PROGRAMING QUESTIONS

NOTE

→All programs should be implemented with Scanner class for input operations.

→ Avoid using inbuilt or predefined methods in the programs

1- SECTION-1

1.1 Part 1

1. WAPT add two numbers without using + or+= operator

2. WAPTP sum of the numbers between m to n

3. WAPTP product of the numbers between m to n

4. WAPT count the numbers from m to n

5. WAPT swap two numbers without using third variable

6.WAPT swap two numbers with Using third variable

7. WAPTP square of a given number

8. WAPTP cube of a given number

9. WAPTP factorial value of a number

10. WAPTP factors of the number

11. WAPTP Fibonacci series

12. WAPTP the exponential value for a given base and power (x ^ n)

13. WAPT extract digits in reverse order

14. WAPT to print the count of digits in a number

15. WAPT to print the sum of digits in a number

16.WAPT to print the product of digits in a number

17. WAPT Reverse a Number

18.write a program to print the difference of two numbers without – or -= operator

19.wirte a program to print double the number without + operatot

20.wirte a program to half the number without + operator

1.2 Part 2

1.Solid square of `*` (5x5)

*	*	*	*	*
*	*	*	*	*
*	*	*	*	*
*	*	*	*	*
*	*	*	*	*

2. Hollow square of `*` (5x5)

*	*	*	*	*
*				*
*				*
*				*
*	*	*	*	*

3. Square with diagonal elements as `*`, rest as space

*				*
	*		*	
		*		
	*		*	
*				*

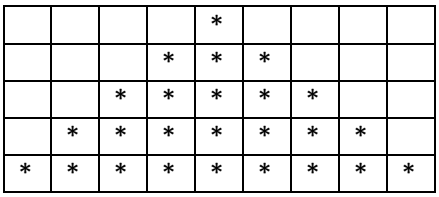
4. Right-angled triangle using `*`

*				
*	*			
*	*	*		
*	*	*	*	
*	*	*	*	*

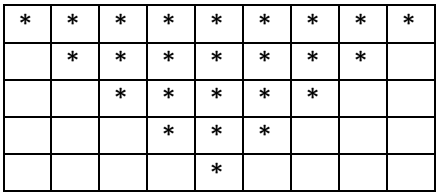
5. Inverted right-angled triangle using `*

*	*	*	*	*
*	*	*	*	
*	*	*		
*	*			
*				

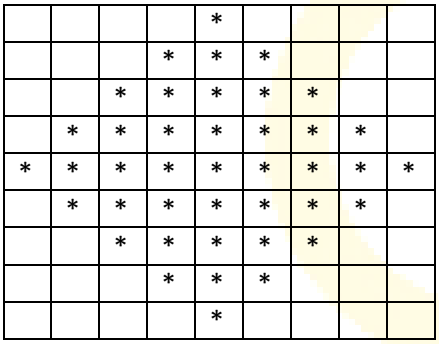
6. Full pyramid using `*`



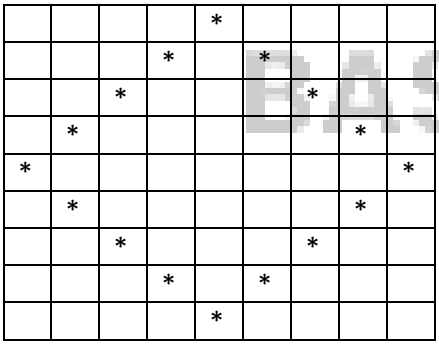
7. Inverted full pyramid using `*`



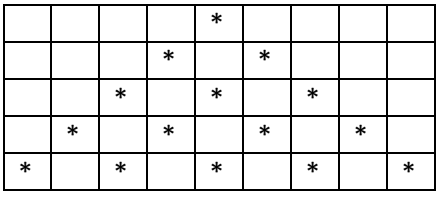
8. Diamond Pattern (Size = 5)



9. Hollow Diamond Pattern



10.triangle



1.3 Part 3

1. **WAPT Print all elements in an array.**

2. **WAPT to count the No. of elements in an array.**

3. **WAPT Print the elements of an array in reverse order.**

4. **WAPT Print all elements at even indices in an array.**

5. **WAPT Calculate the sum of all elements in an array.**

1.4 Part 4

1. **WAPT to print all the character present in a string**

2. **WAPT to print all the words present in a string**

3. **WAPT convert the string into char array (without toCharArray(_))**

4. **WAPT Reverse a given String**

5. **WAPT convert string into array of words**

2-Section 2

2.1 Part1

1.Wirte a program to print the factors of a given number

2. WAP to print the sum of the factors of a number.

3. WAP to print the product of the factors of a number.

4. WAP to print sum of even and odd factors in a given number.

5. WAP to print product of even and odd factors in a given number

6. WAP to count the digits in a given number.

7.. WAP to print even digits in a given number.

8. WAP to print odd digits in a given number

9. WAP to print sum of digits in a given number

10. WAP to print product of digits in a given number

11.WAP to print sum of even digits in a given number

12. WAP to check whether the given number is prime or not.

13. WAP to print the prime numbers in between m to n

14. WAP to print the nth prime number

15. WAP to print product of prime digits in a given number.

16. WAP to Print the next prime number for a given number.

17.write a program to print non Fibonacci series in between the range

18. WAP to Find the largest digit in a given number.

19. WAP to Find the smallest digit in a given number.

20. WAP to Find the GCD or HCF of two numbers.

21. WAP to Find the LCM of two numbers.

22.WAP to Find the nth Largest digit in a given number.

23. WAP to Find the nth smallest digit in a given number

24. WAP to Find the binary representation of a number.

25. WAP to Find the decimal representation of a binary number

2.2 Part 2

1.

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

2.

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

3.

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

4.

1	0	1	0	1
0	1	0	1	0
1	0	1	0	1
0	1	0	1	0
1	0	1	0	1

5.

0	1	2	3	4
1	2	3	4	5
2	3	4	5	6
3	4	5	6	7
4	5	6	7	8

6.

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

7.

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

8. Floyd's Triangle

1				
2	3			
4	5	6		
7	8	9	10	
11	12	13	14	15

9.

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

10.

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

				1				

11.

				A				
			A	B	A			
		A	B	C	B	A		
	A	B	C	D	C	B	A	
A	B	C	D	E	D	C	B	A

12.

A	B	C	D	E	D	C	B	A
	A	B	C	D	C	B	A	
		A	B	C	B	A		
			A	B	A			
				A				

13.

				1				
			2		3			
		4		5		6		
	7		8		9		10	
11		12		13		14		15

14.

				1				
			3		5			
		7		9		11		
	13		15		17		19	
21		23		25		27		29

15.

		1		
	2	2	2	
3	3	3	3	3
	2	2	2	
		1		

16.

		1		

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

17.

		A		
	B	B	B	
C	C	C	C	C
	B	B	B	
		A		

18.

		A		
	A	B	C	
A	B	C	D	E
	A	B	C	
		A		

19.

		*		
	*		*	
*		*		*
	*		*	
		*		

20.

		A		
	A	A	A	
A	A	A	A	A
	A	A	A	
		A		

2.3 Part 3:

1.WAPT Print all duplicate elements in an array.

2. WAPT Sort an array with using predefined method.

3. WAPT Merge two arrays.

4. WAPT Print the largest element in a given array.

5. WAPT Print the smallest element in a given array.

6. WAPT Find the frequency of each element in an array.

7. WAPT to copy all elements from one array to another

8. Calculate the sum of all even elements in an array.

9. Calculate the sum of all odd elements in an array.

10. Calculate the sum of the first and last elements in an array.

11. Calculate the sum of the last two elements in an array.

12. Calculate the sum of all prime numbers in a given array.

13. Calculate the multiplication of all elements in an array.

14. Calculate the multiplication of all even elements in an array.

15. Calculate the multiplication of all prime numbers in a given array.

16. Calculate the average value of all elements in a given array.

17. Check if the multiplication of the last two elements in an array is even.

18. Merge two arrays and find duplicate elements in the merged array

19. Calculate the sum of duplicate elements in a given array.

20. Sort only the positive elements in a given array.

21. Merge two arrays and sort the merged elements(using inbuilt method)

22.swap only the first two and last two elements in a given array.

23.swap first and last elements in the array

24. Print the second largest element in an array.

25. Print the second smallest element in an array.

26.Print the nth largest element in a given array.

27. Print the nth smallest element in a given array.

28. Print the largest even element in a given array.

29. Print the largest prime number in a given array.

30.Calculate the average of the largest and smallest elements in an array

2.4 Part 4

1.wirte a program to print the digits,upper case,lower case characters present in the string

2.wirte a program to print the sum of digits in a given string

3.write a program to check wether two string are equal or not,without using equals method

4.write a program to convert Upper case alphabets to lower case alphabets without using toLowerCase()

5.wirte a program to convert Lower case alphabets to upper case alphabets without using toUpperCase()

6. Convert a string to its ASCII representation.

7. Replace all vowels in a string with a given character.

8. Find the smallest and largest words in a string.

9. Find the longest palindrome word in a string

10. WAPT Check if a string is made up of unique characters.

11.WAPT Reverse each word in a string individually

12. Implement your own substring() method.

13.Find the first repeating character in a string

14.WAPT Remove a specific character from a string

15. Count the frequency of each character in a string.

3-Section 3

3.1 Part 1

1. WAP to check whether the given number is Twisted Prime Number or not.

2. WAP to check whether the given number is a Mega Prime Number or not.

3. WAP to check whether the given number is a Palindrome Number or not

4. WAP to check whether the given number is a SPY Number or not.

5. WAP to check whether the given number is a Perfect Number or not.

6. WAP to check whether the given number is a Strong Number or not.

7. WAP to check whether the given number is a Neon Number or not.

8. WAP to check whether the given number is an Armstrong Number or not.

9. WAP to check whether the given number is a Sunny Number or not.

10. WAP to check whether the given number is an Automorphic Number or not.

11. WAP to check whether the given number is a Magic Number or not.

12. WAP to check whether the given number is a Tech Number or not.

13. WAP to check whether the given number is a Harshad (Niven) Numb

14. WAP to print the Twisted Prime numbers present in the range of m to n.

15. WAP to print the Mega Prime numbers present in the range of m to n.

16. WAP to print the Palindrome numbers present in the range of m to n.

17. WAP to print the SPY numbers present in the range of m to n.

18. WAP to print the Perfect numbers present in the range of m to n.

19. WAP to print the Strong numbers present in the range of m to n.

20 . WAP to print the Neon numbers present in the range of m to n.

21. WAP to print the Armstrong numbers present in the range of m to n.

22. WAP to print the Sunny numbers present in the range of m to n.

23. WAP to print the Automorphic numbers present in the range of m to n.

24. WAP to print the Magic numbers present in the range of m to n.

25. WAP to print the Tech numbers present in the range of m to n.

26. WAP to print the Harshad (Niven) numbers present in the range of m to n.

27.wirte a program to print Tribonacci series in between the range

38.WAPT to convert the decimal to binary representation

39.WAPT to convert the Binary to decimal Representation

40.WAPT to convert the decimal to binary and count the number of 1's in binary reperesentation

41. WAP to print the nth Twisted Prime number.

42. WAP to print the nth Mega Prime number.

43. WAP to print the nth Palindrome number.

44. WAP to print the nth Automorphic number.

45. WAP to print the nth Magic number.

3.2 Part 2

1.

1	2	3	4
8	7	6	5
9	10	11	12

16	15	14	13

2.

				1				
			1		1			
		1		2		1		
	1		3		3		1	
1		4		6		4		1

3.

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

4.

A								
	B	C						
		D	E	F				
			G	H	I	J		
				K	L	M	N	O

5.

				A				
			A	B	A			
		A	B	C	B	A		
	A	B	C	D	C	B	A	
A	B	C	D	E	D	C	B	A
	A	B	C	D	C	B	A	
		A	B	C	B	A		
			A	B	A			
				A				

6.

				A				
			B		B			

		C				C		
	D						D	
E								E
	D						D	
		C				C		
			B		B			
				A				

7.

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

8.

*	*	*	*	*	*	*	*	*
	*	*	*	*	*	*	*	
		*	*	*	*	*		
			*	*	*			
				*				
			*	*	*			
		*	*	*	*	*		
	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*

9.

*									*
*	*							*	*
*	*	*					*	*	*
*	*	*	*			*	*	*	*
*	*	*	*	*	*	*	*	*	*
*	*	*	*			*	*	*	*
*	*	*					*	*	*
*	*							*	*
*									*

10.

*	*	*	*	*	*	*	*	*
	*						*	
		*				*		
			*		*			
				*				
			*		*			
		*				*		
	*						*	
*	*	*	*	*	*	*	*	*

3.3 Part 3

1.Check if the sum of all even elements is a strong number

2.Write a Java Program for MergeSort Problem

Implement a Java program for MergeSort algorithm to sort an array in ascending order.
Example Input: arr = [12, 11, 13, 5, 6, 7]
Example Output: arr = [5, 6, 7, 11, 12, 13]

3. Write a Java Program for QuickSort Problem:

Implement a Java program for QuickSort algorithm to sort an array in ascending order.

Example Input: arr = [10, 7, 8, 9, 1, 5]

Example Output: arr = [1, 5, 7, 8, 9, 10]

4. Write a Java Program for insertion Problem:

Implement a Java program for insertionSort algorithm to sort an array in ascending order.

Example Input: arr = [10, 7, 8, 9, 1, 5]

Example Output: arr = [1, 5, 7, 8, 9, 10]

5. Write a Java Program for SelectionSort Problem:

Implement a Java program for SelectionSort algorithm to sort an array in ascending order.

Example Input: arr = [10, 7, 8, 9, 1, 5]

Example Output: arr = [1, 5, 7, 8, 9, 10]

6. Write a Java Program for BubbleSort Problem:

Implement a Java program for BubbleSort algorithm to sort an array in ascending order.

Example Input: arr = [10, 7, 8, 9, 1, 5]

Example Output: arr = [1, 5, 7, 8, 9, 10]

7.Wirte a program to rearrange the elements present in an array in descending order(without using sort())

8.Wirte a program to print the max sum of two elements present in two arrays

9.Wirte a program to print the max difference of two elements present in same array

10.Wirte a program to check wheather the array elements are in increasing,decreasing or random order

3.4 Part 4

1.Remove Characters from First String Present in Second Given two strings, remove all characters from the first string that appear in the second.

Example: Input: str1 = "computer", str2 = "cat"

Output: "ompuer"

2.Write a program to check wheather two string are anagram to each other or not

Example Input str1=”Pool” str2=”loop”

Output :”true”

3.Wirte a a program to capitalize the first letter of each word in a string.

Example: Input: "hello world"

Output: "Hello World"

4.Write a program to Generate and print all possible substrings of a given string.

Example: Input: "abc"

Output: "a", "ab", "abc", "b", "bc", "c"

5.Wirte a program to reverse the characters present in a string without altering the position of special characters

Example :Input :”abc%123&”

Output : 321%cba&”

6.

Write a program to print the first longest substring without repeating characters.

Example: Input: "abcabcbb"

Output: 3

7.Write a program to arrange the alphabet string in alphabetic order

Example :input=”java programing “:

Output:aaaggijmnoprrv