19CSE100-Problem solving and algorithmic thinking Programming Language Survey Assignment

C Language

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Outline

History of C Language

The programming language C was first introduced in 1972, by Dennis Ritchie as a successor of B. Even after more than 50 years since its birth, it is still extensively used. The main objective in mind behind the development of C was in Unix Operating System. In 1978 it was redeveloped by Brian Kernighan Dennis Ritchie. It was standardised by ISO and ANSI.

Advantages of C

C is actually a high level language that is *compiled* rather than assembled. Rather than converting code line by line like in assembly, the compiler converts the whole code into another version of machine code at a time.

But at the same time it is a *procedural language*, in which instructions are done step wise. The paradigm is *imperative programming*, which is a classic. This provides a sequence of instructions in a specific order.

The fact that C is portable and fast is another huge advantage. Being the mother of all other programming languages, knowing C will help with all other languages.

Applications of C

- Operating Systems
- Intermediate Language
- 3D Movies
- Embedded Systems

Applications of C

C has been a fundamental part in computer languages. It has **many** direct variations like C (KR), C89(ANSI), C11(ISO/IEC), C++ , C* , Split C which has further influenced other languages like Java, D, Cyclone etc.

The latest version in the c family, according to wikipedia is Ring which was developed in 2016 for applications development.. This just proves how the lineage popularised by C is still continuing strong.

C18 is latest version of C which came out in 2018.

Data Structure of C

The C language represents numbers in three forms:
integral(integer), real and complex. It also has signed0, +ve and -ve numbers(default) and unsigned - only 0 and +ve numbers. C has char(8 bytes), short(16 bytes), long(32 bytes) and long long(64 bytes). There are also floats and doubles.

C has many minimum one function (main) and can have infinitely many more. C compilers should support a minimum of 127 arguments.

Hello World

In order to code in C, we need a c compiler. Now due to modern technologies, we can also use online compilers. One such online compiler is **Programiz**. A huge thanks to them, I was able to complete this project in a better way.
https://www.programiz.com/c-programming/online-compiler/

Programiz C Online Compiler

main.c

```c
1  #include <stdio.h>
2  int main() {
3      printf("Hello world");
4      return 0;
5  }
```

Hello World

Output

```
/tmp/Sh7JHL9IZZ.o
Hello world
```

Trivia on C

- Mother of all other languages.
- Only scalar operations, so sometimes considered a low level language.
- In printf() and scanf(), f stands for formatted not function.

Thanks

A special appreciation to Ramaguru sir for giving me a project that taught me things I didn't know about C, and made me interested in learning this language. Programiz and friends who guided me throughout this project by giving valuable input are also thanked.

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