

```
function [cost, assignment] = transportation_vam(supply, demand, costs)
```

```
    m = length(supply);
```

```
    n = length(demand);
```

```
    assignment = zeros(m, n);
```

```
    while sum(supply) > 0 & sum(demand) > 0
```

```
        u = zeros(1, m);
```

```
        v = zeros(1, n);
```

```
        min_cost = Inf;
```

```
        min_i = 0;
```

```
        min_j = 0;
```

```
        for i = 1:m
```

```
            for j = 1:n
```

```
                if assignment(i, j) == 0
```

```
                    temp_cost = costs(i, j) - u(i) - v(j);
```

```
                    if temp_cost < min_cost
```

```
                        min_cost = temp_cost;
```

```
                        min_i = i;
```

```
                        min_j = j;
```

```
                    end
```

```
                end
```

```
            end
```

```
        end
```

```
min_supply=min(supply(min_i), demand(min_j));  
assignment(min_i, min_j) = min_supply;  
supply(min_i)=supply(min_i) - min_supply; demand(min_j)=demand(min_j) - min_supply;
```

```
if sum(supply == 0)<m  
    u(min_i)=costs(min_i, min_j) - v(min_j);  
end  
if sum(demand == 0)< n v(min_j)=costs(min_i,min_j)-u(min_i);  
end  
end cost=sum(sum(assignment .* costs));
```

```
supply = [20, 30, 25];  
demand = [30, 25, 20];  
costs = [5 7 3; 4 6 8; 9 2 5];  
[cost, assignment] = transportation_vam(supply, demand, costs);  
disp(cost)  
disp(assignment)
```