

Øving 3 Datateknikk

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Oppgave 1 - Repetisjon

```
1  %Practice
2
3  %3.1
4
5  %This script calculates the circumference of a circle
6  r=5; %Radius is assigned
7  c=2*pi*r %Circumference is calculated
8
9  clear all
10
11 %3.2
12
13 %This script prompts the user for a length and dimension
14 l=input('Enter length: ');
15 d=input('Is that f(eet) or m(eters)? : ','s');
16 fprintf('The length is %d%s.\n',l,d);
17
18 clear all
19
20 %3.3
21
22 x=input('Input single character: ','s');
23 y=input('Input single number: ');
24 fprintf('    %3s\n%-8.3f\n',x,y)
25
26 clear all
```

```

1  %3.4
2
3  %Modifying 'plotonpoint.m'
4
5  x=input('Input time: ');
6  y=input('Input temperature: ');
7  plot(x,y,'r*')
8
9  axis([x-2 x+2 y-10 y+10])
10 xlabel('Time');
11 ylabel('Temperature');
12 title('Time and temp');
13
14 clear all
15
16 %3.5
17
18 %Using the axis function
19 x=1:5;
20 y1=[2,11,6,9,3];
21 y2=[4,5,8,6,2];
22 figure(1)
23 bar(x,y1)
24 figure(2)
25 plot(x,y1,'k')
26 hold on
27 plot(x,y2,'ko')
28 axis([0.5 5.5 1 11])
29 grid on
30 legend('y1','y2')
31 hold off
32 clear all
33
34 %3.66
35 clf
36 x=[0:0.5:3.5];
37 y1=exp(x)
38 y2=log(x)
39 plot(x,y1)
40 hold on
41 plot(x,y2)
42 axis([0 3.5 0 35])
43 grid on
44 hold off
45 clear all
46
47 %3.7
48 %Prompt user for amount of rows and columns
49
50 z=input('Input max value for integer: ');%Adding prompt for max ...
    value
51 x=input('Input #rows: ');
52 y=input('Input #columns: ');
53 randi(z,x,y)
54
55 clear all

```

```

1  %3.8
2
3  x=[1:4];
4  y=load('salesfigs.dat');
5  %seperate matrix into 2 vectors:
6  x1=y(1,:);
7  x2=y(2,:);
8  plot(x,x1,'ko')
9  hold on
10 plot(x,x2,'k*')
11 axis([1 4 1.2 3])
12 xlabel('Quarter');
13 ylabel('Sales(in billions)');
14 title('ABC corporation sales: 2013');

```

Oppgave 2 - Matlab

```

1  &Practice
2  %3.9
3
4  radius=input('Input radius: ');
5  height=input('Input height: ');
6
7  x=conevol(radius,height);
8  fprintf('The cone volume is %.2f\n',x)
9
10 clear all
11
12 %3.10
13
14 l=input('Input length in inches: ');
15 w=input('Input width in inches: ');
16
17 x=calcrectarea(l,w)
18 fprintf('We need ca: %d sq in.\n',ceil(x))

```

```

1  %4.1
2
3  x=input('Input total workhours: ');
4  if x>40
5      fprintf('You have worked %d hours. You get overtime!\n',x)
6  end
7
8  clear all

```

```

1  %4.2
2
3  x=input('Input angle: ');
4  y=input('(r)adians (the default) or (d)egrees: ','s');
5  s=0;
6  if y=='d'
7      s=sind(x);
8  else
9      s=sin(x);
10 end
11 fprintf('The sin is %.2f.\n',s);

```

```

1  %Excercise 9 parttol.m
2  x=load('parttolerance.dat');
3  w1=x(1,2);
4  w2=x(1,3);
5  p=input('Input the weight of part: ');
6  if p<w1 || p>w2
7      fprintf('Weight not in range.\n')
8  else
9      fprintf('Weight is in range.\n')
10 end
11
12 clear all
13
14 %Excercise 14/15 - divornot.m(modified)
15 x=input('Enter number: ');
16 if x==0
17     error('Error! Number must be above 0')
18 else
19     y=divit(x)
20     fprintf('The number is: %.2f.\n',y)
21 end
22
23 clear all
24
25 %Excercise 18
26 letter = input('Enter your answer(y/n): ','s');
27 if letter=='y' || letter=='Y'
28     fprintf('Ok, continuing\n');
29 elseif letter=='n' || letter=='N'
30     fprintf('Ok, halting\n0');
31 else
32     error('Error. Check input');
33 end

```

Oppgave 3 - Arduino

```
1 void setup() {
2   Serial.begin(9600); //Initierer startverdi
3   pinMode(13,OUTPUT);
4
5 }
6
7 void loop() {
8   int sensorValue = analogRead(A0); //Data skal leses fra port A0
9   float voltage = sensorValue*(5.0/1023); //Omformer data til ...
10    voltage
11   if (voltage ≥ 2.5){ //Setter inn en ny betingelse dersom ...
12     voltage ≥ 2.5
13     int newValue=750; //delay settes til 0.75s
14     digitalWrite(13, HIGH);
15     delay(newValue);
16     digitalWrite(13, LOW);
17     delay(newValue);
18   }else{ //Setter inn en betingelse for resten av verdiene til ...
19     voltage
20     int newValue=243; //delay settes til 0.243s
21     digitalWrite(13, HIGH);
22     delay(newValue);
23     digitalWrite(13, LOW);
24     delay(newValue);
25   }
```

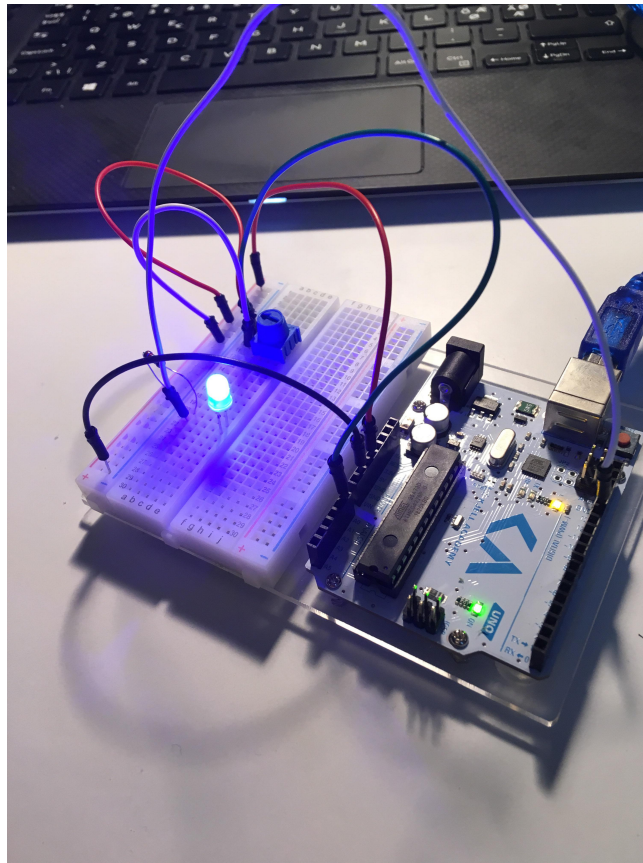


Figure 1: Bilde av koblingen

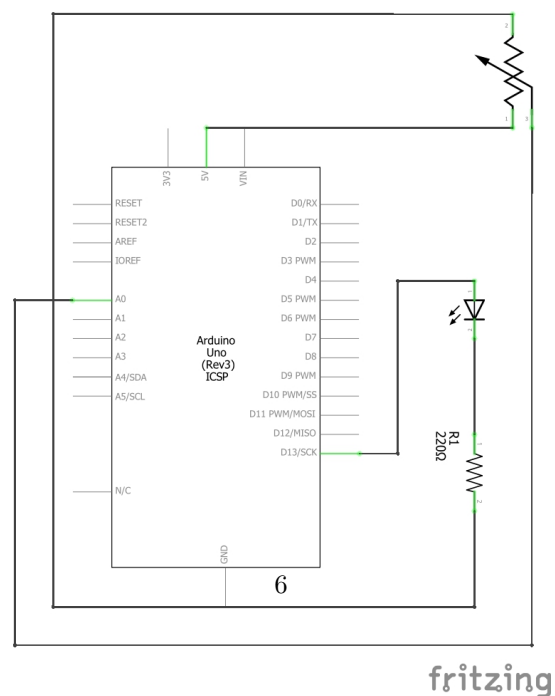


Figure 2: Koblingsskjema