN. Print output to STDOUT
*/
    int base=0;
    int exponent=0;
    int answer;
    cin >> base;
    int temp=base;
    cin >> exponent;
    if (base<1 or base>10 or exponent<0 or exponent>5){
        cout << "Invalid input!";
        return 0;
    }
    if (exponent==0){
        cout << base << " to the power of 0 is: 1";
        return 0;
    }
    for (int i = 1; i < exponent; i++){
       temp = temp*base;
    }
    cout << base << " to the power of " << exponent << " is: " << temp;
    return 0;
}
```

| TESTCASE | DIFFICULTY | TYPE | STATUS | SCORE | TIME TAKEN | MEMORY USED |
|---|---|---|---|---|---|---|
| Testcase 0 | Easy | Sample case | Success | 10 | 0.0507 sec | 8.87 KB |
| Testcase 1 | Easy | Sample case | Success | 10 | 0.0367 sec | 8.84 KB |
| Testcase 2 | Easy | Sample case | Success | 10 | 0.0361 sec | 8.2 KB |
| Testcase 3 | Medium | Hidden case | Success | 10 | 0.0275 sec | 8.59 KB |
| Testcase 4 | Medium | Hidden case | Success | 10 | 0.0282 sec | 8.79 KB |
| Testcase 5 | Medium | Hidden case | Success | 10 | 0.024 sec | 8.72 KB |
| Testcase 6 | Medium | Hidden case | Success | 10 | 0.0515 sec | 8.9 KB |
| Testcase 7 | Medium | Hidden case | Success | 10 | 0.0271 sec | 8.96 KB |
| Testcase 8 | Hard | Hidden case | Success | 10 | 0.0497 sec | 8.96 KB |

No Comments

**QUESTION 15**

Needs Review

Score 50

## Holes in a Number CPP › Coding

Easy | Functions | Input

**QUESTION DESCRIPTION**

You are designing a poster which prints out numbers with a different style applied to each of them. The styling is based on the number of closed paths or *holes* present in the number.

The number of holes present in each of the digits from 0 to 9 is equal to the number of closed paths in the digit. Their values are:

- 1, 2, 3, 5, and 7 = 0 holes.
- 0, 4, 6, and 9 = 1 hole.
- 8 = 2 holes.

The total number of holes in the number, 1078, is 3 which is the the sum of

- the number of holes in 1 = 0 holes.
- the number of holes in 0 = 1 hole.
- the number of holes in 7 = 0 holes.
- the number of holes in 8 = 2 holes.

**Function Description**

Write a function `countHoles(int num)` that takes a parameter, `num`, and returns the sum of the number of holes in all of its digits. The function must not convert to a `str`.

**▼ Input Format For Custom Testing**

The input consists of one line which contains `num`.

The output must contain the number of holes in `num`.

**▼ Sample Case 0**

**Sample Input For Custom Testing**

```
1078
```

**Sample Output**

```
3 holes
```

**Explanation**

The number of holes in 1, 0, 7, and 8 are 0, 1, 0, and 2 respectively which add up to 3.

**▼ Sample Case 1**

**Sample Input For Custom Testing**

```
819
```

**Sample Output**

```
3 holes
```

**Explanation**

The number of holes in 8, 1, and 9 are 2, 0, and 1 respectively which add up to 3.

INTERVIEWER GUIDELINES

**Solution**

```
int countHoles(int num){
    int holes[] = {1, 0, 0, 0, 1, 0, 1, 0, 2, 1};
    int sum = 0;
    while(num!=0){
        int rem = num%10;
        num /= 10;
        sum += holes[rem];
    }
    return sum;
}
```

**CANDIDATE ANSWER**

Language used: **C++**

```
int countHoles(int num){
    int n=0, c=0;
    for (int i = num; i>0; i/=10){
        int a = (i%10);
        if (a==0 or a==4 or a==6 or a==9){
            c+=1;
        }
        else if (a==8){
            c+=2;
        }
    }
    return c;
}
```

| TESTCASE | DIFFICULTY | TYPE | STATUS | SCORE | TIME TAKEN | MEMORY USED |
|---|---|---|---|---|---|---|
| Testcase 0 | Easy | Sample case | Success | 10 | 0.0526 sec | 8.54 KB |
| Testcase 1 | Easy | Sample case | Success | 10 | 0.025 sec | 8.5 KB |
| Testcase 2 | Easy | Sample case | Success | 10 | 0.0519 sec | 8.81 KB |
| Testcase 3 | Easy | Sample case | Success | 10 | 0.0285 sec | 8.9 KB |
| Testcase 4 | Easy | Sample case | Success | 10 | 0.048 sec | 8.86 KB |

No Comments