

► Introduction and overview

▼ Basic types, definitions and functions

Table of Contents

Basic Data Types

Week 1 Échéance le déc 12, 2016 at 23:30 UTC

More Data Types

Week 1 Échéance le déc 12, 2016 at 23:30 UTC

Expressions

Week 1 Échéance le déc 12, 2016 at 23:30 UTC

Definitions

Week 1 Échéance le déc 12, 2016 at 23:30 UTC

Functions

Week 1 Échéance le déc 12, 2016 at 23:30 UTC

Recursion

Week 1 Échéance le déc 12, 2016 at 23:30 UTC

► Basic data structures

► More advanced data structures

► Higher order functions

► Exceptions, input/output and imperative constructs

► Modules and data abstraction

## CONDITIONAL EXPRESSIONS (4/4 points)

What is the result of compiling and evaluating `if 1 = 2 then "abc" else "def" ?`

☐ Syntax error.

☐ Type error.

☐ "abc"

☒ "def" ✓

- A conditional expression is well-typed when the condition is a boolean expression and the two branches share the same type.
- The condition evaluating to `false`, the conditional expression evaluates like its second branch.

What is the result of compiling and evaluating `if 1 = 2 then 3 else 4.5 ?`

☐ Syntax error.

☒ Type error. ✓

☐ 3

☐ 4.5

The first branch contains an integer expression, while the second branch contains a floating-point expression.

What is the result of compiling and evaluating `if (1 <> 2) then 3 else 4 ?`

☐ Syntax error.

☐ Type error.

☒ 3 ✓

☐ 4

The parenthesis around the conditional expression are not mandatory.

What is the result of compiling and evaluating `if 1 then 2 else 3` ?

☐ Syntax error.

☒ Type error. ✓

☐ 2

☐ 3

The integer literal `1` is not a valid boolean expression.

*Vous avez utilisé 1 essais sur 3*

## CONDITIONAL EXPRESSIONS (BIS) (4/4 points)

**Warning:** you only have 1 attempt (but anyway the result will not count in the final grading).

What is the result of compiling and evaluating `if 1 = 2 then 34 else "56"` ?

☐ Syntax error.

☒ Type error. ✓

☐ 34

☐ "56"

The first branch contains an integer expression, while the second branch contains a string expression.

What is the result of compiling and evaluating `if 1 < "2" then 3.4 else 5.6` ?

☐ Syntax error.

☒ Type error. ✓

☐ 3.4

☐ 5.6

One cannot compare integer and string expressions without explicit conversion.

What is the result of compiling and evaluating  
`if "Amazone" < "Amour" then 3.4 else 5.6 ?`

☐ Syntax error.

☐ Type error.

☒ 3.4 ✓

☐ 5.6

In the alphanumerical order, "Amazone" comes before "Amour".

What is the result of compiling and evaluating `if 0 then 1 else 2 ?`

☐ Syntax error.

☒ Type error. ✓

☐ 1

☐ 2

The integer literal `0` is not a valid boolean expression.

*Vous avez utilisé 1 essais sur 1*

## NESTED CONDITIONAL EXPRESSIONS (3/3 points)

What is the result of compiling and evaluating `1 + (if 2 = 3 then 4. else 5.) ?`

☐ Syntax error.

☒ Type error. ✓

☐ 5

☐ 5.

☐ 6

☐ 6.

- The conditional is the right operand of an integer addition.
- The two branches of the conditional contain floating-point expressions. Then, the conditional is a valid floating-point expression and not the expected integer expression.

What is the result of compiling and evaluating

```
if (if 1 = 2 then 3 else 4) <> 5 then 6 else 7 ?
```

☐ Syntax error.

☐ Type error.

☒ 6 ✓

☐ 7

The inner conditionnal is a valid integer expression that can safely be compared to 5.

What is the result of compiling and evaluating

```
if 1 <> 2 then (if 3 <> 4 then 6 else 7) else 8 ?
```

☐ Syntax error.

☐ Type error.

☒ 6 ✓

☐ 7

☐ 8

- This expression is more readable when written:

```
if 1 <> 2 then
  if 3 <> 4 then 6 else 7
else
  8
```

- The parenthesis around the inner conditionnal are not mandatory.
- The two conditionnals are valid integer expressions.
- Both conditions are valid boolean expressions that evaluates to `true`.

*Vous avez utilisé 1 essais sur 3*

### NESTED CONDITIONAL EXPRESSIONS (BIS) (4/4 points)

**Warning:** you only have 1 attempt (but anyway the result will not count in the final grading).

What is the result of compiling and evaluating `1 + (if 2 = 3 then 4 else 5)` ?

☐ Syntax error.

☐ Type error.

☐ 5

☒ 6 ✓

This is a valid integer expression.

What is the result of compiling and evaluating

`if 1 <> 2 then if 3 = 4 then 'a' else 'b' else 'c' ?`

☐ Syntax error.

☐ Type error.

☐ 'a'

☒ 'b' ✓

☐ 'c'

This is a valid character expression.

What is the result of compiling and evaluating

`if 1 = 2 then (if 3 = 4 then 'a' else 'b') else (if 'c' <> 'd' then 'e' else 'f')`?

☐ Syntax error.

☐ Type error.

☐ 'a'

☐ 'b'

☐ 'c'

☐ 'd'

☒ 'e' ✓

☐ 'f'

This is a valid character expression where the two branches of the outer conditional contain valid character conditional expressions.

What is the result of compiling and evaluating

`if 1 = 2 then if 3 = 4 then 5 else 6 else if 'a' <> 'b' then 'c' else 'd'?`

☐ Syntax error.

☒ Type error. ✓

☐ 5

☐ 'c'

☐ 'd'

- This is better read:

```
if 1 = 2 then
  if 3 = 4 then 5 else 6
else
  if 'a' <> 'b' then 'c' else 'd'
```

- The first branch of the outer conditional contains an integer expression, while its second branch contains a character expression.

*Vous avez utilisé 1 essais sur 1*

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