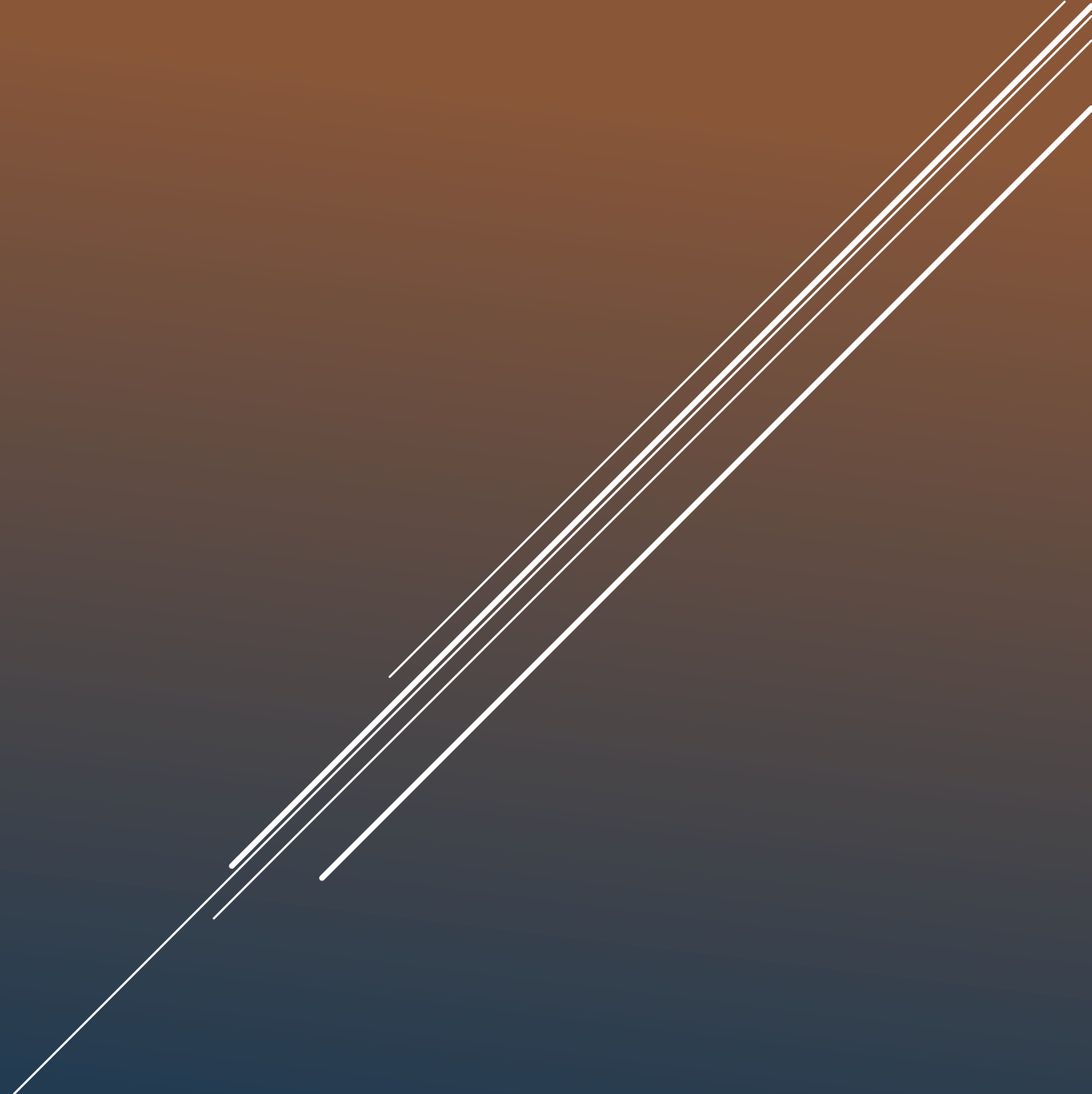


TEHNICA GREEDY

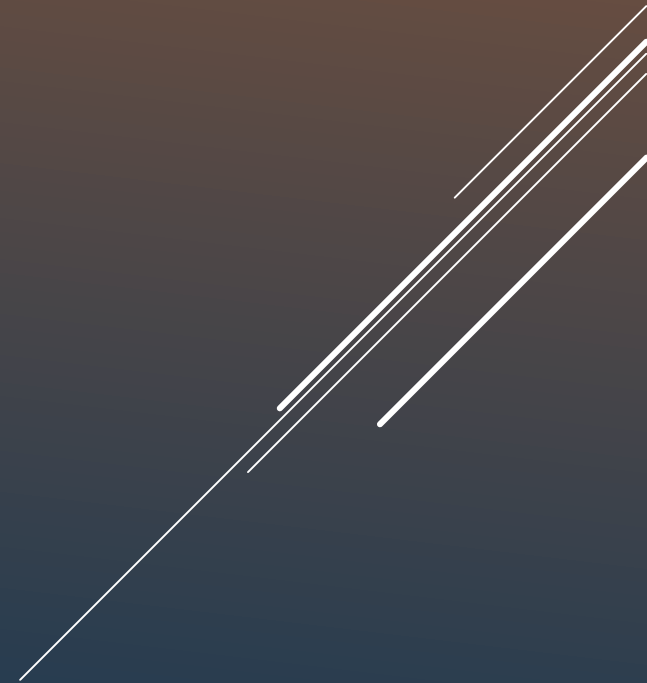
Proiect creat de Postolache Alexandrina



ESENTA:

- se initializeaza multimea B la multimea vida;
- se alege un anumit element din multimea A;
- se verifica daca elementul ales poate fi adaugat la multimea B;
- procedeul continua pana ce au fost determinate toate elementele multimii B.

PROBLEMA RUCSACULUI



PROGRAM RUCSAC;

```
Var   g:array [1..10] of integer;  
      i,n,Gm,R, aux : integer;  
      ok:boolean;
```

```
begin  
  writeln('nr obiecte'); readln(n);  
  writeln('capacitate rucsac'); readln(R);  
  writeln(' Obiectele de luat în rucsac:' );  
  for i:=1 to n do  
    read (g[i]);
```

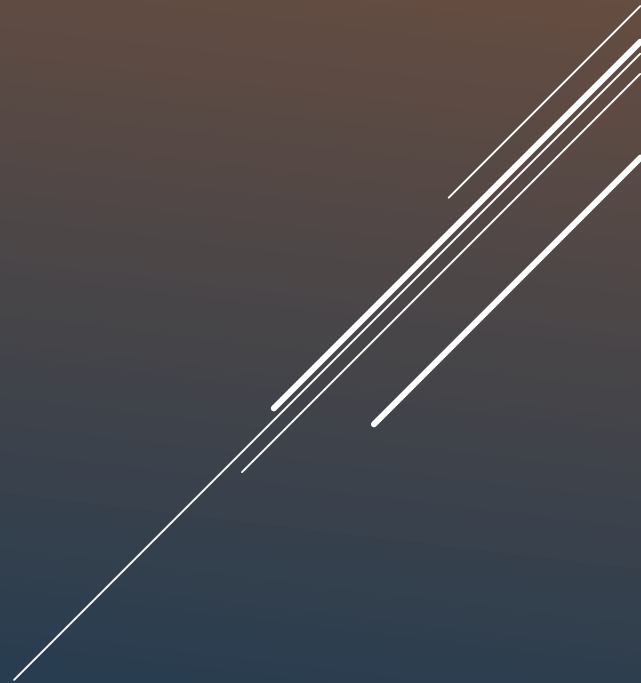
```
ok:=false;
while(ok=false) do
  begin
    ok:=true;
    for i:=1 to n-1 do
      if g[i]>g[i+1] then
        begin
          aux:=g[i];
          g[i]:=g[i+1];
          g[i+1]:=aux;
          ok:=false;
        end;
      end;
    end;
```

{SORTAREA VECTORULUI}

```
writeln;  
  for i:=1 to n do  
    write( g[i], '*');  
Gm:=0 ;  
i:=1;  
  while ( Gm +g[i]<=R ) do  
  begin  
    Gm:=Gm+g[i];  
    i:=i+1;  
  end;  
writeln('sunt' ,i-1,' obiecte cu greutate' , Gm,') ;  
  writeln ( ' a ramas' , R-Gm,' loc liber' ) ;  
end.
```

{ VERIFICĂ DACĂ FIECARE OBIECT ÎNCAPE ÎN
RUCSAC }

PROBLEMA BANILOR



PROGRAM BANI;

```
type tablou=array[1..3,1..7] of integer;
var s,ss,i : integer; a:tablou; f:text;
{In primul rind al tabelului vom pastra nominalul bancnotelor}
{In al doilea rind - numarul bancnotelor citite din fisier}
{In al treilea rind - numarul bancnotelor obtinute la schimb}
Procedure Afisare(sa:integer);
begin
    writeln('suma ',s);
    if sa<>0 then
        writeln('nu poate fi transformata cu bancnotele date ')
    else begin
        writeln('se plateste cu urmatoarele bancnote');
        for i:=1 to 7 do
            if a[3,i]<>0 then
                writeln('bancnote de ',a[1,i]:6,' sau folosit ',a[3,i]);
            end;
        end; { Afisare }
```



```
Procedure calcul(var sa:integer);  
var nb:integer;  
begin  
  i:=7;  
  while (i>=1) and (sa>0) do  
    begin  
      nb:=sa div a[1,i];  
      if nb<>0 then if nb>= a[2,i]  
        then a[3,i]:=a[2,i]  
        else a[3,i]:=nb;  
      sa:=sa-a[3,i]*a[1,i];  
      i:=i-1;  
    end;  
  end; { calcul }
```

```
begin
a[1,1]:=1;
a[1,2]:=5;
a[1,3]:=10;
a[1,4]:=50;
a[1,5]:=100;
a[1,6]:=200;
a[1,7]:=500;
assign (f,'bani.in');
reset(f);
for i:=1 to 7 do readln(f,a[2,i]);
write ('introduceti suma de lei S ');readln(s);
ss:=s; calcul(ss); Afisare(ss);
end.
```

PROBLEMA SPECTACOLELOR



PROGRAM SPECTACOL;

type teatru=record

ins, sfs:integer; (ora de inceput si de sfarsit a unui spectacol
calculata in minute scurse fata de miezul noptii)

ord:integer; (numarul de ordin al spectacolului)

end;

Var v:array [1..30] of teatru;

n, ultim, nr:integer; (n=numarul de spectacole, in variabila ultim
avem in permanenta ultimul spectacol selectat, nr=numarul maxim
de spectacole)

Procedure sortare_piese;

Var i,j:integer;

temp:teatru;

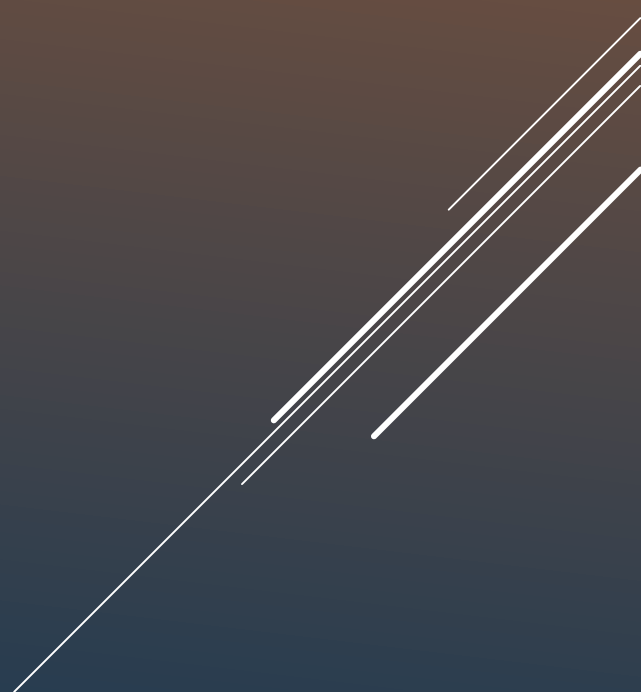
```
Begin
For i:=1 to n-1 do
for j:=i+1 to n do
if v[j].sfs<v[i].sfs then
begin
temp:=v[i];
v[i]:=v[j];
v[j]:=temp;
end;
Procedure citire_piese;
Var hh,mm,i:integer;
begin
```

```
Write ('Numarul de piese de teatru n= ');
Readln (n);
for i:=1 to n do begin
Write ('Piesa cu nr ',i, 'cand incepe?
(ora si minutul)');
Readln (hh,mm);
v[i].ins:=hh*60+mm;
Write ('Piesa cu nr ',i, 'cand se termina?
(ora si minutul)');
Readln (hh,mm);
v[i].ins:=hh*60+mm;
v[i].ord:=i;
end; end;
```

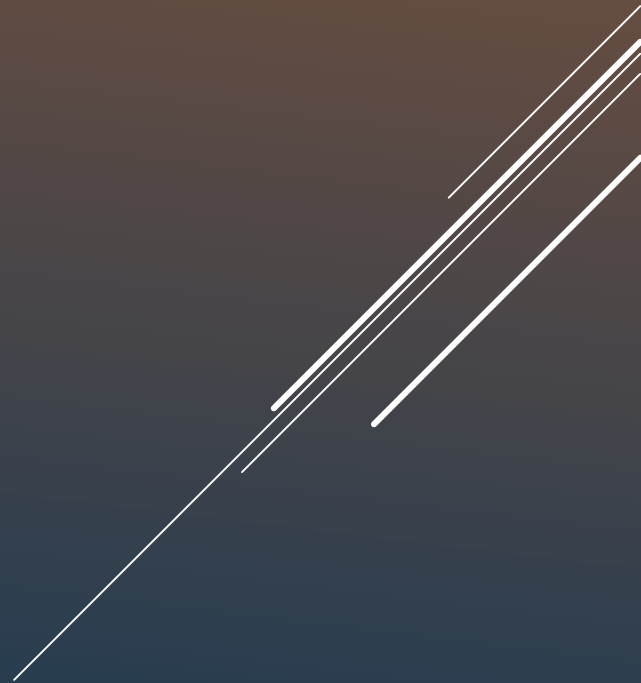
```
Procedure afis_piese;  
Var i:integer;  
Begin  
Write ('Inceputurile si sfarsiturile  
pieselor in minute scurse de la miezul  
noptii: ');  
for i:=1 to n do  
write  
('(',v[i].ins,',',v[i].sfs,',',v[i].ord,')');  
writeln;  
end;
```

```
Procedure algo_greedy;  
Var i:integer;  
Begin  
Write ('Pieseale posibile, in ordine: ');  
ultim:=1; nr:=1;  
write (v[i], ' ');  
for i:=2 to n do  
If (v[i].ins>v[ultim].sfs) then  
Begin  
Write (v[i].ord, ' ');  
ultim:=i;  
nr:=nr+1; end;
```

```
Writeln ('In total se pot alege maxim',nr,' piese');  
end;  
Begin  
citire_piese;  
afis_piese;  
sortare_piese;  
afis_piese;  
algo_greedy;  
end.
```



PROBLEMA BENZINARIEI



PROGRAM BENZINARIE;

```
Type benz=record
ins, sfs:integer;
ord:integer; end;
Var v:array [1..100] of benz;
n, ultim, nr:integer;
Procedure citire_clienti;
Var hh, mm, i:integer;
begin
Write ('n= '); Readln (n);
for i:=1 to n do begin
Write ('Clientul cu nr. ',i,'cand este servit? (ora si
minutul)');
Readln (hh, mm);
```

```
v[i].ins:=hh*60+mm;
Write ('clientul cu nr ', i, ' cand a terminat
alimentarea ? ');
Readln (hh, mm);
v[i].sfs:=hh*60+mm;
v[i].ord:=i; end; end;
Procedure afisare_clienti;
Var i:integer;
Begin
Write (' cand incepe sa fie servit si cand a
terminat alimentarea: ');
for i:=1 to n Do
Write (('v[i].ins,',',v[i].sfs, ',',v[i].ord')));
Writeln; end;
```

```
Procedure sortare_clienti;
```

```
Var i,j:integer;
```

```
t:benz;
```

```
Begin
```

```
for i:=1 to n-1 Do
```

```
for j:=i+1 to n Do
```

```
if (v[j].sfs<v[i].sfs) then
```

```
Begin
```

```
t:=v[i]; v[i]:=v[j];
```

```
v[j]:=t; end; end;
```

```
Procedure alg_greedy;
```

```
var i:integer;
```

```
Begin
```

```
Write ('posibilii clienti, in ordine: ');
```

```
ultim:=1;
```

```
nr:=1;
```

```
Write (v[i].ord, ' ');
```

```
for i:=2 to n do
```

```
if (v[i].ins>v[ultim].sfs) then
```

```
begin
```

```
Write (v[i].ord, ' ');
```

```
ultim:=i;
```

```
nr:=nr+1;
```

```
end;
```

```
Writeln ('in total se pot alege  
maxim',nr, 'clienti');
```

```
begin
```

```
citire_clienti;
```

```
afisare_clienti;
```

```
sortare_clienti;
```

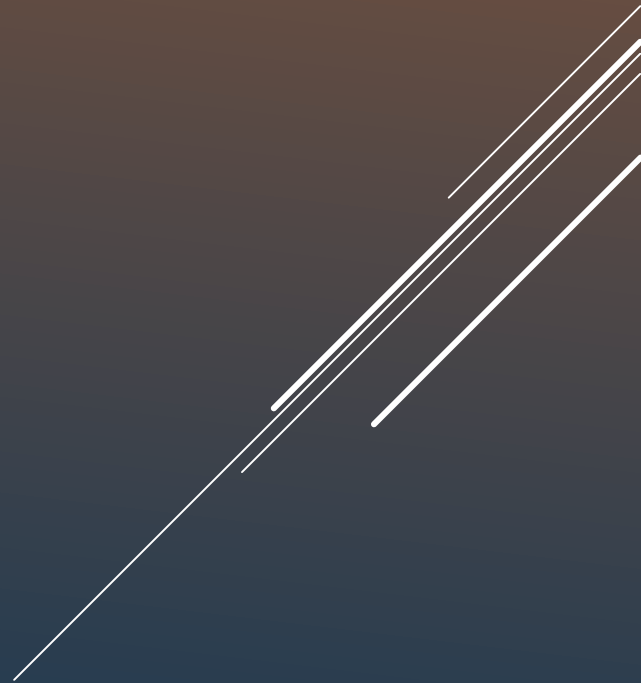
```
afisare_clienti;
```

```
alg_greedy;
```

```
end.
```

Several white lines of varying lengths and slopes are positioned in the bottom right corner of the slide, creating a modern, abstract graphic element.

PROBLEMA MAXIMULUI



PROGRAM MAXIM;

Var n, a1, a2, c:Integer;

Begin

a1:=-MAXINT; (initializam primele 2 numere si n
cu o constanta predefinita)

a2:=-MAXINT;

n:=-MAXINT;

While n<>0 Do Begin

If (n>a1) Then a1:=n; (daca numarul n este mai
mare decat primul cel mai mare numar atunci
maximul este n)

If (a2<a1) Then Begin

c:=a1;

a1:=a2;

a2:=c; end; (interschimbare)

Readln (n); end;

Writeln ('a1, ' ',a2');

end.

- ▶ <http://dasinika.blogspot.com/2009/04/tehnica-greedy-pentru-problemele-pentru.html>
- ▶ <http://paulborza.blogspot.com/2010/08/metoda-greedy-in-limbajul-de-programare.html>
- ▶ <https://tpascalblog.wordpress.com/>
- ▶ https://www.slideshare.net/yoanna_ioana/problema-rucsacului-presentation-948687

BIBLIOGRAFIE

MULTUMESC PENTRU ATENTIE!

