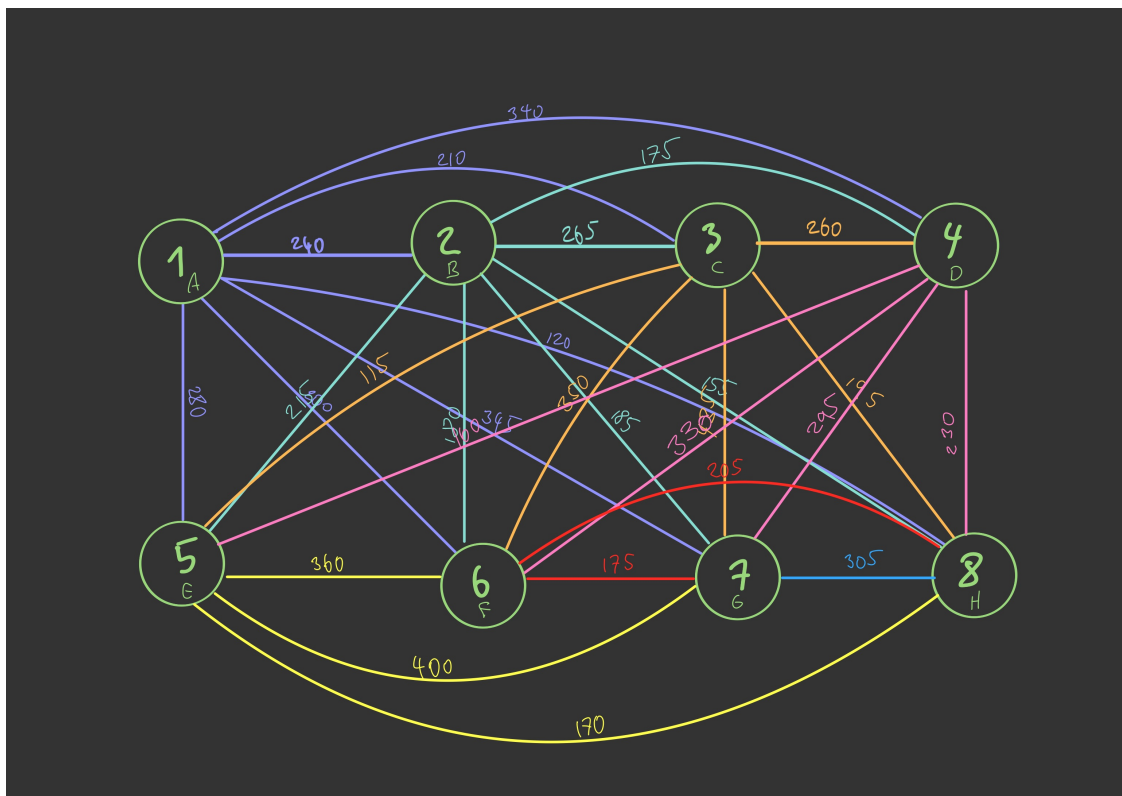
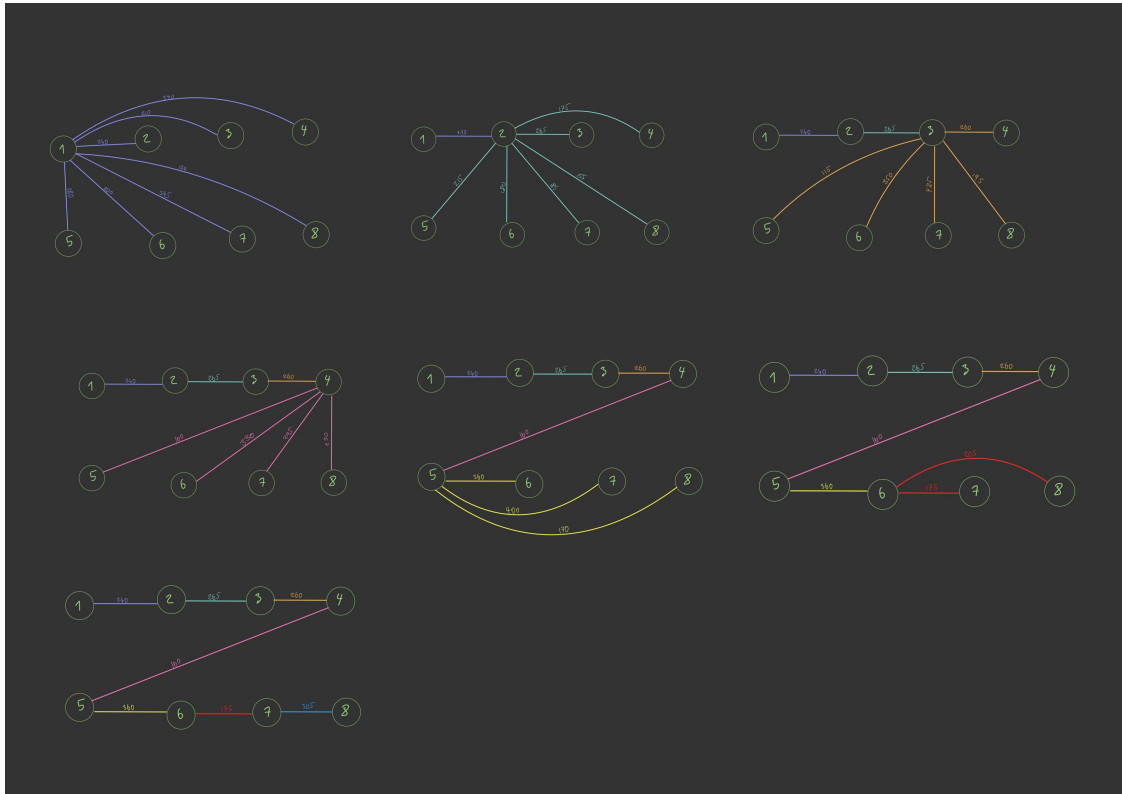


# Prims Minimum Spanning Tree Step by Step

1. Looking at the data as a plot



2. Use table instead as visualisation too complex (using letters A-H for numbers 1-8 respectively):

3. Follow these steps to find shortest possible connection each time, making sure not to create loops by adding obsolete edges:

**✓**

A	B(240), C(210), D(340), E(200), F(245), <u>H(20)</u>
B	A(240), C(265), D(195), E(215), F(180), G(185), H(155)
C	A(210), B(265), D(260), E(115), F(350), G(435), H(195)
D	A(340), B(195), C(260), E(160), F(330), G(295), H(230)
E	A(230), B(215), C(115), D(160), F(360), G(400), H(170)
F	A(200), B(180), C(350), D(330), E(360), G(135), H(205)
G	A(345), B(185), C(435), D(295), F(400), F(195), H(305)
H	A(20), B(155), C(195), D(230), E(170), F(205), G(305)

**1.** START at A (1)  
A  $\xrightarrow{120}$  H  
visited = [A, H]

```
graph TD; A ---|120| H;
```

**✓**

A	B(240), C(210), D(340), E(200), G(245), <u>H(20)</u>
B	A(240), C(265), D(195), E(215), F(180), G(185), H(155)
C	A(210), B(265), D(260), E(115), F(350), G(435), H(195)
D	A(340), B(195), C(260), E(160), F(330), G(295), H(230)
E	A(230), B(215), C(115), D(160), F(360), G(400), H(170)
F	A(200), B(180), C(350), D(330), E(360), G(135), H(205)
G	A(345), B(185), C(435), D(295), F(400), F(195), H(305)
H	A(20), B(155), C(195), D(230), E(170), F(205), G(305)

**2.** H  $\xrightarrow{155}$  B  
visited = [A, H, B]

```
graph TD; A ---|120| H; B ---|155| H;
```

**✓**

A	B(240), C(210), D(340), E(200), G(245), <u>H(20)</u>
B	A(240), C(265), D(195), E(215), F(180), G(185), <u>H(155)</u>
C	A(210), B(265), D(260), E(115), F(350), G(435), H(195)
D	A(340), B(195), C(260), E(160), F(330), G(295), H(230)
E	A(230), B(215), C(115), D(160), F(360), G(400), H(170)
F	A(200), B(180), C(350), D(330), E(360), G(135), H(205)
G	A(345), B(185), C(435), D(295), F(400), F(195), H(305)
H	A(20), B(155), C(195), D(230), E(170), F(205), G(305)

**3.** H  $\xrightarrow{170}$  E  
visited = [A, H, B, E]

```
graph TD; A ---|120| H; B ---|155| H; E ---|170| H;
```

A	<del>B(400), C(110), D(200), E(300), F(400), G(345), H(120)</del>
B	<del>A(400), C(265), D(175), E(205), F(180), G(185), H(155)</del>
C	<del>A(210), B(265), D(260), E(195), F(350), G(435), H(195)</del>
D	<del>A(310), B(175), C(260), E(160), F(320), G(295), H(220)</del>
E	<del>A(200), B(180), C(350), D(350), F(360), G(400), H(195)</del>
F	<del>A(200), B(180), C(350), D(350), E(360), G(195), H(305)</del>
G	<del>A(345), B(185), C(435), D(295), E(400), F(195), H(305)</del>
H	<del>A(120), B(155), C(195), D(230), E(205), F(205), G(305)</del>

4.

$E \xrightarrow{115} C$

visited = [A, H, B, E, C]

A	<del>B(400), C(110), D(200), E(300), F(400), G(345), H(120)</del>
B	<del>A(400), C(265), D(175), E(205), F(180), G(185), H(155)</del>
C	<del>A(210), B(265), D(260), E(195), F(350), G(435), H(195)</del>
D	<del>A(310), B(175), C(260), E(160), F(320), G(295), H(220)</del>
E	<del>A(200), B(180), C(350), D(350), F(360), G(400), H(195)</del>
F	<del>A(200), B(180), C(350), D(350), E(360), G(195), H(305)</del>
G	<del>A(345), B(185), C(435), D(295), E(400), F(195), H(305)</del>
H	<del>A(120), B(155), C(195), D(230), E(205), F(205), G(305)</del>

5.

$E \xrightarrow{160} D$

visited = [A, H, B, E, C, D]

A	<del>B(400), C(110), D(200), E(300), F(400), G(345), H(120)</del>
B	<del>A(400), C(265), D(175), E(205), F(180), G(185), H(155)</del>
C	<del>A(210), B(265), D(260), E(195), F(350), G(435), H(195)</del>
D	<del>A(310), B(175), C(260), E(160), F(320), G(295), H(220)</del>
E	<del>A(200), B(180), C(350), D(350), F(360), G(400), H(195)</del>
F	<del>A(200), B(180), C(350), D(350), E(360), G(195), H(305)</del>
G	<del>A(345), B(185), C(435), D(295), E(400), F(195), H(305)</del>
H	<del>A(120), B(155), C(195), D(230), E(205), F(205), G(305)</del>

6.

$B \xrightarrow{180} F$

visited = [A, H, B, E, C, D, F]

## The final Minimum Spanning Tree:

A	<del>B(400), C(110), D(200), E(300), F(400), G(345), H(120)</del>
B	<del>A(400), C(265), D(175), E(205), F(180), G(185), H(155)</del>
C	<del>A(210), B(265), D(260), E(195), F(350), G(435), H(195)</del>
D	<del>A(310), B(175), C(260), E(160), F(320), G(295), H(220)</del>
E	<del>A(200), B(180), C(350), D(350), F(360), G(400), H(195)</del>
F	<del>A(200), B(180), C(350), D(350), E(360), G(195), H(305)</del>
G	<del>A(345), B(185), C(435), D(295), E(400), F(195), H(305)</del>
H	<del>A(120), B(155), C(195), D(230), E(205), F(205), G(305)</del>

7.

$F \xrightarrow{175} G$

visited = [A, H, B, E, C, D, F, G]