

AGBOOLA ABIOLA
17/SCI01/007
COMPUTER SCIENCE
CSC310

ANSWERS

1. A **translator** is a programming language processor that converts a computer language from one program to another. It takes a program written in source code and converts it into machine code. It discovers and identifies the error during translation.

2a. Assembler

An assembler is a translator used to translate assembly language to machine language. It is like a compiler for the assembly language but interactive like an interpreter. Assembly language is difficult to understand as it is a low-level programming language.

An assembler translates a low-level language, an assembly language to an even lower-level language, which is the machine code. The machine code can be directly understood by the CPU.

Example of Assemblers

- Fortran Assembly Program (FAP)
- Macro Assembly Program (MAP)
- Symbolic Optimal Assembly Program (SOAP)

b. Compiler

A compiler is a translator used to convert high-level programming language to low-level programming language. It converts the whole program in one session and reports errors detected after the conversion. Compiler takes time to do its work as it translates high-level code to lower-level code all at once and then saves it to memory.

A compiler is processor-dependent and platform-dependent. But it has been addressed by a special compiler, a cross-compiler and a source-to-source compiler. Before choosing a compiler, user has to identify first the Instruction Set Architecture (ISA), the operating system (OS) and the programming language that will be used to ensure that it will be compatible.

Example of Compiler

- Microsoft Visual Studio
- GNU Compiler Collection (GCC)
- Common Business Oriented Language (COBOL)

C. Interpreter

An interpreter is a translator used to convert high-level programming language to low-level programming language. It converts the program one at a time and reports errors detected at once, while doing the conversion. With this, it is easier to detect errors than in a compiler.

An interpreter is faster than a compiler as it immediately executes the code upon reading the code. It is often used as a debugging tool for software development as it can execute a single line of code at a time. An interpreter is also more portable than a compiler as it is not processor-dependent, you can work between hardware architectures.

Example of an Interpreter

- OCaml
- List Processing (LISP)
- Python

3. Reasons why high level programming languages should be adopted

- High level languages are programmer friendly. They are easy to write, debug and maintain.
- It provide higher level of abstraction from machine languages.
- It is machine independent language.
- Easy to learn.
- Less error prone, easy to find and debug errors.
- High level programming results in better programming productivity.