

P2_Sol

June 8, 2019

```
In [2]: using LinearAlgebra
```

```
In [3]: F=[2 0 0;  
          0 3 0;  
          0 0 5;  
          1 1 1]  
        rank(F)
```

```
Out[3]: 3
```

```
In [4]: F=[1 2 3 4;  
          4 5 6 7;  
          7 8 9 10;  
          10 11 12 13]  
        rank(F)
```

```
Out[4]: 2
```

```
In [5]: y=[1, 2, 3, 4]  
        x=F\y
```

```
Out[5]: 4-element Array{Float64,1}:  
         0.10416666666666667  
        -0.02083333333333334  
         0.0625  
         0.1875
```

```
In [6]: A=[4 2 2;  
          5 3 1;  
          4 3 3]  
        b=[46, 57, 53]  
        x=A\b
```

```
Out[6]: 3-element Array{Float64,1}:  
         8.0  
         5.0  
         2.0
```

```
In [7]: function poup(n,)
        P=zeros(n,n)
        for i=1:n
            for j=1:n
                if i<j P[i,j]=0
                    else P[i,j]=(1+)^(i-j)
                end
            end
        end
        return P
    end
```

Out[7]: poup (generic function with 1 method)

```
In [8]: n=8; =1
        poup(n,)
```

```
Out[8]: 8E8 Array{Float64,2}:
  1.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
  2.0  1.0  0.0  0.0  0.0  0.0  0.0  0.0
  4.0  2.0  1.0  0.0  0.0  0.0  0.0  0.0
  8.0  4.0  2.0  1.0  0.0  0.0  0.0  0.0
 16.0  8.0  4.0  2.0  1.0  0.0  0.0  0.0
 32.0 16.0  8.0  4.0  2.0  1.0  0.0  0.0
 64.0 32.0 16.0  8.0  4.0  2.0  1.0  0.0
128.0 64.0 32.0 16.0  8.0  4.0  2.0  1.0
```

```
In [9]: n=4; =0.01
        poup(n,)
```

```
Out[9]: 4E4 Array{Float64,2}:
  1.0  0.0  0.0  0.0
 1.01  1.0  0.0  0.0
1.0201 1.01  1.0  0.0
1.0303 1.0201 1.01  1.0
```

```
In [10]: B=[3 1;
           1 1]
         v=[48,38]
         x=B\v
```

```
Out[10]: 2-element Array{Float64,1}:
  5.000000000000003
 32.99999999999999
```

```
In [ ]:
```