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list=scan(file=~Documents/Project/Rscripts/list3")
fout=~Documents/Project/Rscripts/list3.dict"
print("List")
print(list)
n=length(list) #
print("Number of items(Values) in the list")
print(n)
m=n #Initial number of bins
print("Transforming list into dictionary of LP")
count_N = m+n*m # count of non-basic variables
count_B = 2*n+m+n*m # count of basic variables
print("number of Non-basic variables")
print(count_N)
print("number of Basic variables")
print(count_B)
N=array(dim=count_N,data=1:count_N)
print("N matrix")
print(N)
B=array(dim=count_B,data=0)
print("B matrix")
print(B)
C=array(dim=count_N,data=0)
print("C matrix")
print(C)

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A=array(data=0,dim=c(count_B,count_N))
b=array(data=0,dim=count_B)
Z0=array(data=0,dim=1)
#Value numbering
# y_i = x_i
# x_ij = x_(m*i+j)
# x_si = x_((n+1)*m+i)

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index_B=1# index of basic variables
index_N=1# index of non-basic variables

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for(i in 1:n)
{
  B[index_B]=((n+1)*m+i)
  b[index_B]=1
  for(j in 1:m)
  {
    A[index_B,(m*i+j)]=-1
  }
  index_B=index_B+1
}
for(i in 1:n)
{
  B[index_B]=((n+1)*m+n+i)
  b[index_B]=-1
  for(j in 1:m)
  {
    A[index_B,(m*i+j)]=1
  }
  index_B=index_B+1
}
for(j in 1:m)
{
  B[index_B]=((n+1)*m+2*n+j)
  b[index_B]=1
  for(i in 1:n)
  {
    A[index_B,(m*i+j)]=list[i]
  }
  index_B=index_B+1
}
for(i in 1:n){
  for(j in 1:m){
    B[index_B]=((n+1)*m+2*n+m+(i-1)*n+j)
    b[index_B]=0
    A[index_B,i]=1
    A[index_B,(m*i+j)]=-1
  }
}

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    index_B=index_B+1
  }
}
for(j in 1:m){
  C[j]=-1
}
print("m")
print(m)
print("n")
print(n)
print("B")
print(B)
print("A")
print(A)
print("b")
print(b)
print("N")
print(N)
print("C")
print(C)
print("Z0")
print(Z0)

# writing the dictionary in file
count=array(data=0,dim=2)
count[1]=count_B
count[2]=count_N
write(file=fout,x=count)
write(file=fout,x=B,append=TRUE,ncolumns=count_B)
write(file=fout,x=N,append=TRUE,ncolumns=count_N)
write(file=fout,x=b,append=TRUE,ncolumns=count_B)
write(file=fout,x=t(A),append=TRUE,ncolumns=count_N)
temp=array(data=0,dim=(count_N+1))
temp[1]=Z0
for(i in 1:count_N) temp[i+1]=C[i]
print(temp)
write(file=fout,x=temp,append=TRUE,ncolumns=(count_N+1))
```