

# **C2110 *UNIX and programming***

## **Lesson 5 / Module 1**

**PS / 2020 Distance form of teaching: Rev1**

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# Programs vs scripts

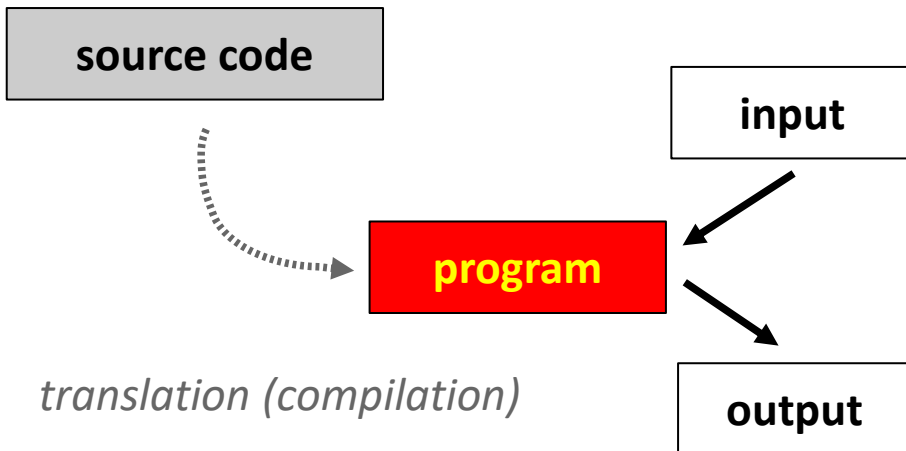
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# Programs vs Scripts

**Program** is a set of machine instructions processed directly by the processor. The program is created by **translating** source code of the programming language.

**Translated languages:**

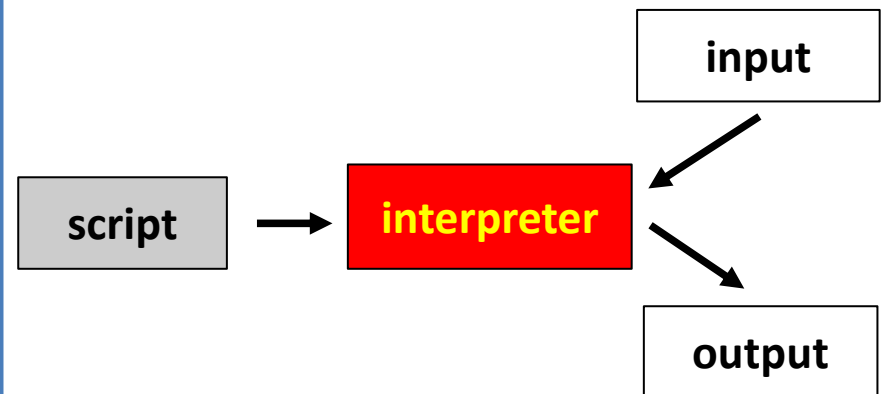
**C/C ++**  
**Fortran**



**Script** is a text file containing commands and control sequences that are executed by the **interpreter** of used **scripting language**.

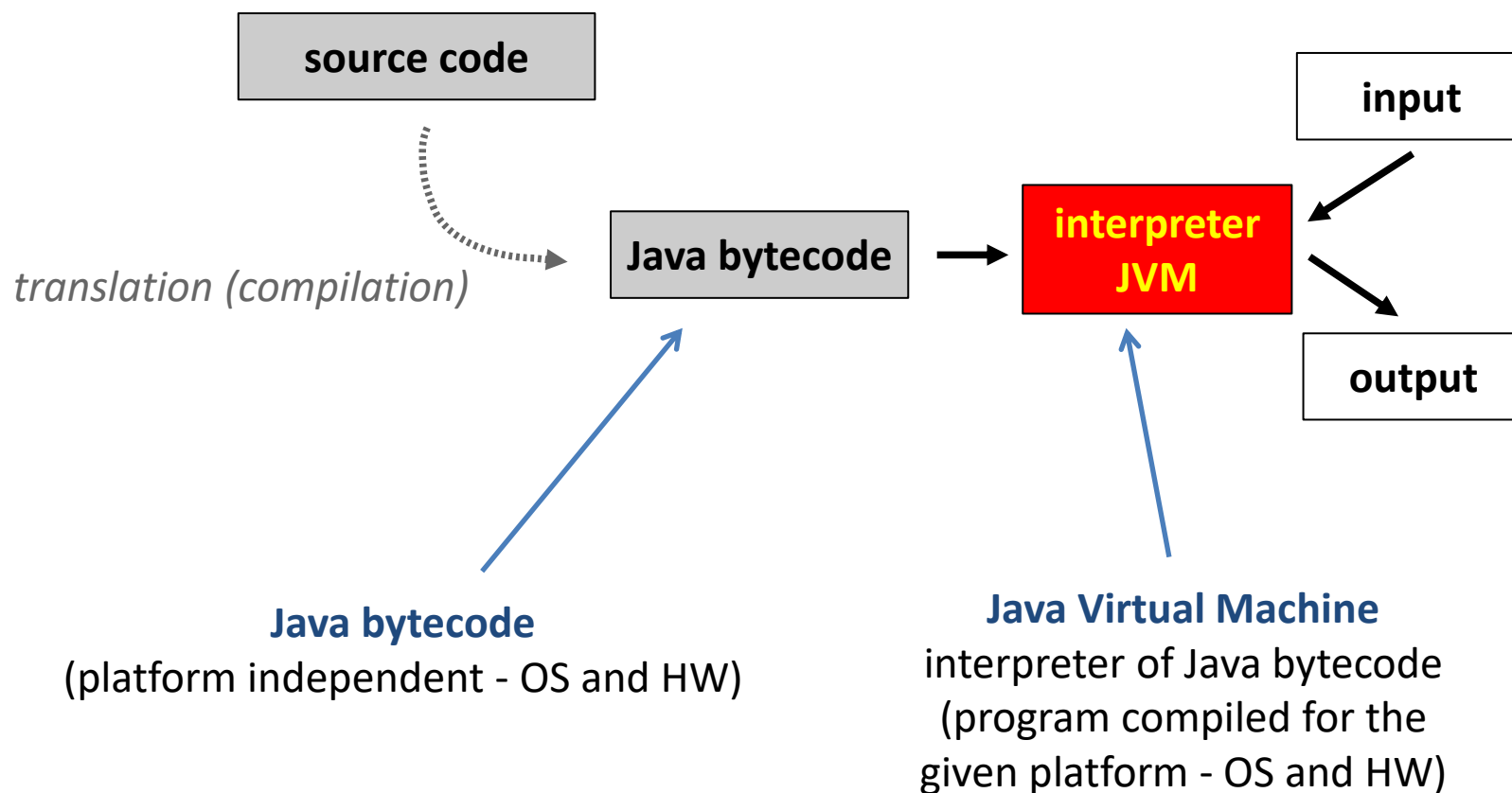
**Scripting languages:**

**bash**  
**gnuplot**  
**awk**  
JavaScript  
PHP  
python



# And what about JAVA?

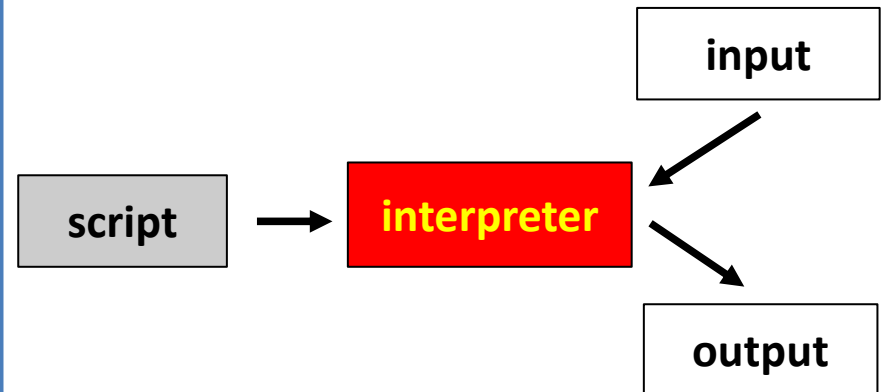
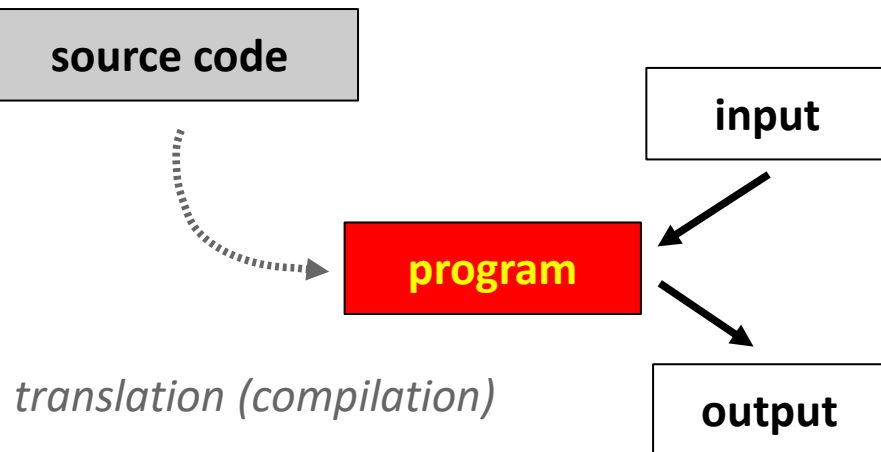
There are also different combinations of both approaches. A typical example is the Java programming language.



# Programs vs Scripts, ...

- **easy optimization**
- **fast execution**
- **must be recompiled**
- **cannot create a self-starting code**

- **does not require recompilation**
- **creation self-starting code**
- **bad optimizability**
- **slower execution**



# Program in C language

## Source code

```
#include <stdio.h>

int main(int argc, char* argv[])
{
    printf("This is a program in language C!\n");
    return (0);
}
```

## Compilation

```
$ gcc program.c -o program
```

← compiler of C language

→ the name of the file with the created program

## Starting the program

```
$ ./program
```

file **program** must have rights **to be execute**

# Bashi Script

## Script

```
#!/bin/bash  
  
echo 'This is a script in Bash interpreter!'
```

## Run the script

\$ bash **script.bash**

Bash interpreter

file **script.bash** does not have to have rights to be executed

# Exercise 1

1. Create directories with names **ukol01** and **ukol02**.
2. To each directory, one by one save the files **program.c** (ukol01) and **script.bash** (ukol02) from the directory `~kulhanek/Documents/C2110/Lesson05/programs`.
3. Compile the source code of a program written in C. Verify that the resulting program can be run.
4. What is the size of the file containing the resulting program created by compiling the source code in C language. Open the created file in a text editor (gedit). What does the file contain?
5. Verify the functionality of the script **script.bash** by launching it.
6. Make a copy of the files named **program2.c** and **script2.bash**.
7. Change files **program2.c** and **script2.bash**, so that the resulting program or script prints a different text.

I recommend that you save the tasks in directories according to the lessons and modules:  
Documents/C2110/Lesson05/M1, etc.