

## Compiler homework 2 (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, 30<sup>th</sup> of October 2023

The grammar for this project is included inside the zip file

Expression evaluation guide

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

Example inputs and their corresponding output:

Input	Output
$2 + 3 * 1.2$	Float
<code>"hello" + 2</code>	String
<code>"compiler" * 2</code>	Type error: String cannot be multiplied
<code>"students" / 1.5</code>	Type error: String cannot be divided
$2 + 3 * 4$	Integer
$2 + \text{"IUST"}$	Type error: String cannot be concatenated to an Integer
<code>"developer" + 1.2 * 3 + "25"</code> <span style="color: blue; margin-left: 100px;">float</span>	String

string

string