

## Compiler homework (Type checking)

You are tasked with creating a type checker using Python and ANTLR. The type checker that is required of you is a program that receives an input and outputs the type of the input provided. If an input shouldn't be accepted, the type checker should output a type error message.

Project is due on Monday, 8<sup>th</sup> of April 2024

The grammar for this project is included inside the zip file

### Expression evaluation guide

Expression	Output
<b>String + (Integer or Float)</b>	String
<b>String (* or / or -) (String or Integer or float)</b>	Error
<b>Integer (+ or – or *) Integer</b>	Integer
<b>Integer / Integer</b>	Float or Integer (for simplicity, you can Output Float regardless of whether the result of the division is Integer or Float)
<b>Integer (+ or – or * or /) Float</b>	Float
<b>Float (+ or – or * or /) Integer</b>	Float
<b>Float (+ or – or * or /) Float</b>	Float
<b>Integer (+ or – or * or /) String</b>	Error
<b>Float (+ or – or * or /) String</b>	Error

Example inputs and their corresponding output:

Input	Output
<b>2 + 3*1.2</b>	Float
<b>“hello” +2</b>	String
<b>“compiler” *2</b>	Type error: String cannot be multiplied
<b>“students” / 1.5</b>	Type error: String cannot be divided
<b>2+3*4</b>	Integer
<b>2+ “IUST”</b>	Type error: String cannot be concatenated to an Integer
<b>“developer” + 1.2*3 +”25”</b>	String