# Core Java Practice Programs for logic building

(Q1) WAP to input a String and count all whitespace, uppercase, lowercase letters?

Note: ASCII Value for upper case is 65 to 90.

Lowercase is 97 to 122

Space is 32

(Q2) Swap two numbers?

1. By using temp variable (b) by using + and – operators (c) by using \* and / operators
2. Using Bitwise operator a^b. it is XOR operator. If a=10 means 1010 and b=20 means 10100

If both value is same then return 1 else 0

1010 =10

10100 =20

11110 =30

(Q3) Reverse a number?

1. By logic/algorithm Note: % returns reminder. Example: 32%10=2

/ returns reminder. Example 32/10=3.2 if assigned to int then 3

1. By using StringBuffer. Note: to convert int to String we have String.valueOf(a) where a = holding integer.

(Q4) Reverse a String? [Frequently Asked Java Program 03: Reverse A String | 3 Ways of Reverse a String (youtube.com)](https://www.youtube.com/watch?v=1_hhywLAO5o&list=PLUDwpEzHYYLtgkXK6YaZ4I2XcsjMqIaEa&index=3)

(Q5) Check if number is palindrome (उल्टा सीधा एक समान) or not?

(Q6) Check if String is palindrome or not?

(Q7) count number of digits in a number? Example 342 ->3 digits

(Q8) Count even and odd digits in a number?

If number=155678

Even=2 odd=4

(Q9) Find some of digits of a number?

If number=1234

Sum=1+2+3+4=10

(Q10) Find Largest among three numbers?

Use ternary operators as well.

(Q11) Generate Fibonacci series? [Frequently Asked Java Program 10: Generate Fibonacci series (youtube.com)](https://www.youtube.com/watch?v=QqX1ExNAev0&list=PLUDwpEzHYYLtgkXK6YaZ4I2XcsjMqIaEa&index=10)

0 and 1 is by default first two numbers then each upcoming number is sum of last two numbers

(Q12) WAP to Check Given number is prime or not? V.V.I it has logic I have not implemented

Note: Any number which is greater than 1 and has only 2 factors (1 and itself) is prime number.

Example: 3, 5, 7, 11, 13 etc.

[Frequently Asked Java Program 11: Check Given Number is Prime Or Not - YouTube](https://www.youtube.com/watch?v=vwjhT_OTp1w&list=PLUDwpEzHYYLtgkXK6YaZ4I2XcsjMqIaEa&index=11)

(Q13) How to generate random numbers and String?

(Q14) How to find factorial of a number?

(Q15) WAP to find out sum of elements in an integer array?

If int[] arr={5,2,3}; then sum=5+2+3=10

(Q16) WAP to print even and odd number from an Array?

(Q17) How to check two arrays are equals or not?

Note: (1) Arrays.equal(arr1,arr2) ; (2) Write logic

(Q18) How to find missing number in an array?

Note: 4 Conditions are (1): only one element should be missing (2) Array should not contain duplicates (3) no need to be in sorted order (4) elements should be in range Example 1 to 5 or 2 to 8 etc.

How to do it? (1) First of all find the shortest element and find the maximum element.

(2) Than use a loop to count the sum of elements between shortest and largest including these elements. And store it in requiredSum variable (3) Then count the sum of each element present inside the array and store it inside totalSum.

(4) the difference between requiredSum - totalSum will give the output

(Q19) How to find minimum and maximus element in an array?

[Frequently Asked Java Program 18: How To Find Maximum & Minimum Values in Array - YouTube](https://www.youtube.com/watch?v=Jrr0bNcPFgo&list=PLUDwpEzHYYLtgkXK6YaZ4I2XcsjMqIaEa&index=18)

(Q20) How to find duplicate elements in an array?

(Q21) Find element in an array (Linear search) and return true/false?

(Q22) Binary search algorithm ?

First of all sort the Array. Than find the mid value.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | 6 | 9 | 11 | 15 | 18 | 27 | 50 |
| L (index 0) |  |  | (0+7)/2=3 Mid |  |  |  | H (index 7) |

Now if we have to search 18 then first of all compare it to min value (here 11). If our value (18) is greater than mid (11) than search in right side only.

Now new index of L is mid index +1 which is 4 (here in the above array) and new index of Mid is (4+7)/2= 5

[Frequently Asked Java Program 21: Searching an Element in Array | Binary Search (youtube.com)](https://www.youtube.com/watch?v=Ze7Yecs49MA&list=PLUDwpEzHYYLtgkXK6YaZ4I2XcsjMqIaEa&index=21)

(Q23) Bubble Sort technique (How to Sort an Array)?

[Frequently Asked Java Program 22: Sort Elements in Array | Bubble Sort - YouTube](https://www.youtube.com/watch?v=cJ2eMUiCFy4&list=PLUDwpEzHYYLtgkXK6YaZ4I2XcsjMqIaEa&index=22&t=411s)

(Q24) Short Arrays element using built-in methods?

Hint: Arrays.*sort*(arr); Arrays.*parallelSort*(**arr**);

Sorting Array in Reverse/descending order: Arrays.*sort*(arr,Collections.*reverseOrder*());

(Q25) How to remove junk or special character from a String?

Hint: String class has replaceAll method.

[Frequently Asked Java Program 24: How To Remove Junk or Special Characters in String (youtube.com)](https://www.youtube.com/watch?v=x0SghWs1bsE&list=PLUDwpEzHYYLtgkXK6YaZ4I2XcsjMqIaEa&index=24)

(Q26) How to remove all white spaces in a String?

Hint: same above method will work. [\\s](file:///\\s) represent white space so replace it with empty

(Q27) How to find Occurrence of each character in a String?

(Q28) WAP to count word in a string?

Example: “My name is amit kumar and I am a java backend developer using spring boot JPA/Hibernet and Spring security. My responsibility is to create API/urls so any front end technology like angular or react app can use it.” Here 38 words.

String[] split = s.split(" ", 0);

System.***out***.println(split.length);

(Q29) How to reverse each word in a string?

[Frequently Asked Java Program 28: How To Reverse Each Word in a String (youtube.com)](https://www.youtube.com/watch?v=uYLkKT-VrmM&list=PLUDwpEzHYYLtgkXK6YaZ4I2XcsjMqIaEa&index=28)

(Q30) How to read/write data into text file?

(Q31) WAP to Remove Duplicate Characters in a given String?

(Q32) How to Sort an Array of numbers? Hint: use any Sorting technique like bubble, linear, quick short

(Q33) How to sort an Array of Strings? Hint String is an Object which has implemented Comparable(I) hence we can use Arrays.sort(). There is no other logic but to use inbuilt classes and methods.

(Q34) Sort an Array of String in reverse order?

Hint: Collections(C) has static method. Arrays.sort(array, Collections.reverseOrder());

(Q35) Sort an Array of Employee (id, name, age, salary) objects based on there age. If age is same than compare based on there salary?

(Q36) There is an Integer Array which is holding {10,22,14,40,35,51}. Sort this array based on there sum of digits? Example 22=2+2=4, 14=1+4=5 hence 14 is bigger than 22.