```
model investicni_problem
uses "mmxprs";
declarations
m = 20
projekty = 1..m
n = 9
roky = 1..n
faze = 1..n
o = 7
indikatory = 1..o
r = 2
milniky = 1..r
FP:array(roky) of real
p:array(projekty) of real
w:array(projekty) of real
BX:array(projekty,faze,roky) of real
BY:array(projekty,roky) of real
a:array(projekty,indikatory) of real
b:array(indikatory,milniky) of real
N:array(projekty,faze) of real
x:dynamic array(projekty, range, range) of mpvar
y:dynamic array(projekty, range) of mpvar
end-declarations
FP::[2000000,2000000,1500000,2000000,1500000,2000000,1500000,0,0]
p::[3,3,4,5,4,3,2,4,3,3,2,3,4,3,3,4,4,3,4,3]
w::[1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1]
BX::[0,0,1,1,1,1,1,0,0,
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BY::[0,0,1,1,1,1,1,0,0,1,1,1,1,1,1,1,0,0,0,1,1,1,1,1,0,0,0,1,1,1,1,1,0,0,0,0,0,1,1,1,1,1,
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1,0,0,0,0,1,1,1,1,1,0,0,0,1,0,0,0,0,0,0,0,0,0]

a::[3.1,0,0,0,0,3.1,0,

0,6.13,0,6.13,0,0,0,

10.45,0,0,0,0,10.45,0,

8.577,0,0,0,0,0,0,

5.950,0,0,0,0,5.950,0,

0,0,5.096,0,3,0,0,

0,0,0,0.42,0,0.42,0,

16.346,0,0,0,6,0,0,

0,0,7.1,0,0,7.1,0,

0,0,0,2.879,0,2.879,0,

0,0,0,0,0,0,5,

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0,0,9.51,0,0,9.51,0,

0,0,1,7.527,0,0,0,

0,2.766,0,0,2.766,0,0,

0,0,10.3,0,0,10.3,0,

7.537,0,0,0,0,7.537,0,

0,0,0,0,5,5,0,

0,0,6.02,2,0,0,0,

17.3,0,0,0,3,0,0]

N::[150000,500000,625000,0,0,0,0,0,0,150000,400000,330000,0,0,0,0,0,0,25000,1100000,1200000,1400000,0,0,0,0,0,0,31000,720000,669000,500000,300000,0,0,0,0,400000,600000,700000,800000,0,0,0,0,0,0,320000,1000000,1150000,0,0,0,0,0,0,70000,90000,0,0,0,0,0,0,0,600000,1200000,1400000,1800000,0,0,0,0,0,0,20000,480000,340000,0,0,0,0,0,0,250000,400000,380000,0,0,0,0,0,0,50000,150000,0,0,0,0,0,0,0,250000,250000,150000,0,0,0,0,0,0,200000,300000,600000,400000,0,0,0,0,0,0,280000,420000,700000,0,0,0,0,0,0,200000,400000,600000,0,0,0,0,0,0,200000,500000,600000,700000,0,0,0,0,0,0,600000,600000,600000,200000,0,0,0,0,0,0,20000,165000,165000,0,0,0,0,0,0,0,150000,1200000,1000000,800000,0,0,0,0,0,0,1600000,1300000,1000000,0,0,0,0,0,0,0]

b::[8,15,

5,8,

5,10,

5,12,

3,8,

5,10,

2,5]

```
forall(i in projekty,k in faze,j in roky|BX(i,k,j)=1)create(x(i,k,j))

forall(i in projekty,j in roky|BY(i,j)=1)create(y(i,j))

forall(i in projekty,j in roky)p(i)*y(i,j)=sum(k in faze)x(i,k,j+k-1)

forall (k in indikatory)sum(i in projekty, l in faze, j in 1..4)a(i,k)*x(i,l,j)/p(i)>=b(k,1)

forall (k in indikatory)sum(i in projekty, l in faze, j in roky)a(i,k)*x(i,l,j)/p(i)>=b(k,2)

forall(i in projekty,j in roky)sum(k in faze)x(i,k,j+k-1)<=p(i)*y(i,j)

forall(i in projekty)sum(j in roky)y(i,j)<=1

forall(j in roky)C(j):=FP(j)-sum(i in projekty, k in faze) x(i,k,j)*N(i,k)

forall(j in 1..1)sum(i in projekty,k in faze)N(i,k)*x(i,k,j)<=FP(j)

forall(j in 2..2)sum(i in projekty,k in faze)N(i,k)*x(i,k,j)<=FP(j)+C(1)

forall(j in 3..9)sum(i in projekty,k in faze)N(i,k)*x(i,k,j)<=FP(j)+C(j-1)+C(j-2)

y(20,1)=1

y(11,4)=1

forall(i in projekty,k in faze,j in roky)x(i,k,j)is_binary

forall(i in projekty,j in roky)y(i,j)is_binary

uf:=sum (i in projekty, k in indikatory, j in roky)w(i)*a(i,k)*y(i,j)

maximize(uf)

forall (j in roky) writeln ("Utracene financni prostredky v roce ",j," jsou: ",getsol(sum(i in
projekty, k in faze)x(i,k,j)*N(i,k))," tisic korun.")

writeln("Celkova hodnota indikatoru je:",getobjval,"jednotek")

forall (i in projekty, k in faze, j in roky |getsol(x(i,k,j))>0) writeln
("x(",i,",",k,",",j,")=",getsol(x(i,k,j)))

forall (i in projekty,j in roky |getsol(y(i,j))>0)  writeln ("y(",i,",",j,")=",getsol(y(i,j)))

end-model
```