

Concours Informatique Luxembourgeois 2012
Epreuve de Demi-Finale (22/3/2012)
Solutions

Tâche I - Images Panino

30 points

```
#include <cstdlib>
#include <map>
#include <iostream>
#include <string>
#include <fstream>

using namespace std;

int main(int argc, char** argv) {
    int noImage;
    map<int,int> freqImage;

    string nf;
    cin >> nf;
    ifstream f(nf.c_str());
    if (f.is_open())
    {
        freqImage.clear();

        // lire les images de Pierre
        f >> noImage;
        while (noImage != -1) {
            freqImage[noImage]++;
            f >> noImage;
        }
        for (map<int,int>::iterator it=freqImage.begin();
            it != freqImage.end();
            it++)
            cout << "(" << it->first << "," << it->second << ")";
        cout << endl;
        // lire les images de Paul
        f >> noImage;
        while (noImage != -1) {
            freqImage[noImage]--;
            f >> noImage;
        }
        for (map<int,int>::iterator it=freqImage.begin();
            it != freqImage.end();
            it++)
            cout << "(" << it->first << "," << it->second << ")";
        cout << endl;
    }
}
```

```

    int nbreImagesAsupprimer=0;
    for (map<int,int>::iterator it=freqImage.begin();
         it != freqImage.end();
         it++)
        nbreImagesAsupprimer += abs(it->second);

    cout << nbreImagesAsupprimer << endl;
    f.close();
}
else cout << "Unable to open file" << endl;

return (EXIT_SUCCESS);
}

```

Tâche II - Wild Wild Cards

40 points

```

program wildcardMatch;

{$APPTYPE CONSOLE}

uses
    SysUtils;

// idea from: http://xoomer.virgilio.it/acantato/dev/wildcard/wildmatch.html
function match(pat, str : string) : boolean;
    function match_i(pat, str : string; i, j : integer) : boolean;
    begin
        while (i <= length(str)) do
            begin
                if (pat[j] = '?') then
                    begin
                        // uncomment the following line if ? matches zero or one char
                        //result := match_i(pat, str, i, j+1) OR match_i(pat, str, i+1,
j+1);
                        //exit;
                    end
                else if (pat[j] = '*') then
                    begin
                        repeat
                            inc(j);
                        until (j > length(pat)) OR (pat[j] <> '*');
                        if (j > length(pat)) then
                            begin
                                result := true;
                                exit;
                            end;
                        while (i <= length(str)) do
                            begin
                                if (match_i(pat, str, i, j)) then
                                    begin
                                        result := true;
                                        exit;
                                    end;
                                inc(i);
                            end;
                        result := false;
                        exit;
                    end
                else
                    begin
                        if (str[i] <> pat[j]) then
                            begin
                                result := false;

```

```

        exit;
    end;
    end;
    inc(i);
    inc(j);
end;
while (j <= length(pat)) AND (pat[j] = '*') do
    inc(j);
    result := (j > length(pat));
end;

begin
    result := match_i(pat, str, 1, 1);
end;

var
    inFile, outFile: TextFile;
    nbrWords, i : integer;
    expr, tmp : string;

begin
    AssignFile(inFile, 'IN.TXT');
    AssignFile(outFile, 'OUT.TXT');
    reset(inFile);
    rewrite(outFile);
    readln(expr);
    readln(inFile, nbrWords);
    for i:= 1 to nbrWords do
        begin
            readln(inFile, tmp);
            if (match(expr, tmp)) then
                writeln(outFile, tmp);
            end;
        end;
    CloseFile(inFile);
    CloseFile(outFile);
    //writeln(match('*o*', 'yuriko'));
    //readln;
end.

```

Tâche III – Horaire

30 points

```

program horaireP;

{$APPTYPE CONSOLE}

uses
    SysUtils;

type
    tCalendar = array[1 .. 5, 8 .. 16] of string;

var
    myFile : Textfile;
    calendar : tCalendar;
    day, hour, duration : integer;
    work, input : string;
    i : integer;

function getDay(day : string) : integer;
begin
    if (day = 'lundi') then
        result := 1
    else if (day = 'mardi') then
        result := 2
    else if (day = 'mercredi') then
        result := 3
    else if (day = 'jeudi') then

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```

    result := 4
else
    result := 5;
end;

procedure initCalendar();
var
    day, hour : integer;
begin
    for day := 1 to 5 do
        for hour := 8 to 16 do
            calendar[day, hour] := '';
        end;
    end;

procedure printCalendar();
var
    day, hour : integer;
begin
    for hour := 8 to 16 do
        begin
            for day := 1 to 5 do
                write(calendar[day, hour]:5, ' ');
            writeln;
        end;
    end;

begin
    initCalendar();
    AssignFile(myFile, 'IN.TXT');
    reset(myFile);

    day := 1;
    hour := 8;
    while not(eof(myFile)) do
        begin
            readln(myFile, work);
            readln(myFile, duration);
            for i := hour to hour + duration - 1 do
                calendar[day, i] := work;

                repeat
                    inc(day);
                    if (day > 5) then
                        begin
                            day := 1;
                            inc(hour);
                        end;
                    until (calendar[day, hour] = '') OR (hour > 16);
                end;
            CloseFile(myFile);

            printCalendar();

            readln(input);
            while (input <> '-1') do
                begin
                    day := getDay(copy(input, 1, pos(' ', input)-1));
                    hour := strtoint(copy(input, pos(' ', input)+1, length(input)));
                    writeln(calendar[day, hour]);
                    readln(input);
                end;
            end;
        end.

```