

☒ Level 1 – Basic Loop Logic

1. Sum of 10 numbers
 2. Find factorial of a given number ($n!$)
 3. Print sum series $1 + 4 + 9 + 16 + \dots + n$
 4. Print digits of a number in reverse order
 5. Print sum of digits of a given number
 6. Perform multiplication without using * operator
 7. Calculate x^y without using power operator
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☒ Level 2 – Loops with Conditional Logic (if inside loop)

8. Print numbers divisible by 2 between two numbers
9. Find factors of a given number
10. Find the sum of all divisors of a number
11. Find the GCD (Greatest Common Divisor) of two numbers
12. Find the LCM (Least Common Multiple) of two numbers

13. Check whether a number is a Perfect Number.

(A perfect number is a positive integer that is equal to the sum of its positive divisors, excluding the number itself. A divisor of an integer x is an integer that can divide x evenly.)

14. Check whether a number is a Harshad Number.

(An integer num which is divisible by the sum of its digits is said to be a Harshad number.)

15. Check whether a number is Prime or Not

16. Print the Fibonacci Series

17. Find the sum of series $1 - 2 + 3 - 4 + 5 - 6 + \dots \pm n$.

Check if given number is a Happy Number or not

Check if given number is a Ugly Number or not.

(a n ugly number is a positive integer which does not have a prime factor other than 2, 3, and 5.)

1. Find the sum of $1+(1+2)+(1+2+3)+\dots+(1+2+3+\dots+n)$
2. Power without using multiplication and power operator
3. implement a pattern

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

4. implement a pattern

*

* * *

* * * * *

5. implement a pattern

1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

6. Find a Largest Element in array

7. Find a Smallest Element in array

8. Search for an element in Array

9. Reverse an Array Elements

27.

```
*
```

```
* *
```

```
* * *
```

```
* * * *
```

```
* * * * *
```

28.

```
1
```

```
1 2
```

```
1 2 3
```

```
1 2 3 4
```

```
1 2 3 4 5
```

29.

```
A
```

```
B B
```

```
C C C
```

```
D D D D
```

```
E E E E E
```

30.

```
* * * * *
```

```
* * * *
```

```
* * *
```

```
* *
```

```
*
```

31.

```
1 2 3 4 5  
1 2 3 4  
1 2 3  
1 2  
1
```

32.

```
*  
* * *  
* * * * *  
* * * * * * *  
* * * * * * * * *
```

33.

```
1  
2 3 2  
3 4 5 4 3  
4 5 6 7 6 5 4  
5 6 7 8 9 8 7 6 5
```

34.

```
* * * * * * * * *  
* * * * * * *  
* * * * *  
* * *  
*
```

35.

		1			
	1		1		
1	1	2	1		
1	3	3	1		
1	4	6	4	1	
1	5	10	10	5	1

36.

1
2 3
4 5 6
7 8 9 10

37.

1
2 2
3 3 3
4 4 4 4

Number
Triangular

38.

1
0 1
1 0 1
0 1 0 1

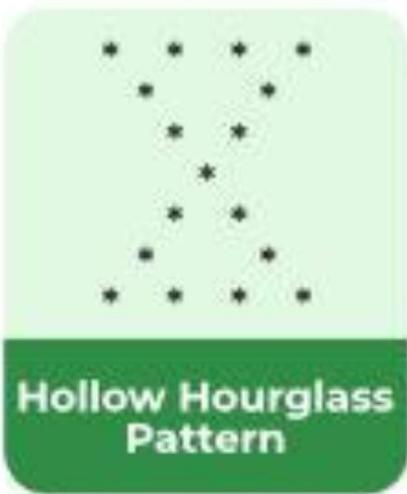
Zero-One
Triangle

39.

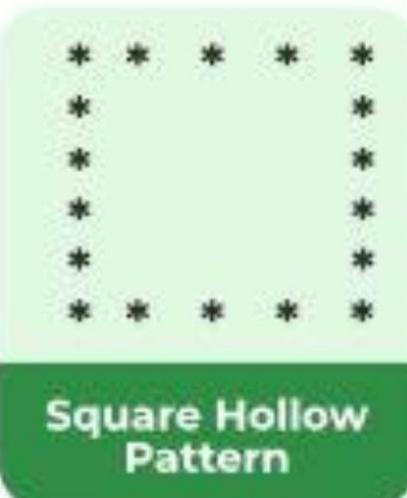


Diamond Pattern

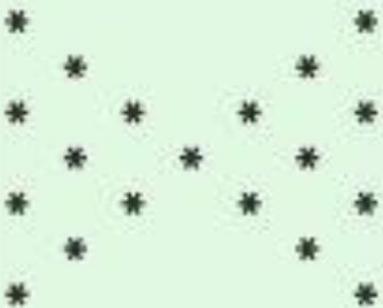
40.



41.

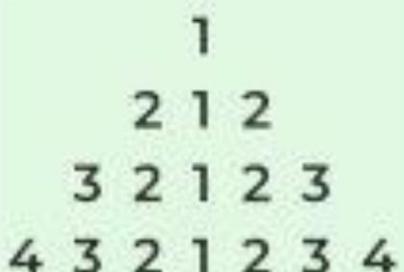


42.



**Butterfly
Star Pattern**

43.



**Palindrome
Triangular**

Level 4

44. Write a program to input and display elements of an array.
45. Write a program to find the sum and average of elements in an array.
46. Write a program to find the maximum and minimum elements in an array.
47. Write a program to count total even and odd numbers in an array.
48. Write a program to reverse the elements of an array.
49. Write a program to copy all elements from one array to another.
50. Write a program to search a given element in an array (Linear Search).
51. Write a program to sort array elements in ascending order.
52. Write a program to find the second largest and second smallest elements in an array.
53. Write a program to insert an element at a specific position in an array.
54. Write a program to delete an element from a specific position in an array.
56. Write a program to merge two arrays into a single array.

57. Write a program to find the frequency of each element in an array.
58. Write a program to remove duplicate elements from an array.
59. Write a program to display unique elements of an array.
60. Write a program to count the total number of duplicate elements in an array.
61. Write a program to find the sum of diagonal elements of a 2D matrix.
61. Write a program to find the transpose of a matrix.
62. Write a program to multiply two matrices.
63. Write a program to find the intersection of two arrays.
64. Write a program to find the union of two arrays.
65. Write a program to rotate array elements to the left or right.
66. Write a program to sort array elements using the selection sort technique.