While folks are joining

Get you laptops ready and login to www.crio.do.
We will be coding away in the session!

DSA-1

Session 1

Content of Foundation Series DSA-2 Sprint

DSA1 (4 weeks)

- Programming Essentials
  - Programming Constructs
  - Simple Math
  - Collections
  - Simple Data Structures

DSA-2 (4 weeks)

- Arrays
  - Implementation
  - Two Pointers
  - Prefix Sum
  - Sorting
  - Binary Search
  - Bit Manipulation

DSA-3 (4 weeks)

- Stack
- Queue
- Hash
- Linked List
- Trees
- Heap

Weekly Sprint Schedule

Mon	8:00 pm - 9:00 pm	Live Q&A
Tue	7:30 pm - 9:00 pm	Live Working Session 1
Wed	8:00 pm - 9:00 pm	Live Q&A
Thu	7:30 pm - 9:00 pm	Live Working Session 2
Fri		
Sat	11:00 am - 12:30 pm	Live Working Session 3
Sun	3:00 pm - 4:00 pm	Live Q&A

Notes

* Session attendance is **mandatory** (recordings will be shared)

* Live Q&A attendance is optional

* You **must** complete all assignments within the allotted time

Every month: 3 weeks of classes + 1 week of revision/catch-up/practice

One stop for all information

https://sites.google.com/criodo.com/crio-dsa-1-august/home

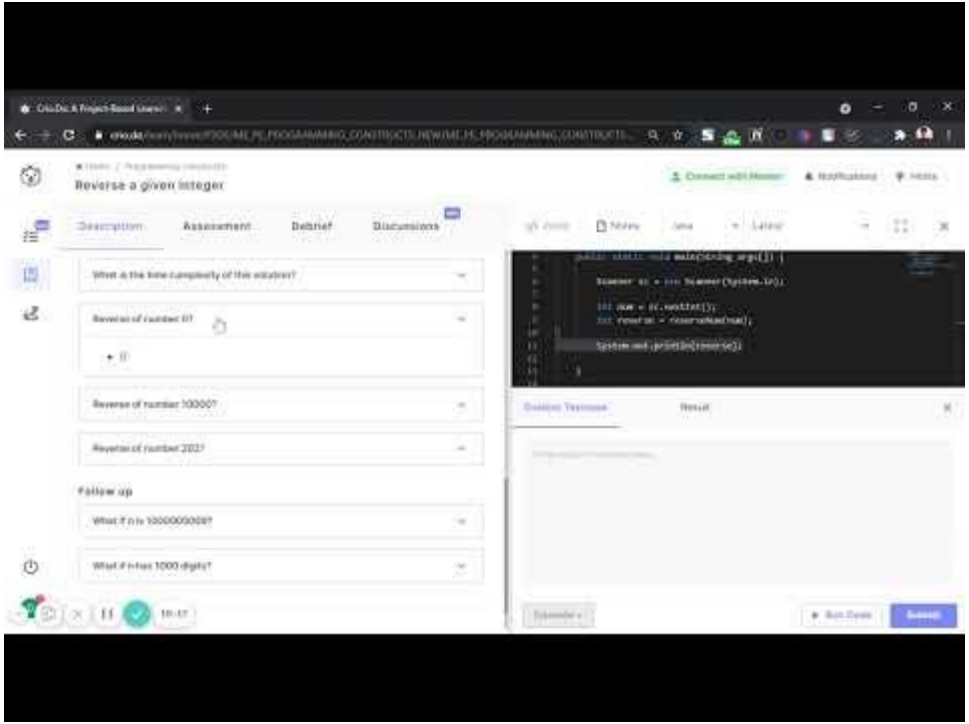
Please bookmark this.

If you want to fast track your progress, please mail us at fsd@criodo.com

What’s for this session?

- Introduction to Crio DSA platform
- Recap
  - Data types
  - Constraints
  - Simple data structures
    - Arrays
    - String
  - Programming constructs
    - Conditionals
    - Loops
- Solve problems

Introduction to the Crio DSA Platform

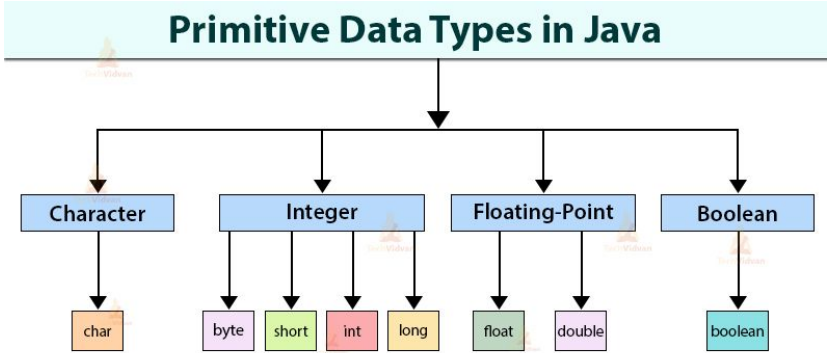


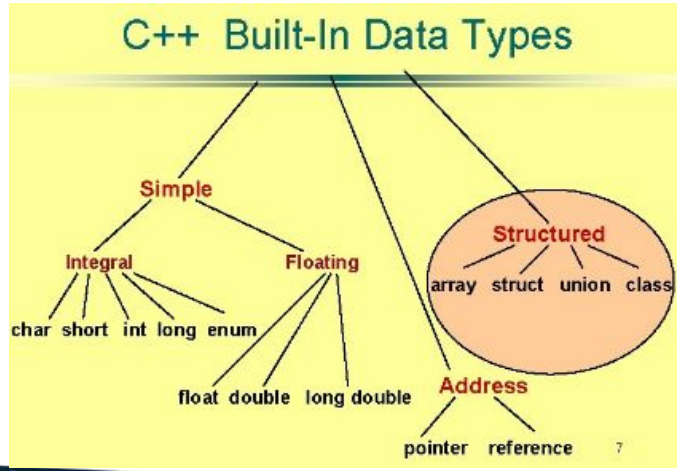
Methodology videos are embedded for some problems, to guide you.

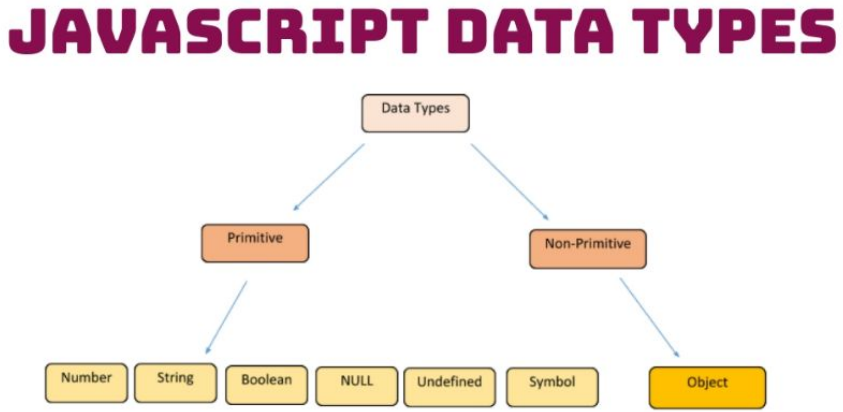
Data Types

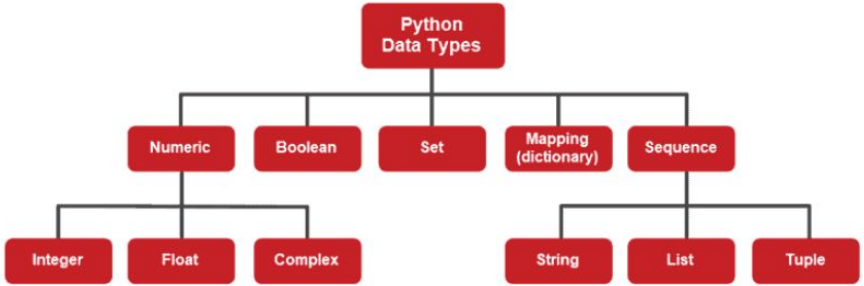
- Integer - To store whole numbers (cannot store fractional numbers).
- Float - To store decimal numbers.
- Character - To store alphanumeric characters.
- Boolean - To store True/False data.

Basic Data Types









Data Type Sizes

Datatype	C/C++ Size	Java Size
char	1	1
int	4	4
long	4	8
long long	8	NA
float	4	4
double	8	8

Constraints

Example1: Compute the sum of all the integers in the given array where the size of the array is n and element at ith index in array is denoted as A[i].

Constraints:

0 <= n <= 1e5
0 <= A[i] <= 1e9

What do you understand from the above constraints?

Example 2: Check Magic Square

Simple Data Structures (Array)

- Array is a collection of basic data types maintained sequentially.

```
string cars[4] = {"Volvo", "BMW", "Ford", "Mazda"};
cars[0] = "Opel";
print(cars[0]);

// Will output Opel instead of Volvo
```

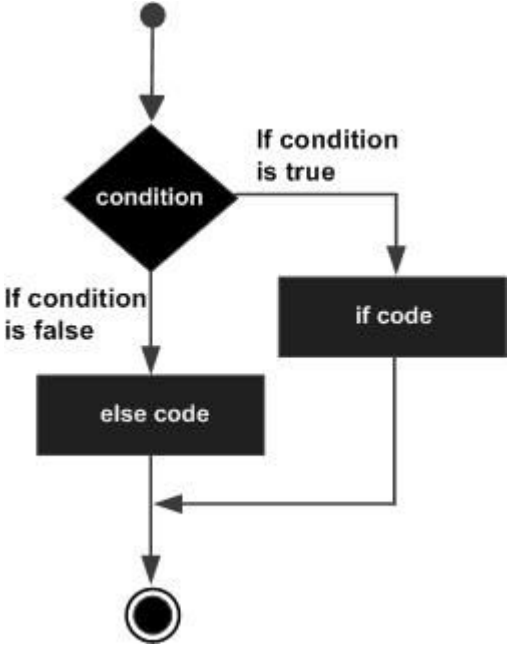
Simple Data Structures (String)

- A string is a series of zero or more characters enclosed in quotes
  - String myName = "Crio Learner";
- Methods
  - length() - myName.length() would return 12
  - charAt() - myName.charAt(3) would return ‘o’
  - indexOf() - myname.indexOf(‘Crio’) would return 0
  - concat() - method is used to merge two or more arrays
  - substring() - extracts the characters from a string, between two specified indices, and returns the new substring

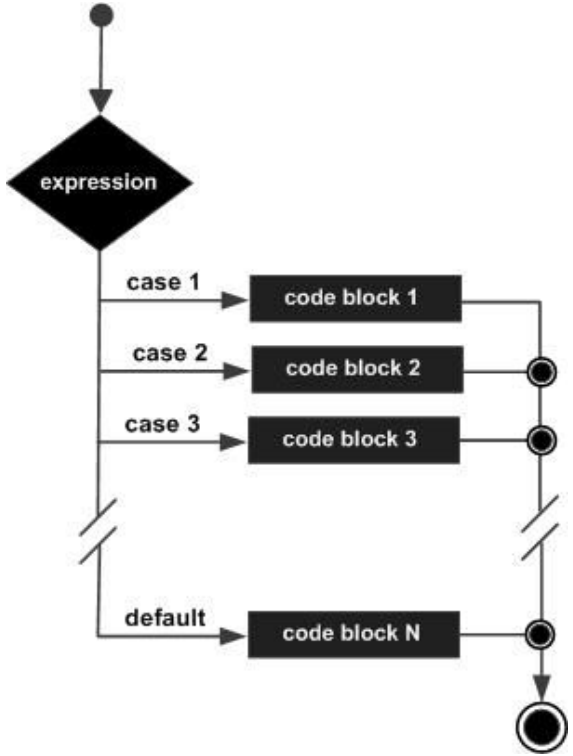
Programming Constructs

- Conditionals
  - if
  - switch
  - break
  - continue
- Loops
  - *for*
  - *while*
  - *do while*

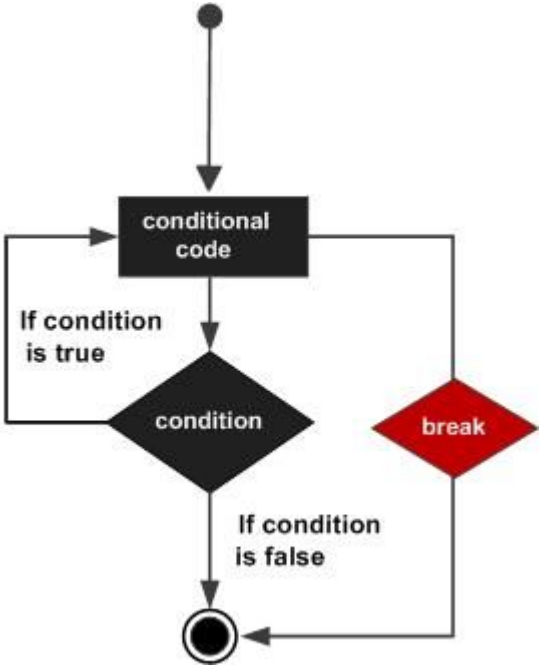
If Else


condition
If condition
is true
if code
If condition
is false
else code

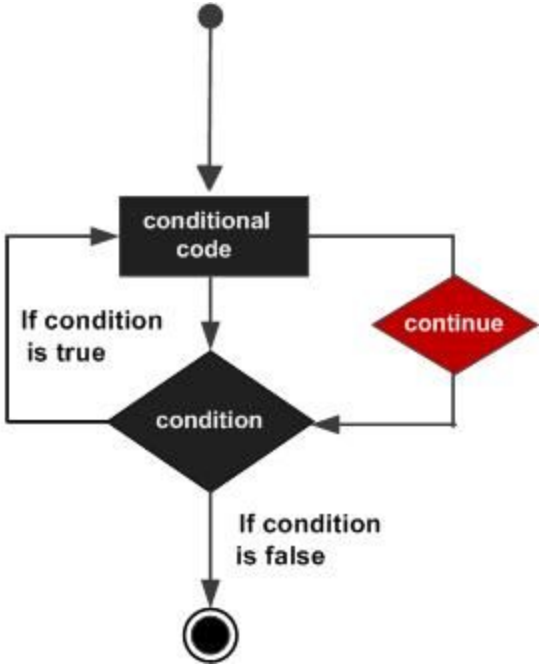
Switch


expression
case 1
code block 1
case 2
code block 2
case 3
code block 3
default
code block N

Break


conditional code
If condition is true
condition
break
If condition is false

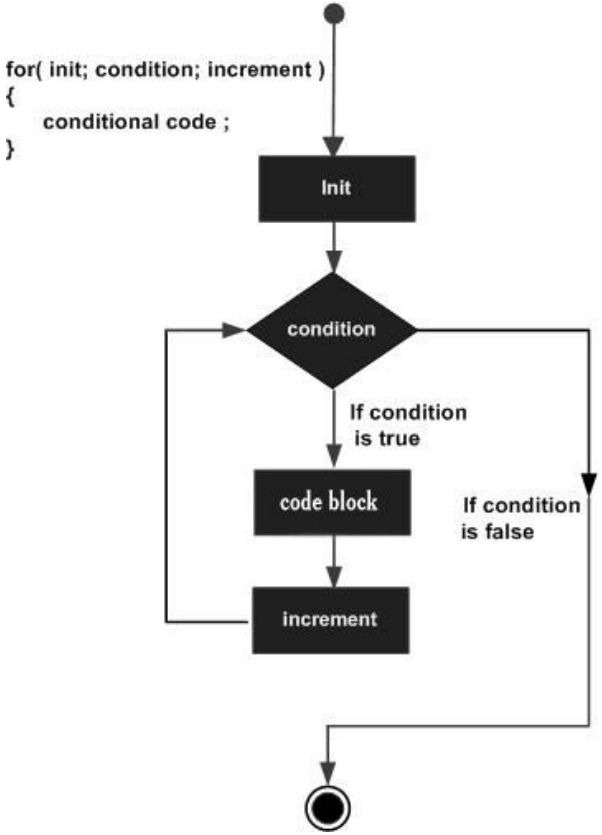
Continue


conditional
code
If condition
is true
continue
condition
If condition
is false

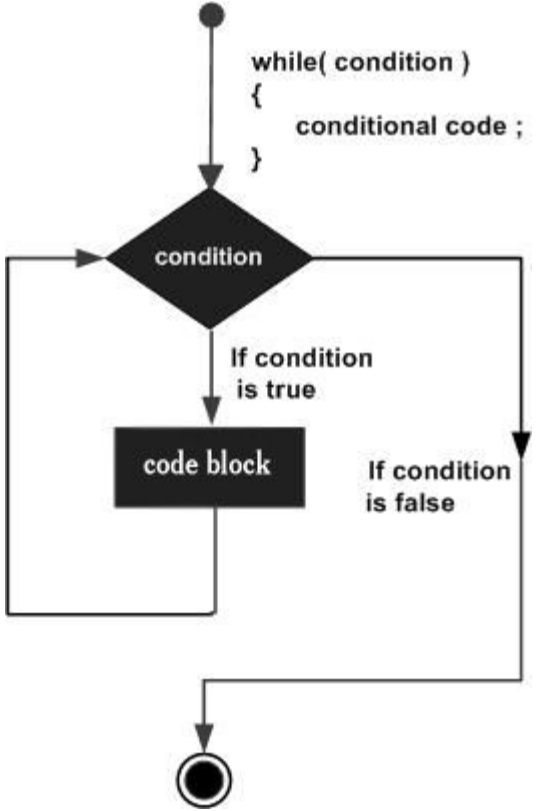
Usage of Conditionals

- Use *switch* every time you have more than 2 conditions on a single variable.
- Take weekdays for example, if you have a different action for every weekday you should use a *switch*.
- For multiple variables or complex clauses/conditions, you should use *if*

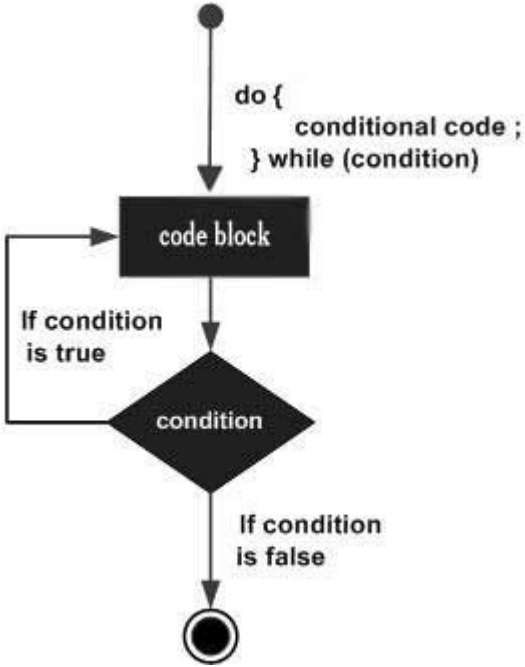
For loop


for(init; condition; increment)
{
conditional code ;
}
Init
condition
If condition
is true
code block
If condition
is false
increment

While Loop


while(condition)
{
conditional code ;
}
condition
If condition
is true
code block
If condition
is false

Do While Loop



Usage of Loops

Selection of a loop is always a tough task for a programmer, to select a loop, follow these guidelines:

- Analyze the problem and check whether it requires a pre-test or a post-test loop.
- If pre-test is required, use a *while* or *for* loop.
- If post-test is required, use a *do-while* loop.

Activity 1 - Reverse a given Integer

Activity 2 - Find the given element in an Array

Questions?

Take home exercises

- Average Height
- Max In Array

To be solved before the next session on Thursday, 7:30 PM

Feedback

Thank you for joining in today.

We’d love to hear your thoughts and feedback - https://bit.ly/dsa-nps

Thank you