**Cracking Programming Round (General):**

**1.0 BASICS:**

1. Program Structure:

|  |  |
| --- | --- |
| **Language** | **Example program** |
| “C” | #include <stdio.h>  void main() {  printf("Hello World");  } |
| C++ | #include <iostream>  int main() {  cout << "Hello World";  return 0;  } |
| Java | class helloworld {  public static void main (String args []) {  System.out.println ("Hello World");  }  } |

1. Variable Declaration

* Integer – to store integer or “whole” numbers
* Real – to store real or fractional numbers (also called float to indicate a floating point number)
* Character – A single character such as a letter of the alphabet or punctuation.
* String – A collection of characters

|  |  |
| --- | --- |
| **Language** | **Example program** |
| “C” | #include <stdio.h>  void main() {  int age;  float salary;  char middle\_initial;  age = 21;  salary = 29521.12;  middle\_initial = "K";  printf("I am %d years old ", age);  printf("I make %8.2f per year " salary);  printf("My middle initial is %c ", middle\_initial);  } |
| Java | class myexample {  public static void main (String args []) {  int age;  double salary;  String middle\_initial;  age = 21;  salary = 29521.12;  middle\_initial = "K";  System.out.println ("I am " + age + " years old ");  System.out.println ("I make " + salary + " per year");  System.out.println ("My middle initial is " + middle\_initial);  }  } |

1. **Boolean Operators**

|  |  |  |  |
| --- | --- | --- | --- |
| **Language** | **AND** | **OR** | **NOT** |
| Mathematics | http://holowczak.com/wp-content/uploads/and.gif | http://holowczak.com/wp-content/uploads/or.gif | http://holowczak.com/wp-content/uploads/not.gif |
| “C” or C++ | && | || | ! |
| Java | & | || | ! |

Example:

|  |  |
| --- | --- |
| **Question** | **Expression** |
| Does Alice make more than $35,000 per year? | Alice\_Salary > 35000 |
| Did the NY Giants defeat the Dallas Cowboys? | Giants\_Points > Cowboys\_Points |
| Did anyone get a perfect score on the test? | TestScore = 100 |

1. **For…IF…ELSE**

|  |  |
| --- | --- |
| **Programming Language** | **Conditional Code** |
| “C”, C++, Java, Perl | if (*condition*) {  *statements*  } else {  *else\_statements*  } |
| Java | class myexample {  public static void main (String args []) {  int department = 5;  if (department == 5) {  System.out.println ("Employees should be paid more than 25,000");  } else {  System.out.println ("Employees should be paid exactly 40,000");  }  }  } |

1. **FILE HANDLING (Try Java Only, It will be simple)**

FileReader fileReader = new FileReader(fileName);

BufferedReader bufferedReader = new BufferedReader(fileReader);

while((line = bufferedReader.readLine()) != null) {

System.out.println(line); //reads each line and anything you want

}

Ref. Link: **http://www.tutorialspoint.com/java/java\_files\_io.htm**

**2.0 PROGRAMMING CONCEPTS (can be asked for programming round):**

- Strings (concatenation, permutation, string manipulations(anagrams), palindrome)

Preferred Language: **Java**

Ref. Link: **http://www.tutorialspoint.com/java/java\_strings.htm**

- Pattern printing (if string, you can use java)

Preferred Language: **C**

Ref. Link: **http://www.programiz.com/article/c-programming-pattern**

**http://cbasicprogram.blogspot.in/2012/04/number-patterns.html**

**http://www.technoexam.com/c-language-lecture-study-notes-tutorials-material/pyramid-patterns-in-c-programming.asp**

**http://programmingbyavid.blogspot.in/2011/12/c-program-to-print-patterns-of-numbers.html**

- Number matrix (order, spiral matrix read)

Preferred Language: **C**

Ref. Link: **http://www.cprogramto.com/spiral-matrix-in-c/**

**http://www.geeksforgeeks.org/print-a-given-matrix-in-spiral-form/**

- Logical questions like ( a person counts number in fingers counting will be different. 12345 -> 5 fingers. then for 6 it will start from 5th finger and goes towards 1st one in reverse)

Preferred Language: **Any (Important is understanding the input and output)**

Ref. Link: **http://www.programminglogic.com/**

**http://www.crazyforcode.com/algorithm/**

- Data Structure questions (nth element in linked list)

**http://www.cprogramming.com/algorithms-and-data-structures.html**

- 2nd Maximum number in the array

**http://www.cquestions.com/2012/02/c-questions-and-answers.html**

**http://stackoverflow.com/questions/19438603/c-finding-second-largest-number-in-an-array**

- Two maximum number

**http://www.java2novice.com/java-interview-programs/two-max-numbers-in-array/**

Tips:

* Clearly understand the problem statement and then start programming
* Draw rough flow chart before beginning programming (This will help us to make logic clear)
* Do unit testing (test every single function/some operations) to debug easily
* If there are 5 Programs given, do show every completed program to your invigilator.

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