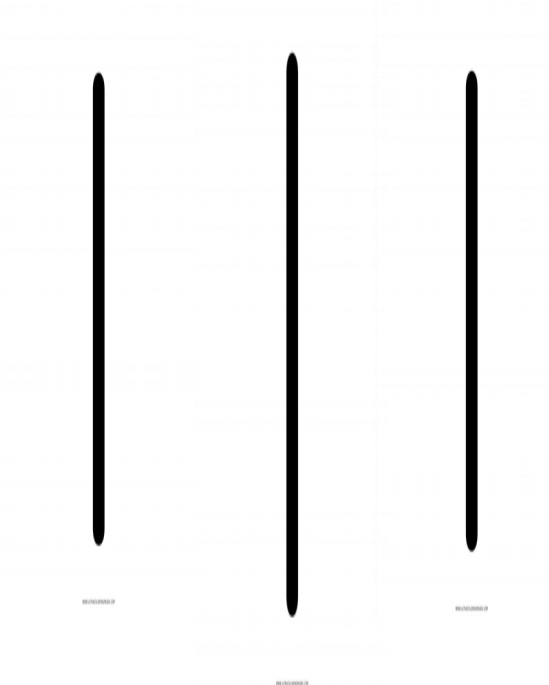




# Kalika Manavgyan Secondary School Butwal-10-Rupendehi



**Project Work**  
**Subject: Computer**  
**Class: 11B      Group-B**  
**Submitted To: Arvind Dubey**

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## Group Members And Roles:

Rollno.	Name(Role)
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14.	Diwash Bhandari
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15.	Greece Taramu
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16.	Mohammad Sahid
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17.	Nabin Gyali
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18.	Narayan Aryal
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19.	Narayan Chand
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20.	Nice Khatri
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21.	Nirmal Chettri
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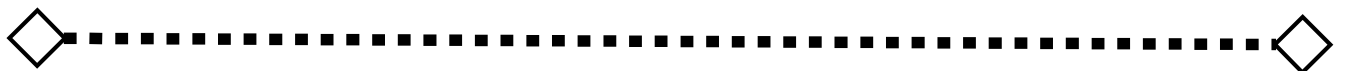
22.	Prabesh Ghimire
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23.	Parshant Bhattra
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24.	Priyanka Paudel
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25.	Rajan Paudel
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26.	Rujeta Pandey
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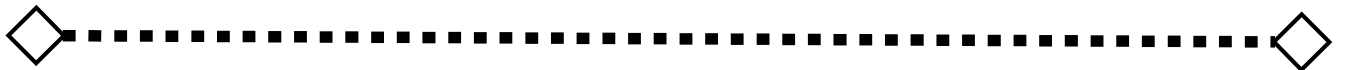


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## Language Translator

→ Computers are electronic devices that can only understand machine-level binary code (0,1 or on/off), and it is very difficult to understand and write a program in machine language, so programmers use human-readable high level and assembly languages. To solve this issue, a translator is used, which converts high-level language instruction to machine-level instructions (0 and 1).



“The translator is a programming language processor that converts a high-level or assembly program to machine understandable low-level machine language.”



→ A program code obtained after converting source code by using language translator is called object code or machine code.

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## Types of Language Translators

- There are mainly three types of language translators which possess their own advantages and disadvantages.
- The three types of language translators are:
  - Assembler
  - Interpreter
  - Compiler

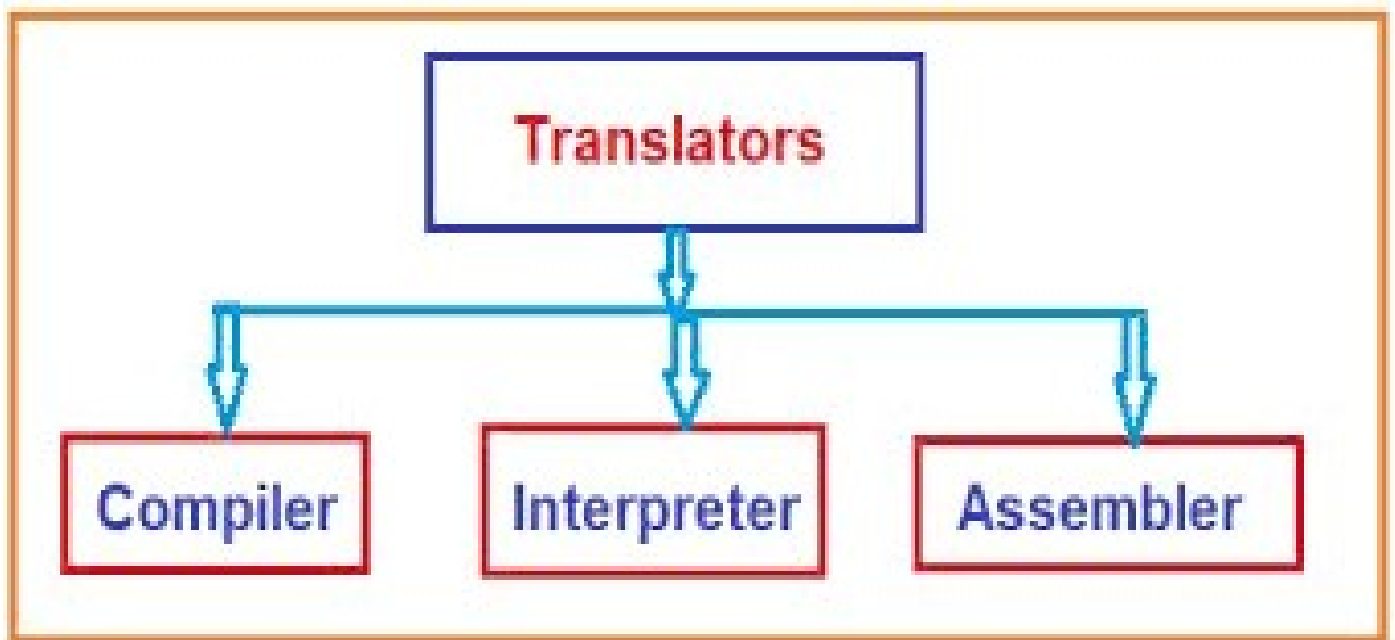


fig1.1: Types of language translators



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## Assembler

→ Assembler is a language translator which translates assembly language program into machine language program. As computer understands only machine language assembly language program must be translated into machine language program before execution. Otherwise, computer doesn't understand the codes. The original assembly language program codes are known as source codes and after translation, the final machine language program codes is known as object codes.



Fig:1.2: Assembler



### Advantages of Assembler

The advantages of the assembler are:

- ◆ It requires less amount of memory and execution time.

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- ◆ It does complex hardware-specific jobs in an easy way.
- ◆ It is ideal for a time-critical job.



## Disadvantages of Assembler

- It is machine dependent and needs to translate separately for different architecture.



## Interpreter

The interpreter program executes directly line by line by running the source code. So, it takes the source code, one line at a time, and translates it and runs it by the processor, then moves to the next line, translates it and runs it, and repeats until the program is finished.

Many popular languages like Python, BASIC, PHP, Javascript and Ruby use Interpreter.

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Fig2.1:interpreter



## Advantages of Interpreter

The advantages of the interpreter are:

- ◆ It spends less time converting to machine code.
- ◆ No compilation stage is present in the interpreter while generating machine instructions.
- ◆ It is easy for debugging and finding errors
- ◆ It does not create additional new files like compiler, which saves memory and space.



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## Disadvantages of Interpreter

The disadvantages of the interpreter are:

- ◆ It is much slower.
- ◆ Data and code are insecure.
- ◆ To run the code, a client or anybody else who has to access the shared source code must have an interpreter installed on their system.



## Compiler

A compiler is a language translator which translates high level languages program into machine language program. The original code of high level language is called source code and after translation, the final machine language program code is known as object code.

If there is a syntax error in the code then compiler produces syntax error and the cause of the error. The source code file must be free from syntax errors for

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complete compilation process. Many efficient languages like C,C++,C# and Visual Basic etc. use compiler. Gnu GCC,LLVM,JavaC,Xcode etc. are the examples of compiler.

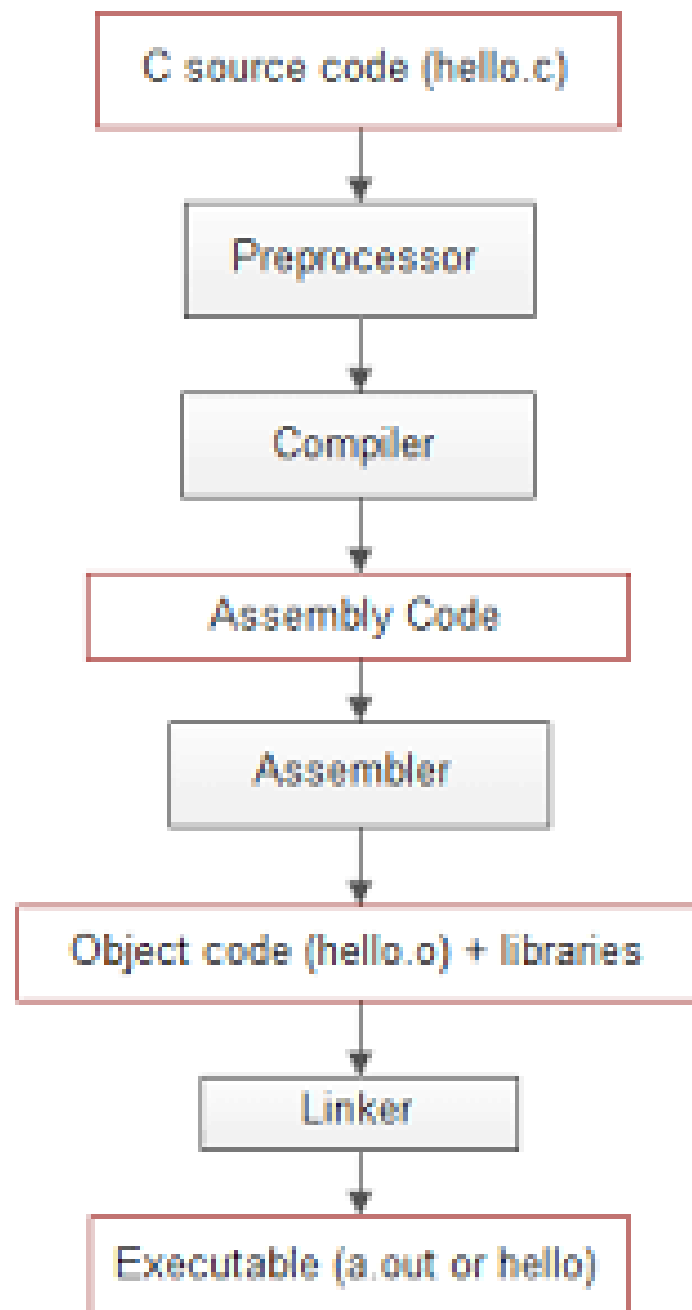


Fig3.1:Compiler

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## Advantages of Compiler

The advantages of the compiler are:

- Source code is converted to machine code before runtime. So, code execution at runtime is faster.
- The whole program is compiled and it seems to be more secure than Interpreted Code.
- The program can run directly from object code and doesn't need source code.



## Disadvantages of Compiler

The disadvantages of the compiler are:

- For the executable file to be created, the source code must be error-free.
- For a large application, it may take a larger time to compile the code as compared to small programs.
- When you compiled an application then it creates a new compiled file which takes additional memory and space.

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## Sources and References

- [www.tutorialspointindia.com](http://www.tutorialspointindia.com)
- [www.wikipedia.org](http://www.wikipedia.org)
- [www.geeksforgeeks.org](http://www.geeksforgeeks.org)

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