⭕ IBM (Associate Software Engineer) Exam ⭕

📌 Selection Process: (There Are 3 Round):

1) Coding Assessment.

2) English Language.

3) Group Discussion.

4) Interview: a) Technical Round.

b) HR Round.

📌 Coding Section: (Coding Round Is Divided Into Two Sections):

a) 1 Coding Qsn.

b) 5 MCQ Qsn.

☑ **Note: IBM Coding Section Consists Of Problems Related To Data Structures & Algorithms & Duration 30 Min.**

📌 Topics To Prepare For IBM MCQs:

1) **DBMS.**
2) **Operating System.**
3) **Software Engineering.**
4) **OOPS Concepts.**
5) **Any Programming Language of Your Choice.**

📌 Topics to Prepare for the IBM Coding:

1) Arrays.

2) Linked lists.

3) Stacks.

4) Queues.

5) Trees.

6) Graphs.

7) Heaps.

8) Hash Sets.

9) Hash Maps.

1) Depth-First Search

2) Breadth-First Search

3) Binary Search

4) Quicksort

5) Merge Sort

6) Dynamic Programming

7) Divide and Conquer.

📌 Previous Year Coding Qsn:

1) **Write a program to remove the Nth node from the end of a linked list.**
2) **Write a program to find duplicate characters in each string.**
3) **Write a program to convert byte array to string.**
4) **Write a program to find the middle element of a singly linked list in one pass.**
5) **Write a program to find the fourth node from the end in a singly linked list.**
6) **Write a program to find the length of a singly linked list.**
7) **Write a program to implement a binary search tree.**
8) **Write a program to perform in order traversal in each binary tree.**
9) **Write a program to implement a post order traversal algorithm.**
10) **Write a program to implement an LRU Cache.**

📌 How to Prepare for an IBM Coding Assesment:

1) Choose Your Programming Language:

Choose an object-oriented programming language you're comfortable with, Python, Java, or C++, and master the basics. Practice preparing programs in this language and understand the nuances of the language.

2) Know Your Basics:

Learn the basics of data structures and algorithms thoroughly. Learn the basics and keep practicing. Solve as many previous IBM coding challenges as you possibly can.

3) Spend Time on Solving Problems:

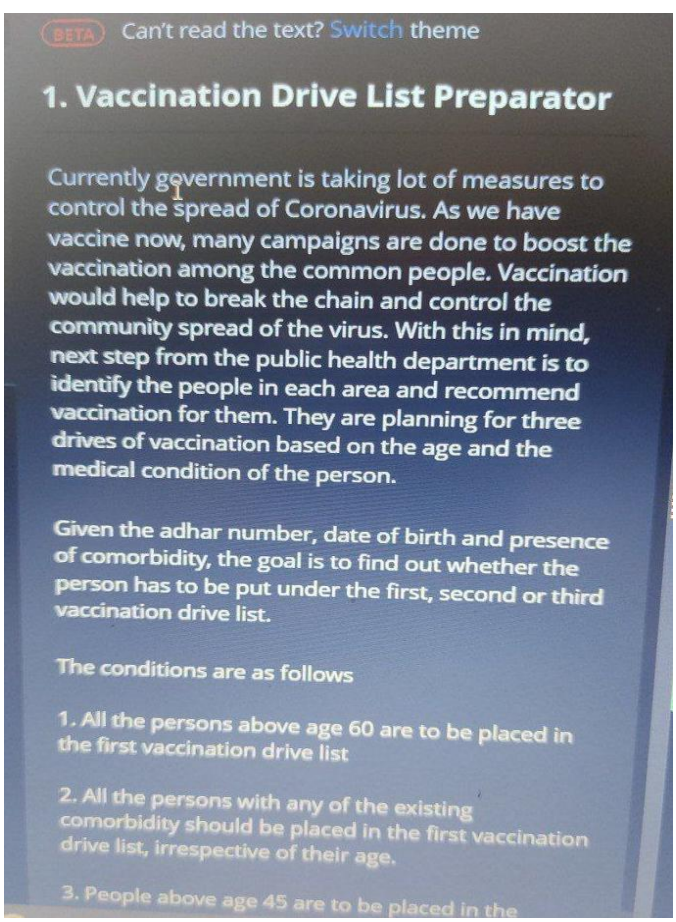
Coding challenges are not that easy. They take hours to solve. While practicing, follow this technique: 1) Understand the problem description, and next, think about how to approach it.

📌 Tips to crack the IBM coding Assessment:

1) **Create a Study Plan:**
   Create a study plan of Technical Topics To Cover.
2) **Focus on the Test Input:**
   All coding challenges come with a test input to verify that your solution works. This test input rarely covers all edge cases. The ideal solution should not only handle test input, but it should be able to handle all possible edge cases. Most of the time, developers make the mistake of spending more time handling edge cases, and they miss the chance to handle test input in a robust way.
3) **Review and Refactor Your Code:**
   Once you are done with the solution, don't be tempted to close the IDE and submit the solution. Take time to review the code and remove any unused methods and variables. Try to check if there is any scope for refactoring. You can avoid these simple mistakes — making these mistakes will leave an impression that you are not serious enough.
4) **Be Prepared for Constructive Criticism:**
   Once the solution is submitted, the next step would probably be a discussion with the recruiter over the phone or a pairing interview where you're challenged to extend your solution to include new requirements. Be ready to accept the feedback provided by the reviewer positively and not go into the Défense mode.

📌 Previous Year Coding Qsn:

1) **Vaccination Drive List Preparator Code:**
   Language Use: C++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1. Vaccination Drive List Preparator

Currently government is taking lot of measures to control the spread of Coronavirus. As we have vaccine now, many campaigns are done to boost the vaccination among the common people. Vaccination would help to break the chain and control the community spread of the virus. With this in mind, next step from the public health department is to identify the people in each area and recommend vaccination for them. They are planning for three drives of vaccination based on the age and the medical condition of the person.

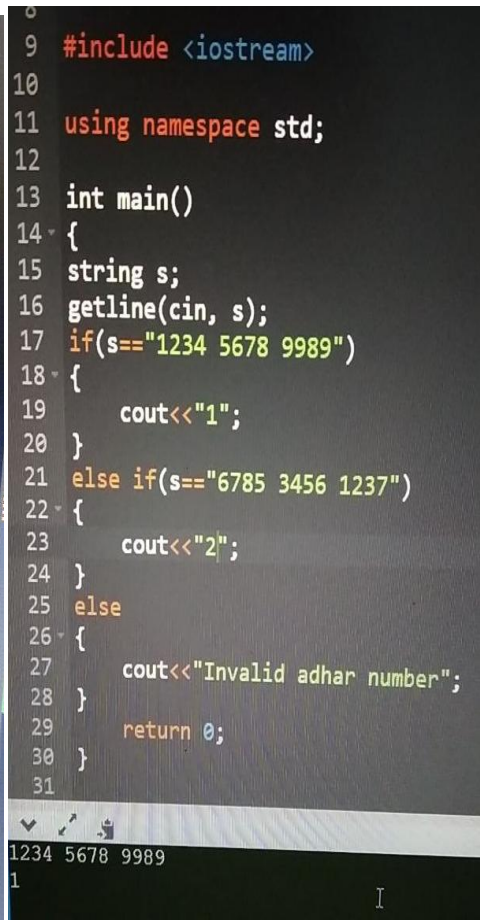
Given the adhar number, date of birth and presence of comorbidity, the goal is to find out whether the person has to be put under the first, second or third vaccination drive list.

The conditions are as follows

1. All the persons above age 60 are to be placed in the first vaccination drive list

2. All the persons with any of the existing comorbidity should be placed in the first vaccination drive list, irrespective of their age.

3. People above age 45 are to be placed in the

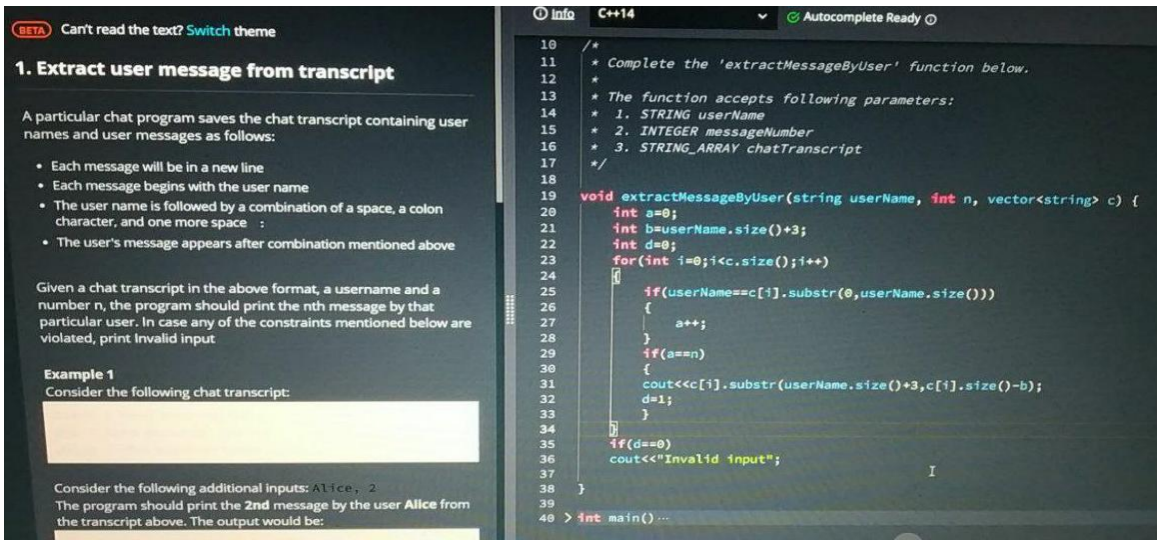

```cpp
#include <iostream>

using namespace std;

int main()
{
string s;
getline(cin, s);
if(s=="1234 5678 9989")
{
    cout<<"1";
}
else if(s=="6785 3456 1237")
{
    cout<<"2";
}
else
{
    cout<<"Invalid adhar number";
}
    return 0;
}
```

```
1234 5678 9989
1
```

2) **Extract User Message From Transcript Code: Language Use: C++ 14**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1. Extract user message from transcript

A particular chat program saves the chat transcript containing user names and user messages as follows:

- Each message will be in a new line
- Each message begins with the user name
- The user name is followed by a combination of a space, a colon character, and one more space :
- The user's message appears after combination mentioned above

Given a chat transcript in the above format, a username and a number n, the program should print the nth message by that particular user. In case any of the constraints mentioned below are violated, print Invalid input

Example 1
Consider the following chat transcript:

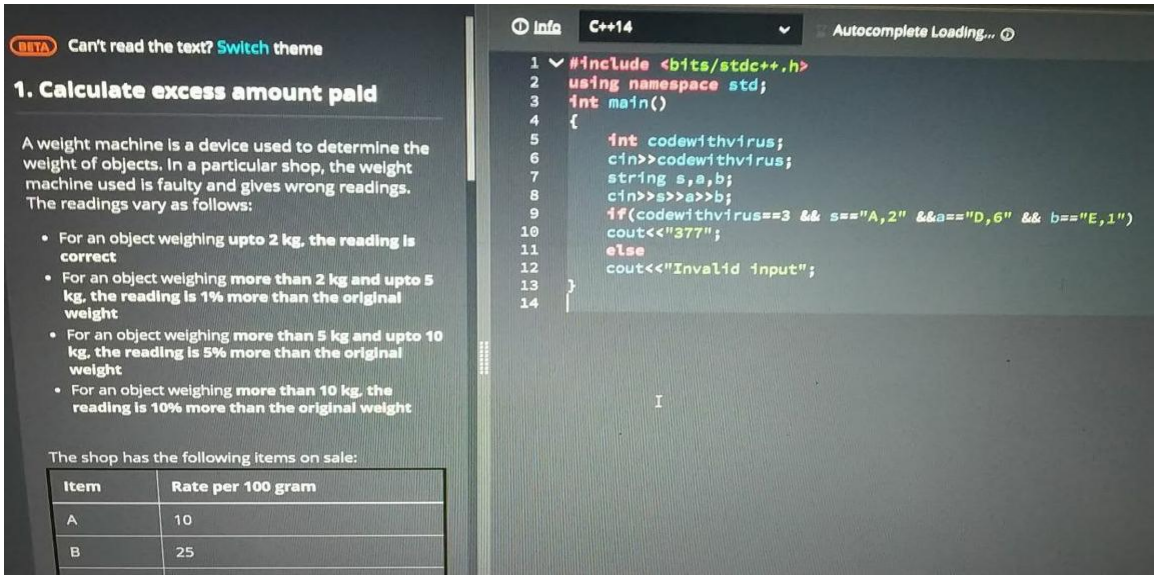
Consider the following additional inputs: Alice, 2
The program should print the **2nd** message by the user **Alice** from the transcript above. The output would be:

Info C++14 Autocomplete Ready

```cpp
/*
 * Complete the 'extractMessageByUser' function below.
 *
 * The function accepts following parameters:
 *  1. STRING userName
 *  2. INTEGER messageNumber
 *  3. STRING_ARRAY chatTranscript
 */

void extractMessageByUser(string userName, int n, vector<string> c) {
    int a=0;
    int b=userName.size()+3;
    int d=0;
    for(int i=0;i<c.size();i++)
    {
        if(userName==c[i].substr(0,userName.size()))
        {
            a++;
        }
        if(a==n)
        {
        cout<<c[i].substr(userName.size()+3,c[i].size()-b);
        d=1;
        }
    }
    if(d==0)
    cout<<"Invalid input";
}

int main()...
```



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1. Calculate excess amount paid

A weight machine is a device used to determine the weight of objects. In a particular shop, the weight machine used is faulty and gives wrong readings. The readings vary as follows:

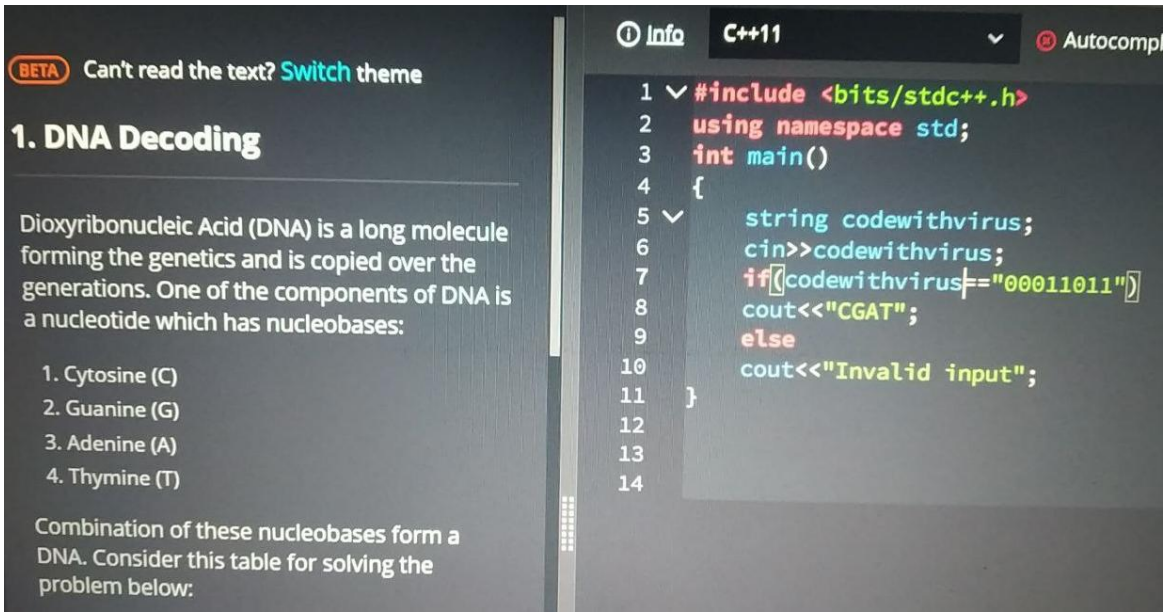
- For an object weighing **upto 2 kg, the reading is correct**
- For an object weighing **more than 2 kg and upto 5 kg, the reading is 1% more than the original weight**
- For an object weighing **more than 5 kg and upto 10 kg, the reading is 5% more than the original weight**
- For an object weighing **more than 10 kg, the reading is 10% more than the original weight**

The shop has the following items on sale:

Item	Rate per 100 gram
A	10
B	25

Info C++14 Autocomplete Loading...

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
    int codewithvirus;
    cin>>codewithvirus;
    string s,a,b;
    cin>>s>>a>>b;
    if(codewithvirus==3 && s=="A,2" &&a=="D,6" && b=="E,1")
    cout<<"377";
    else
    cout<<"Invalid input";
}
```



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1. DNA Decoding

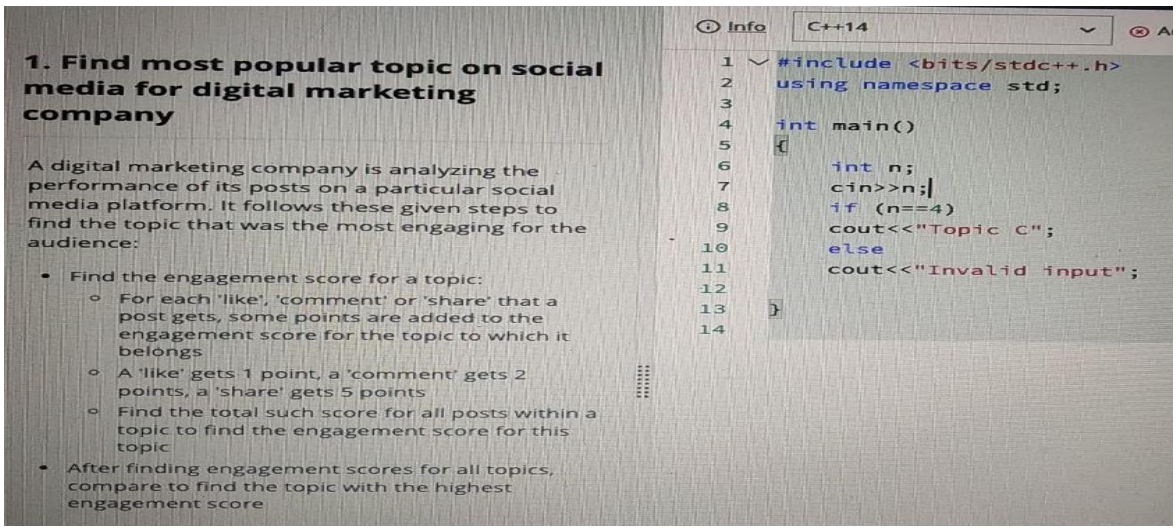
Dioxyribonucleic Acid (DNA) is a long molecule forming the genetics and is copied over the generations. One of the components of DNA is a nucleotide which has nucleobases:

1. Cytosine (C)
2. Guanine (G)
3. Adenine (A)
4. Thymine (T)

Combination of these nucleobases form a DNA. Consider this table for solving the problem below:

Info C++11 Autocompl

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
    string codewithvirus;
    cin>>codewithvirus;
    if(codewithvirus=="00011011")
    cout<<"CGAT";
    else
    cout<<"Invalid input";
}
```



1. Find most popular topic on social media for digital marketing company

A digital marketing company is analyzing the performance of its posts on a particular social media platform. It follows these given steps to find the topic that was the most engaging for the audience:

- Find the engagement score for a topic:
  - For each 'like', 'comment' or 'share' that a post gets, some points are added to the engagement score for the topic to which it belongs
  - A 'like' gets 1 point, a 'comment' gets 2 points, a 'share' gets 5 points
  - Find the total such score for all posts within a topic to find the engagement score for this topic
- After finding engagement scores for all topics, compare to find the topic with the highest engagement score

Info C++14

```
#include <bits/stdc++.h>
using namespace std;

int main()
{
    int n;
    cin>>n;
    if (n==4)
    cout<<"Topic C";
    else
    cout<<"Invalid input";

}
```

⭕ IBM Interview Experience ⭕

📌 Technical Round:

1) **Interviewer will also assess your Problem-Solving Abilities.**
2) **Collage Projects.**
3) **Any One Programming Language of Your Choice. (C++, Java Or Python)**
4) **Questions from basic computer fundamentals.**
5) **Object-Oriented Programming Systems (OOPs).**
6) **Database Management Systems (DBMS).**
7) **Computer Networks (CN).**
8) **Computer Organization and Architecture (COA).**
9) **Operating Systems (OS).**
10) **They Ask Some Basic Java Questions.**
11) **What do you mean by 3NF in DBMS? What is the operating system?**
12) **What is the difference between Java and C++?**
13) **What is a pointer?**
14) **Tell us more about pointer?**
15) **Write about double linked list programs?**
16) **What is Join in DBMS?**

📌 HR Round:

HR Interview's main purpose is to assess:

a) Candidate's Personality.

b) Background.

c) Strengths.

Question From Resume:

a) Personal Information.

b) Data you have Provided.

☑ **Note: Question from IBM's History, including when the Company was Founded, As well As Its Aims, Beliefs, & Organisational Structure.**

1) Tell us something about yourself.

2) Which is your favourite subject and why?

3) Why do you want to work for IBM?

4) Would you be interested in joining any other company?

5) Would you be comfortable working in shifts?

6) What subjects have you done in your project?

7) Why IBM?

8) About IBM?

9) Hobbies?

10) Where Do You See Yourself in The Next Five Years?

11) Why Should I Hire You?

12) Would you be willing to Relocate to other parts of India?

13) What do you want to achieve from this position?

14) What motivates you to join IBM?

15) Describe your internships and projects to me.

16) How would you rate yourself on a scale of 1 to 10?

17) Tell me about a time when you faced difficulty and how did you overcome it?

18) Describe a situation where you worked hard but could not succeed.

☑ **Note: Be Confident & Don't Be Nervous. Be Clear & Throw With Resume Because Most Of The Qsn Are Raised From IT.**