

2<sup>do</sup> Parcial - Diciembre de 2008 - Soluciones

Solución Parte 2:

<b>Problema 1</b>	
<p><b>Parte a)</b></p> <pre>function y = ej1_a (x) y = []; for i=1:(x/2)     y = [y; x-i i];     if (i ~= x-i)         y = [y; i x-i];     end end</pre>	<p><b>Parte b)</b></p> <pre>function y = ej1_b (x) y = []; for i=1:(x/2)     y = [y; x-i i]; end</pre>
<b>Problema 2</b>	
<p><b>Parte a)</b></p> <pre>function y = ej2_a(v,pre,x) l = length(v); y = []; for i=1:l     if v(i) == x         y = [y, pre v(i) pre];     else         y = [y, v(i)];     end end</pre>	<p><b>Parte b)</b></p> <pre>function y = ej2_b(v,pre,x) l = length(v); if l == 0     y=[]; else     if v(1) == x         y = [pre v(1) pre ej2_b(v(2:l),pre,x)];     else         y = [v(1) ej2_b(v(2:l),pre,x)];     end end</pre>
<p><b>Parte c)</b></p> <pre>function y = ej2_c(v,ant,nuevo) l = length(v); encontre = 0; while l &gt;= 1 &amp; ~encontre     if v(i) == ant         v(i) = nuevo;         encontre = 1;     else         l = l-1;     end end</pre>	<p><b>Parte d)</b></p> <pre>function y = ej2_d(v,ant,nuevo) l = length(v); if l == 0     y=[]; else     if v(1) == ant         y = [v(1:l-1),nuevo];     else         y = [ej2_d(v(1:l-1),ant,nuevo) v(1)];     end end</pre>
<b>Problema 3</b>	
<p><b>Parte a)</b></p> <pre>function [Bs,Bi,Bj] = TSacarFilCol(As, Ai, Aj, fil, col) l = length(Ai); if l == 0     Bs=[]; Bi=[]; Bj=[]; else     if Ai(1) == fil   Aj(1) == col         [Bs,Bi,Bj] = TSacarFilCol(As(2:l), Ai(2:l), Aj(2:l), fil, col);     else         [Bs,Bi,Bj] = TSacarFilCol(As(2:l), Ai(2:l), Aj(2:l), fil, col);         if Ai(1) &gt; fil             Bi = [Ai(1)-1 Bi];         else             Bi = [Ai(1) Bi];         end         if Aj(1) &gt; col             Bj = [Aj(1)-1 Bj];         else             Bj = [Aj(1) Bj];         end         Bs = [As(1) Bs];     end end</pre>	
<p><b>Parte b)</b></p> <pre>function [mf,mc] = MaxFilCol(As, Ai, Aj) l = length(Ai); mf=Ai(1); mc=Aj(1); for i=2:l     if Ai(i) &gt; mf</pre>	

```
        mf = Ai(i);  
    end  
    if Aj(i) > mc  
        mc = Aj(i);  
    end  
end  
end
```

### Parte c)

```
function [Bs,Bi,Bj] = DarFila(As, Ai, Aj, fil)  
l = length(Ai);  
if l == 0  
    Bs=[]; Bi=[]; Bj=[];  
else  
    [Bs,Bi,Bj] = DarFila(As(2:l), Ai(2:l), Aj(2:l), fil);  
    if Ai(1) == fil  
        Bi = [Ai(1) Bi];  
        Bj = [Aj(1) Bj];  
        Bs = [As(1) Bs];  
    end  
end  
end
```

### Parte d)

```
Function det = DetDisp(As, Ai, Aj)  
[maxFil,maxCol] = MaxFilCol(As, Ai, Aj)  
if maxFil == 1  
    det = As(1);  
else  
    fil = 1 % podría ser cualquiera  
    [As,Ai,Aj] = DarFila(As, Ai, Aj, fil);  
    li = length(Ai);  
    det = 0;  
    for i=1:li  
        [Bs,Bi,Bj] = TSacarFilCol(As, Ai, Aj, fil, Aj(i));  
        if (mod (fil+Aj(i),2) == 0)  
            det = det + As(i) * DetDisp(Bs, Bi, Bj);  
        else  
            det = det - As(i) * DetDisp(Bs, Bi, Bj);  
        end  
    end  
end  
end
```