

MID TERM



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Class

1I

Department

Information Technology

Study Program

D4 Informatics Engineering

Question 1

A software development company is looking to hire new employees with exceptional programming talent. They have unique criteria for the selection process:

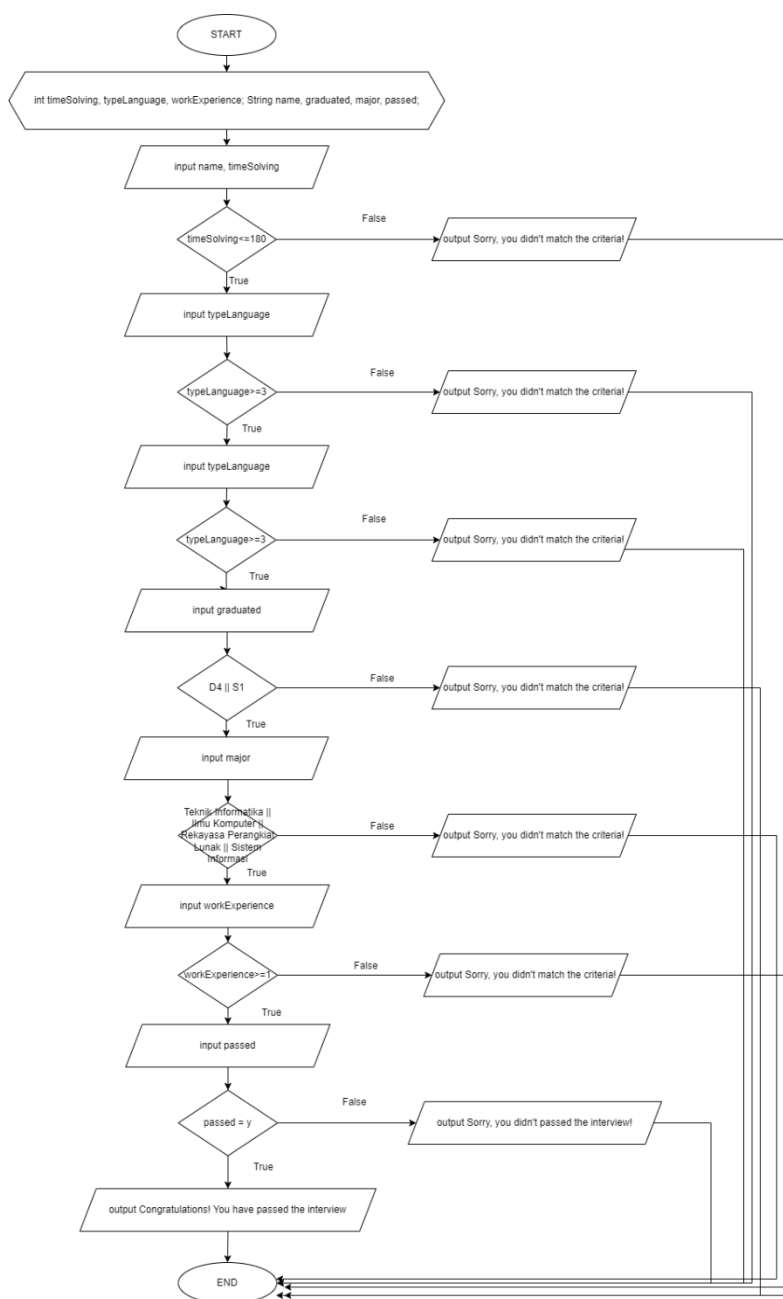
1. Employees must be able to solve complex mathematical problems in a short time, specifically less than 180 minutes.
2. Employees must have in-depth knowledge of programming languages, mastering at least 3 types of programming languages.
3. Employees must have graduated from a D4 or S1 program in Teknik Informatika/Illmu Komputer/Rekayasa Perangkat Lunak/Sistem Informasi.
4. Employees should have at least 1 year of work experience.
5. Employees must have passed the interview.

Employees who meet all these criteria are considered to have passed the selection, otherwise, they are considered to have failed the selection.

Create a program in Java (60%) and complete it with an explanation in the form of a flowchart or narrative (40%)!

```
1 import java.util.Scanner;
2
3 public class q1 {
4     public static void main(String[] args) {
5         Scanner input = new Scanner(System.in);
6         int timeSolving, typeLanguage, workExperience;
7         String name, graduated, major, passed;
8
9         System.out.print(s:"Name: ");
10        name = input.nextLine();
11        System.out.print(s:"Time of problem solving (minutes): ");
12        timeSolving = input.nextInt();
13
14        if (timeSolving <= 180) {
15            System.out.print(s:"Mastering of programming language: ");
16            typeLanguage = input.nextInt();
17            if (typeLanguage >= 3) {
18                System.out.print(s:"Graduated (D4 or S1): ");
19                graduated = input.next();
20                if (graduated.equalsIgnoreCase(anotherString:"D4") || graduated.equalsIgnoreCase(anotherString:"S1")) {
21                    System.out.print(s:"Major: ");
22                    major = input.next();
23                    if (major.equalsIgnoreCase(anotherString:"Teknik Informatika") || major.equalsIgnoreCase(anotherString:"Ilmu Komputer") || major.equalsIgnoreCase(anotherString:"Rekayasa Perangkat Lunak") || major.equalsIgnoreCase(anotherString:"Sistem Informasi")) {
24                        System.out.print(s:"Work experience: ");
25                        workExperience = input.nextInt();
26                        if (workExperience >= 1) {
27                            System.out.print(s:"Is she/he passed the interview? (y/n): ");
28                            passed = input.next();
29                            if (passed.equalsIgnoreCase(anotherString:"y")) {
30                                System.out.println(x:"Congratulations! You have passed the interview!");
31                            } else {
32                                System.out.println(x:"Sorry, you didn't pass the interview!");
33                            }
34                        } else {
35                            System.out.println(x:"Sorry, you didn't match the criteria!");
36                        }
37                    } else {
38                        System.out.println(x:"Sorry, you didn't match the criteria!");
39                    }
40                } else {
41                    System.out.println(x:"Sorry, you didn't match the criteria!");
42                }
43            } else {
44                System.out.println(x:"Sorry, you didn't match the criteria!");
45            }
46        } else {
47            System.out.println(x:"Sorry, you didn't match the criteria!");
48        }
49    }
50 }
```

Name: Sherly
 Time of problem solving (minutes): 180
 Mastering of programming language: 5
 Graduated (D4 or S1): s1
 Major: teknik informatika
 Sorry, you didn't match the criteria!
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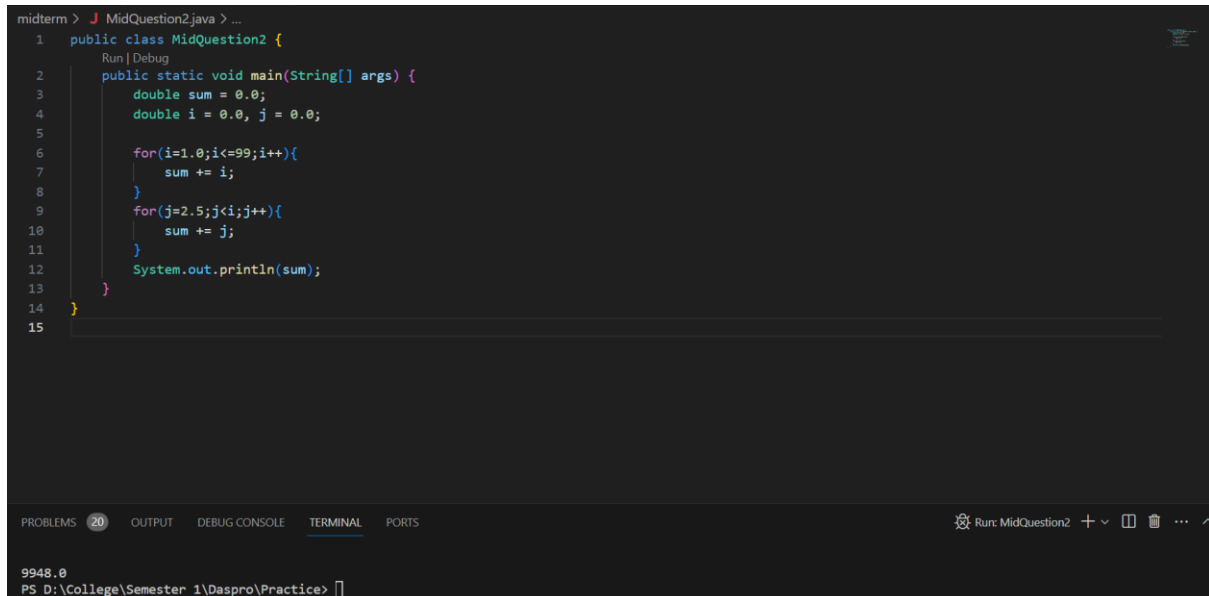
Question 2

Create a program (60%) to display and sum a series of numbers as shown below:

$1.0 + 2.5 + 2.0 + 3.5 + 3.0 + 4.5 + 4.0 + \dots + 99.0 = 9948.0$

Also, provide an explanation of the program (40%) which can be in the form of a flowchart or narrative!

Here's a Java program that uses a for loop to display and sum the series of numbers as shown, followed by an explanation of how the program works:



```
midterm > J MidQuestion2.java > ...
1  public class MidQuestion2 {
2      Run | Debug
3      public static void main(String[] args) {
4          double sum = 0.0;
5          double i = 0.0, j = 0.0;
6
7          for(i=1.0; i<=99; i++){
8              sum += i;
9          }
10         for(j=2.5; j<i; j++){
11             sum += j;
12         }
13         System.out.println(sum);
14     }
15 }
```

9948.0
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The first series is a simple increment of integers from 1 to 99, and the second series is an increment of numbers starting from 2.5 up to the value of 'i,' which is the upper limit of the first series.