**RAJALAKSHMI INSTITUTE OF TECHNOLOGY**
**DEPARTMENT OF TRAINING AND PLACEMENT**
**WIPRO TALENT NEXT JAVA TRAINING (06.02.2023 TO 11.02.2023)**
**Logic Building Hour (LBH) Plan**

**Background:** Improving logic building skill is an important aspect in a programmer's journey. This training program is designed to nurture this skill in beginners. Logic building skill can be improved only by regular and focused practice.

**What is Logic Building Hour (LBH)?**
Logic Building Hour (LBH) is a dedicated 1 to 1.5 hours per day, when the students are expected to work on logic building exercises. The students are advised to choose any 1.5 hours' slot per day as per their convenience.

**Should the students start Logic Building Hour (LBH) from day-1 of the learning?**
No. For the initial 2 to 3 days, the students should focus on understanding the fundamentals of the programming language. It is expected that logic building practice must start from day-3 or day-4.

Below is a suggested day-wise plan to be followed for the Logic Building Hour (LBH)

**Suggested Timing:** 4.30 PM to 6:00 PM (or any slot convenient to the student)

| | |
|---|---|
| **06-02-2023** | **Objective of Day1 and Day2 : Learn the basics of the programming language**<br><br>During the first two days of PBL, the students should have learnt the fundamentals of programminglanguage and should be comfortable with the basic programming constructs.<br>- conditional statements<br>- looping constructs<br>- data types<br>**By the end of Day2 :Students should be able to demonstrate their understanding of 'conditions' and 'loops' by being able to write the below programs**<br>Programs to demonstrate learner's understanding of "Conditional statements"<br>- Write a program to accept a number N and print whether it is positive, negative or zero<br>- Write a program to accept two numbers and print the greater value of the two<br>- Write a program to accept a number N and print whether the number is EVEN or ODD<br>- Write a program to accept two numbers and print whether their sum is EVEN or ODD<br>Programs to demonstrate learner's understanding of "Looping constructs"<br>- Write a program to print all numbers from 1 to 100 i.e. 1 2 3 4 5 6 7 . . . 98 99 100<br>- Write a program to print alternate numbers starting from 1 to 99 i.e. 1 3 5 7 9 11 13 . . . 95 97 99<br>- Write a program to print alternate numbers starting from 0 to 100 i.e. 0 2 4 6 8 10 12 . . . 96 98 100<br>- Write a program to print all numbers backwards from 100 to 0 i.e. 100 99 98 97 96 . . . 4 3 2 1 0<br>- Write a program to print numbers backwards from 100 to 1 by skipping 2 numbers i.e. 100 97 94 91 88 85 82 79. . . 22 19 16 13 10 7 4 1 |

| | |
|---|---|
| **07-02-2023** | **Students who have NOT been able to complete the above mentioned programs on day-2, MUST completethem on day-3.**<br><br>**Objective of Day3: Learn the use of division / and mod % operations to solve problems**<br><br>**Solve the below questions using the respective IDE (Eclipse for Java, Visual studio for C#, vi for C/C++)**<br>• **Is Even?**<br>Write a function to find whether the given input number is Even.<br>If the given number is even, the function should return 2 else it should return 1.<br>**Note:** The number passed to the function can be negative, positive or zero. Zero should be treated as Even.<br><br>• **Is Odd?**<br>Write a function to find whether the given input number is Odd.<br>If the given number is odd, the function should return 2 else it should return 1.<br>**Note:** The number passed to the function can be negative, positive or zero. Zero should NOT betreated as odd.<br><br>• **Return last digit of the given number**<br>Write a function that returns the last digit of the given number.<br>Last digit is being referred to the least significant digit i.e. the digit in the ones (units) place in thegiven number.<br>The last digit should be returned as a positive number.for example,<br>if the given number is 197, the last digit is 7 if the given number is -197, the last digit is 7<br>• **Return second last digit of the given number**<br>Write a function that returns the second last digit of the given number.<br>Second last digit is being referred to the digit in the tens place in the given number.for example,<br>if the given number is 197, the second last digit is 9<br>**Note1 -** The second last digit should be returned as a positive number.<br>i.e. if the given number is -197, the second last digit is 9<br>**Note2 -** If the given number is a single digit number, then the second last digit does not exist. In suchcases, the function should return -1.<br>i.e. if the given number is 5, the second last digit should be returned as -1<br>• **Sum of last digits of two given numbers**<br>Rohit wants to add the last digits of two given numbers.For example,<br>If the given numbers are 267 and 154, the output should be 11.Below is the explanation -<br>Last digit of the 267 is 7 Last digit of the 154 is 4Sum of 7 and 4 = 11<br>Write a program to help Rohit achieve this for any given two numbers.The prototype of the method should be - |

int addLastDigits(int input1, int input2);
where input1 and input2 denote the two numbers whose last digits are to be added.
Note: The sign of the input numbers should be
ignored.i.e.
if the input numbers are 267 and 154, the sum of last two digits should be
11 if the input numbers are 267 and -154, the sum of last two digits should
be 11 if the input numbers are -267 and 154, the sum of last two digits
should be 11 if the input numbers are -267 and -154, the sum of last two
digits should be 11

**Objective of Day4: Learn the usage of the mettl tool**

Mettl is an automated evaluation tool for coding tests.
Students are advised to read the "Mettl User Guide" to learn the usage of the tool..

**Solve the below questions on mettl**
**Note –** These are same questions as day-3 questions. The focus on day-4 is to learn the usage of mettl.

| Question Title | Mettl Practice Test Link |
|---|---|
| Is Even? | https://tests.mettl.com/authenticateKey/2bd025dc |
| Is Odd? | https://tests.mettl.com/authenticateKey/dbdac2a9 |
| Return last digit of the given number | https://tests.mettl.com/authenticateKey/454f012b |
| Return second last digit of given number | https://tests.mettl.com/authenticateKey/9f87004e |
| Sum of last digits of two given numbers | https://tests.mettl.com/authenticateKey/783a1fcf |

**08-02-2023**

**Objective of Day5: Learn the use of division / and mod % operations to solve problems**

| Question Title | Mettl Practice Test Link |
|---|---|
| Is N an exact multiple of M? | https://tests.mettl.com/authenticateKey/36c4ef58 |
| Of given 5 numbers, how many are even? | https://tests.mettl.com/authenticateKey/8edbe922 |
| Of given 5 numbers, how many are odd? | https://tests.mettl.com/authenticateKey/67147bd5 |
| Of 5 numbers, how many are even or odd? | https://tests.mettl.com/authenticateKey/607636d7 |

**Logic building approach:** Read the document "**An Approach to Logic Building**" (mainly section-B) available in the "Logic Building" link in PBLApp. It suggests a "Divide-and-Conquer" approach to be followed by beginners while developing logic. Students are expected to read the document carefully and follow the approach while solving all subsequent logic building problems.

**Objective of Day6: Learn to solve math based number problems (will require loops and maths)**

| Question Title | Mettl Practice Test Link |
|---|---|
| Is Prime? | https://tests.mettl.com/authenticateKey/b1efaa3d |
| Factorial of a number | https://tests.mettl.com/authenticateKey/8c1f2ae |
| Nth Fibonacci | https://tests.mettl.com/authenticateKey/f390cadf |
| Nth Prime | https://tests.mettl.com/authenticateKey/34fdaa41 |

**09-02-2023**

**Objective of Day7: Learn to solve math based number problems (will require loops and maths)**

| Question Title | Mettl Practice Test Link |
|---|---|
| Number of Primes in a specified range | https://tests.mettl.com/authenticateKey/87c41143 |
| All Digits Count | https://tests.mettl.com/authenticateKey/ed6b4da |
| Unique Digits Count | https://tests.mettl.com/authenticateKey/b7aac4a5 |
| Non-Repeated Digits' Count | https://tests.mettl.com/authenticateKey/e46500f5 |

**Objective of Day8: Learn to solve number based problems (will require loops)**

| Question Title | Mettl Practice Test Link |
|---|---|
| digitSum : sum of all digits in N | https://tests.mettl.com/authenticateKey/ab1d60cc |
| digitSum even: sum of even digits in N | https://tests.mettl.com/authenticateKey/b55d1714 |
| digitSum odd: sum of odd digits in N | https://tests.mettl.com/authenticateKey/738fdee0 |
| digitSum opt: sum of even or odd digits | https://tests.mettl.com/authenticateKey/a05abbcf |

**10-02-2023**

**Objective of Day9: Learn to solve number based problems**

| Question Title | Mettl Practice Test Link |
|---|---|
| Is Palindrome Number? | https://tests.mettl.com/authenticateKey/28c41d9d |
| Is Palindrome Possible? | https://tests.mettl.com/authenticateKey/f4fdb02 |
| Create PIN using alpha, beta, gamma | https://tests.mettl.com/authenticateKey/be582d9f |
| Weight of a hill pattern | https://tests.mettl.com/authenticateKey/d612c0e6 |

**Objective of Day10: Learn to solve number & string based problems**

| Question Title | Mettl Practice Test Link |
|---|---|
| Return second word in Uppercase | https://tests.mettl.com/authenticateKey/4a72723f |
| is Palindrome (string) | https://tests.mettl.com/authenticateKey/ffe8042 |
| weight of string | https://tests.mettl.com/authenticateKey/387952fc |
| Most Frequent Digit | https://tests.mettl.com/authenticateKey/916310b8 |

**11-02-2023**

**String based programs (part-1) -**

| Question Title | Mettl Practice Test Link |
|---|---|
| FindStringCode | https://tests.mettl.com/authenticateKey/e4df74e5 |
| Get Code Through Strings | https://tests.mettl.com/authenticateKey/75c9faf0 |
| Addition using Strings | https://tests.mettl.com/authenticateKey/2f174a80 |

**Array based programs -**

| Question Title | Mettl Practice Test Link |
|---|---|
| Simple Encoded Array | https://tests.mettl.com/authenticateKey/1557c062 |
| Decreasing sequence | https://tests.mettl.com/authenticateKey/8e68e9a4 |
| Most Frequently Occurring Digit | https://tests.mettl.com/authenticateKey/cbe4c4da |

**Number based programs -**

| Question Title | Mettl Practice Test Link |
|---|---|
| Sum of Powers of Digits | https://tests.mettl.com/authenticateKey/92437794 |
| Sum of Sums of Digits in Cyclic order | https://tests.mettl.com/authenticateKey/1ddbe65e |

**String based programs (part-2) –**

| Question Title | Mettl Practice Test Link |
|---|---|
| Identify possible words | https://tests.mettl.com/authenticateKey/13486c16 |
| Encoding Three Strings | https://tests.mettl.com/authenticateKey/f05028d5 |

**Reference**

Number based programs -

| Question Title | Mettl Practice Test Link |
|---|---|
| **Generate series and find Nth element** | https://tests.mettl.com/authenticateKey/d2272e10 |
| **Find result after alternate add_sub on N** | https://tests.mettl.com/authenticateKey/814effc3 |
| **Find Password (stable unstable)** | https://tests.mettl.com/authenticateKey/5106dfd |
| **Calculate sum of non-prime index values** | https://tests.mettl.com/authenticateKey/596e522f |
| **Find the one digit to be removed to form palindrome** | https://tests.mettl.com/authenticateKey/6d825776 |

String based programs -

| Question Title | Mettl Practice Test Link |
|---|---|
| **The "Nambiar Number" Generator** | https://tests.mettl.com/authenticateKey/7db6c8a4 |
| **User ID Generation** | https://tests.mettl.com/authenticateKey/592740f3 |
| **Message controlled Robot movement** | https://tests.mettl.com/authenticateKey/aedcc3a6 |

**Happy Coding!!**

**MCQ- https://www.sanfoundry.com/java-questions-answers-freshers-experienced/**
**Coding bat Java Solutions- http://www.javaproblems.com/2013/11/logic-1-codingbat-full-solutions.html**