

Program 10

Aim: Solve an Assignment problem of three variables.

Code:

```
clc
clear
n=input("how many workers and job do you have      :");
printf("\nenter time of\n\n");
for i=1:n
    for j=1:n
        printf("worker %d job%d :",i,j);
        T(i,j)=input('\n');
    end
end
printf("\nDATA YOU ENTERED IS      :\n ");
for i=1:n
    printf("job%d ",i);
end
for i=1:n
    printf("\nworker%d ",i);
    for j=1:n
        printf("%d ",T(i,j));
    end
end
minim=[1000,1000,1000,1000,1000,1000,1000,1000,1000];
for i=1:n
    for j=1:n
        if(T(i,j)<=minim(i)) then
            minim(i)=T(i,j);
        end
    end
end
printf("\n");
for i=1:n
    for j=1:n
        T(i,j)=T(i,j)-minim(i);
```

```

    end
end
printf("\n");
printf("\n\n*****data after row minimum decrement
is*****\n\t\t");
for i=1:n
    printf('job%d ',i);
end
for i=1:n
    printf("\nworker%d ",i);
    for j=1:n
        printf('%d ',T(i,j));
    end
end
zerr=[1000,1000,1000,1000,1000,1000];
zerc=[1000,1000,1000,1000,1000,1000];
for i=1:n
    for j=1:n
        if(T(i,j)==0) then
            zerr(i)=0;
            zerc(j)=0;
        end
    end
end
f=0;
y=0;
for i=1:n
    if(zerr(i)) then
        f=1;
    end
end
for i=1:n
    if(zerc(i)) then
        y=1;
    end
end
if((f==1)||(y==1)) then

    mn=[1000,1000,1000,1000,1000,1000,1000,1000,1000];

```

```

        for j=1:n
            for i=1:n
                if(T(i,j)<=mn(j)) then
                    mn(j)=T(i,j);
                end
            end
        end
    end
end
    for j=1:n
        for i=1:n
            T(i,j)=T(i,j)-mn(j);
        end
    end
end
printf('\n\n*****data after column minimum decrement
is*****\n');
for i=1:n
    printf('job%d ',i);
end
for i=1:n
    printf('\nworker%d ',i);
    for j=1:n
        printf('%d ',T(i,j));
    end
end
end
printf('\n\n\n*****Final job assignment is*****');
for i=1:n
    for j=1:n
        if(T(i,j)==0) then
            printf('\n assign job %d to worker %d',j,i);

            for z=1:n

                if (z==i) then
                    continue;
                end

                if(T(z,j)==0) then
                    T(z,j)=1000;

```

```
        end

        for l=1:n
            if(l==j) then
                continue;
            end

            if(T(i,l)==0) then
                T(i,l)=1000;
            end
        end

    end

end

end
end
end
printf("\n");
```

Output:

Scilab 2023.0.0 Console

File Browser: /Users/rushikeshnmjgd/

how many workers and job do you have :
3

enter time of

worker 1 job1 :
2

worker 1 job2 :
4

worker 1 job3 :
5

worker 2 job1 :
6

worker 2 job2 :
3

worker 2 job3 :
1

worker 3 job1 :
5

worker 3 job2 :
4

worker 3 job3 :
8

DATA YOU ENTERED IS :

	job1	job2	job3
worker1	2	4	5
worker2	6	3	1
worker3	5	4	8

Variable Browser:

Name	Value	Type	Visibility	Memory
T	3x3	Double	local	280 B
f	0	Double	local	216 B
i	3	Double	local	216 B
j	3	Double	local	216 B
l	3	Double	local	216 B
minim	1x9	Double	local	280 B
n	3	Double	local	216 B
y	0	Double	local	216 B
z	3	Double	local	216 B
zerc	1x6	Double	local	256 B
zerr	1x6	Double	local	256 B

Command History:

```
3
2
1
2
editor
3
2
4
5
6
3
1
5
4
8
```

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Scilab 2023.1.0 has been released

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Scilab 2023.0.0 Console

File Browser: /Users/rushikeshnmjgd/

worker 2 job1 :
6

worker 2 job2 :
3

worker 2 job3 :
1

worker 3 job1 :
5

worker 3 job2 :
4

worker 3 job3 :
8

DATA YOU ENTERED IS :

	job1	job2	job3
worker1	2	4	5
worker2	6	3	1
worker3	5	4	8

*****data after row minimum decrement is*****

	job1	job2	job3
worker1	0	2	3
worker2	5	2	0
worker3	1	0	4

*****Final job assignment is*****

```
assign job 1 to worker 1
assign job 3 to worker 2
assign job 2 to worker 3
```

Variable Browser:

Name	Value	Type	Visibility	Memory
T	3x3	Double	local	280 B
f	0	Double	local	216 B
i	3	Double	local	216 B
j	3	Double	local	216 B
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Command History:

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3
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