CypherCreed's

Learning Path

Basics Of Programming

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Introduction:

Note- We are choosing C as our starting programming Language but ideally you can choose a different language like python.C is recommended because it is the usually the first language taught and by learning C one easily understand any other programming language because it is closest to machine language.
First and foremost step would be to choose a compiler or IDE and getting good command at it. For C/C++, the best compilers are CodeBlocks (For Beginners) and CLion (A very Powerful offline IDE). OnlineGDB is a also a very great online compiler which offers Debugger also.
The second thing would be to get really good at debugging. CLion and OnlineGDB also offers debuggers with them.

- **1.What is Programming ?**
- **2.What are the applications of various programming languages in today's marketplace?**
  Link 1
  Link 2
- **What is C programming language and why is it still relevant?**
- **Structure of a C program**
- **Benefits of C Programming**

Learning Path

1.Learn the basics of programming.

2. Start with **Tim Buchalka's course - C programming for beginners->Magnet link to download.**

3.Now you probably will have doubts in some sections which we feel are main and should be covered extensively.

Data Types:

1.Fundamental Data Types

2.Derived Data Types

3.Storage Classes

Also see following links for better understanding of derived data types:

Structures

Enum

Unions

Typedef

After having good undestanding of data types , here is a test to see how good you are at them.It could be a little difficult but it will test your fundamentals.If you manage to secure 8 or higher out of 14 in this test it means you have good grasp on data types.

Operators:

Link 1

Link 2

Here's a test to judge your knowledge of operators. This is an easy one and a good score would something like 13 or higher in these 17 questions.

Pointers

Intro to pointers - Link 1 Link 2

Practice problems for pointers

Note- This is basics of pointers. Pointers are extensively used in Data Structures and Algorithms in C Programming.For them refer to our Learning Path on Data Structures and Algorithms.

Here's a good test for pointers. A good score would be 28 or higher out of 41.

Functions:

Introduction to Functions:

Link 1

Link 2

1. **Types of User-Defined Functions**
2. **Importance of function Prototype in C**
3. **Does C support Function Overloading**

Here is a test to determine your understanding of the functions and their applications as a whole.A good score would be 28 or higher out of 41.

Recursion:

Recursion is a vast topic and we are providing you with the basics of recursion.For more into recursion see our Learning path of Competitive Programming.

Link 1

Video on recursion

Simple Recursion Programs

This is a good Test and will get you a lot of practice. Good score would be 15 or higher out of 21.

Preprocessors and Macros:

Link 1

Link 2

Some of the most commonly used macros in competitive programming(CP)

Assertions in C

Memory Management:

This is a very important topic in C(as you should be familiar by now) and used extensively in data structures.

Link 1

Link 2

Link 3

Video Link

4.So after having covered the basics properly you should solve a lot of simple problems. Here you will find many simple problems

5.Once you have done this now it's time to move on and be a big Boy(oh yeah!), that is to know data structures and competitive programming.For these topics , refer to our Learning Paths of Data Structures and Competitive Programming.

Other Resources:

Books:

1.Head First Programming
2.Let Us C
3.Beginning Programming For Dummies