

Compiler

... basic basics

A program that transforms software written in one programming language to another programming language.

Examples are Java Compiler and C Compiler

Compiler

Example:

- from C to binary
- from Java to JVM bytecode
- from C++ to binary

Remember the following picture?

User

**Program written in Java
Compiled for JVM**

**Program written in C
Compiled for the OS**

Program written in Python

Java Virtual Machine

Python

OS

Hardware

C compiler

```
...  
printf("Hello world");  
...
```

Text file

Program written in C

Binary file

C compiler

```
...  
printf("Hello world");  
...
```

Text file



compiler

Program written in C

Binary file

C compiler

```
gcc file.c
```


The diagram illustrates the layers of a computer system. It consists of four horizontal bars stacked vertically. The top bar is orange and labeled 'User'. Below it is a smaller green box labeled 'Compiled program written in C'. The next bar is blue and labeled 'OS'. The bottom bar is red and labeled 'Hardware'. All text is in white.

User

Compiled program
written in C

OS

Hardware

Java compiler

```
...  
System.out.println("Hello world");  
...
```

Text file

Program written in Java

Binary file

Java compiler

```
...  
System.out.println("Hello world");  
...
```

Text file



compiler

Program written in Java

Binary file (byte code)

Java compiler

```
javac org/barfoo/SuperDuper.java
```

User

The diagram consists of five horizontal layers stacked vertically. From top to bottom: a yellow layer labeled 'User', a magenta layer labeled 'Compiled program written in Java', a green layer labeled 'Java Virtual Machine', a blue layer labeled 'OS', and a red layer labeled 'Hardware'. The 'Compiled program written in Java' and 'Java Virtual Machine' layers are positioned on the left side of the diagram, while the other three layers span the full width.

**Compiled program
written in Java**

Java Virtual Machine

OS

Hardware