CONVERSION
OF A
C LANGUAGE PROGRAM
TO
JAVA PROGRAM

MINI PROJECT DETAILS:

SUBJECT: Operating Systems.
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CLASS: II-B.Tech, CSE.

PROJECT TITLE:-

Automatic conversion of a C Language Program into a Java program using a suitable interface.

PROJECT FOCUS:-

To take a C Language program as an input and give out a working Java program with right syntaxes and working condition as the output to enable easier translations of procedure oriented programming languages to Object Oriented Programming Languages.

ABSTRACT:-

This project aims on developing a software application to convert a given c language program into a Java program, using necessary methods. The main aim of the project as per the team is to increase the interrelation between the Object Oriented Programming methods and the Procedural Programming methods.

The Input given to the interface is a normal C language computer program. The Software then has to convert it into a Java program that is purely Object Oriented.

The main part in achieving this is identifying the objects and different functions exactly to ensure correct working of the source code.

For small scale programs this can be performed by using a dictionary method. Where all the words in a language are matched to one of another language, that is matching the same words from both the languages and identifying each word singularly. Then the identified word from the source language is replaced with the one of the language. In this way all the reserved keywords and regularly used words can be exchanged and placed.

In the case of the variables and function names they can be retained as they are, so that the translated source code can be used easily.

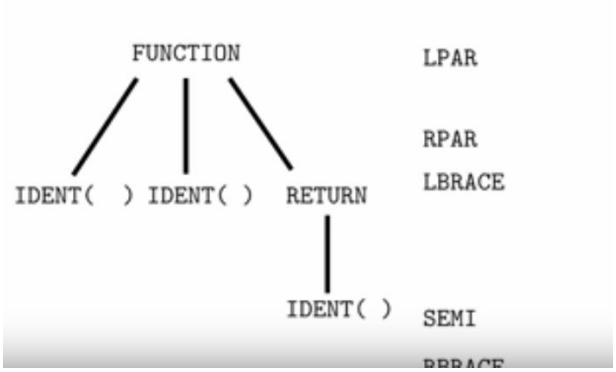
But in the case of big programs and large applications using this method might be very cumbersome and tiring. In large programs replacing word by word is a very very long task, and while using libraries it becomes very difficult to replace them.

So to overcome these for large programs we can use a parser. A parser is a compiler or interpreter that translates or converts the existing program into smaller parts or tokens so that it easier to translate it into other languages. A parser takes input in the form of a sequence of tokens or program instructions and usually builds a data structure in the form of a parse tree or an abstract syntax tree. The parser is commonly used as a component of an interpreter.

What we can do using a parser for this task is design a parser that converts the C source, to important tokens and identifies them. Then these important tokens can then be translated into the targeted language, that is Java.

While parsing a language, we divide the terms into small useful parts removing what all is useless. From those useful parts we then formulate the target language.

```
function id(x)
{
  return x ;  // comment
}
```



As in the above small block, the required parts are identified and then put into a parse tree, this parse tree then can be converted to the resulting language, using the intermediary parser.

TECHNOLOGIES USED:-

1. Some library functions of java and C to identify the reserved words and inbuilt functions.
2. Data structures to store both the dictionary words and the parse tree.
3. A parser built for the specific purpose.

OUTCOME:-

On the completion of this project we will have an application that will convert a C language program given as an input to a complete Java program. This helps the developers to understand the interdependency between the Object Oriented Programming and Procedural Programming.

The application can reduce the time for coding of the same applications in two languages, as a program in one language can be easily translated into the other.