

Øving 11 Datateknikk

Pragaash Mohan

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Oppgave 1 - Repetisjon: Celle-array

```
1  %Oppgave 1
2
3  navn={'Kari', 'Per', 'Ola', 'Helga'};
4  verb={'liker', 'spiser'};
5  substantiv={'handball', 'tang', 'aviser'};
6
7  n1=navn(randi(length(navn)));
8  v1=verb(randi(length(verb)));
9  s1=substantiv(randi(length(substantiv)));
10
11 fprintf('%s %s %s.\n', n1{1}, v1{1}, s1{1});
12
13 clear all
```

Oppgave 2-Repetisjon:Strukturer(structs)

```
1 %Oppgave 2
2 %Utvider struktur fra oppgave 3a)
3
4 sylindre(3)=struct('dimensjon',struct('radius',3,'hoyde',6),'vekt'
5 ,9,'kode','c','kost',struct('std',350,'eksklusiv',300));
6 sylindre(1)=struct('dimensjon',struct('radius',3,'hoyde',6),'vekt'
7 ,7,'kode','x','kost',struct('std',325,'eksklusiv',280));
8 sylindre(2)=struct('dimensjon',struct('radius',4,'hoyde',2),'vekt'
9 ,5,'kode','a','kost',struct('std',225,'eksklusiv',200));
```

```
1 %Function – Oppgave 2
2 function volar2(cyls)
3
4 for i=1:length(cyls)
5     [vol,sA]=cylvol(cyls(i).dimensjon);
6     [kost1,kost2]=cylvoll(cyls(i).kost);
7     fprintf('Cylinder %c has a volume of %.1f cm^3,\n and a ...
8         surface area of %.2f cm.\n',cyls(i).kode,vol,sA);
9     fprintf('Std. cost is: %d. Exclusive cost is: ...
10         %d.\n',kost1,kost2);
11
12 end
13
14 function [cvol,sArea]=cylvol(dims)
15
16 cvol=(pi*dims.radius^2*dims.hoyde);
17 sArea=(2*pi*dims.radius^2)+(2*pi*dims.radius*dims.hoyde);
18
19 end
20
21 function [kost1,kost2]=cylvoll(kost)
22
23 kost1=kost.std;
24 kost2=kost.eksklusiv;
25
26 end
```

Oppgave 3 - Lavnivå filbehandling

```
1  %Oppgave 3
2  fid=fopen('dat.dat','r');
3
4  nyf=[];
5  while ~feof(fid)
6      tline = fgetl(fid);
7      a=textscan(tline,'%s %d %d %d %d','Delimiter',' ');
8      b1=a{1};
9      b2=char(b1(1));
10     f=regexp(b2,'[1-9]');
11     b3=b2(f(1):f(2));
12     b4=str2num(b3);
13     b5=int32(b4);
14     a{1}=b5;
15
16     nyf=[nyf;cell2mat(a)];
17     nyfl = double(nyf) %F r ikke lagret matrise utenom ...
        konvertere til double frst.
18
19
20 end
21 fclose(fid);
22 disp(nyf)
23 save nydat.dat nyfl -ascii
```

Oppgave 4 - Lavnivå filbehandling

```
1 %Oppgave 4a
2 %Bruker dat.filer fra tidligere oppgaver
3
4 x=input('Enter filename: ','s');
5
6 fid = fopen(x);
7
8 while fid == -1
9     fprintf('Filename not found. Try again.\n','s');
10    x=input('Enter filename: ','s');
11    fid = fopen(x);
12 end
13
14 if fid ~= -1
15     disp('File opened.')
16     cfid=fclose(fid);
17     if cfid==0
18         disp('File is now closed')
19     else
20         disp('File was not closed')
21     end
22 end
23
24
25 clear all
```

```
1 'wrate.dat'
2 A 1.2
3 B 1.6
4 C 2.2
5 D 0.4
6 E 0.2
7 F 3.6
8 G 3.0
9 H 2.4
```

```

1  %Oppgave 4b
2  %data opprettet under navnent 'wrate.dat'
3
4  fid = fopen('wrate.dat');
5
6  rate=[];
7  if fid == -1
8      disp('Filename not found. Try again.');
```

```

9
10 else if fid ≠ -1
11     disp('File opened.')
12     while ¬feof(fid)
13         wdata=fgetl(fid);
14         w=textscan(wdata,'%c %f','Delimiter',' ');
15         rate=[rate;w];
16         numr=rate(:,2);
17         x=max(cell2mat(numr));
18         cC=rate(find([numr{:}] == x));
19
20     end
21     fprintf('The production line with the highest failing rate ...
           is\n')
22     fprintf('line %c with a failing rate of %0.2f.\n',char(cC),x)
23
24     cfid=fclose(fid);
25     if cfid==0
26         disp('File is now closed')
27     else
28         disp('File was not closed')
29     end
30 end
31 end

```

```

1  %Oppgave 4c
2
3  x=input('Please enter the amount of voltage values wanted: ');
4
5  for i=1:x
6      y=input('Enter voltage values: ');
7      while y<0 || y>24
8          y=input('Value out of bonds. Please enter new value: ');
9      end
10     fprintf('\n');
11     fprintf('R = 100 Ohm. Calculating effect for value #d.\n',i);
12     eff=(y^2/100);
13
14     fid = fopen('calculations.txt', 'at');
15     if fid ≠ -1
16
17         fprintf(fid,'The voltage value is %dV. The effect is ...
18             %0.2fW.\n',y,eff);
19         ex=fclose(fid);
20         if ex==0
21             disp('Values saved to file. File is now closed.')
22         else
23             disp('File was not closed')
24         end
25     end
26
27
28 end

```