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Dept math et info
Module : Paradigmes de langages de prog. Niveau : M1
TP2 : PLP lgg OZ- paradigme fonctionnel

1. Browse X

This exercise is used to become more familiar with Oz. In Oz, identifiers **always** begin with an uppercase letter.

The declare statement is only usable in the interactive interface, since it creates a declaration that remains valid until the end of the interactive session. Inside programs, you need to use another instruction, the `local` statement, which creates declarations that are only valid over part of the program.

Variable declarations (using identifiers) using a `local` statement is presented in the following code:

```
local Identifier1 Identifier2 /*... Other identifiers*/ in
    % Your code here.
end
```

Please keep in mind that the identifier, for instance `I`, refers to a variable containing a value. Therefore, these three codes print the same message:

Code 1:

```
{Browse 'Hello World!'}
```

Code 2:

```
local I in
    I = 'Hello World!'
    {Browse I}
end
```

Code 3:

```
local I = 'Hello World!' in
    {Browse I}
end
```

1. 1Task

In this exercise, you are asked to:

1. First, declare a variable `X` using the local statement;

2. Your program has to evaluate the exact expression `(6+5)*(9-7)`. Therefore, store this exact expression (copy-paste it to be sure) in `X`;
3. And finally browse `X`.

Solution

```
local X in

  X = (6+5)*(9-7)

  {Browse X}

End
```

2. Scope

Now we give you this code analyze it without feeding it.

```
local X=1 in
  local X=2 in
    local X=3 in
      {Browse X} % (1)
    end
  end
  {Browse X} % (2)
end
```

1- What is printed by the first call to Browse?
2- What is printed by the second call to Browse?

2.1 Solution

X=3

X=1

3. Exercise: Scope (Ressource externe)

Here's a code try to feed it

```
local P Q X=1 Y=2 Z=3 in

  fun {P X}

    X*Y+Z
```

```
  end

  fun {Q Z}

    X*Y+Z

  end

  {Browse {P 42}==555}

  {Browse {Q 42}==777}

End
```

The first `Browse` call you have to write calls the function `P` with the argument of your choice and compares it to the answer you have predicted. The second one does the same thing for the function `Q`.

Therefore, the code you are asked to give has the following form:

```
{Browse {P 42} == 555}
{Browse {Q 42} == 777}

These two Browse calls are just examples, {P 42} == 555 and {Q 42} ==
777 do not return true. Therefore, your code has to print true twice.
Note that you do not have to redefine P and Q.
```

3.1 Solution

```
local P Q X=5 Y=142 Z in
local P Q X Y=10 Z=135 in

    fun {P X}
        X*Y+Z
    end
    fun {Q Z}
        X*Y+Z
    end
    {Browse {P 42}==555}
end
    {Browse {Q 42}==777}

end
```