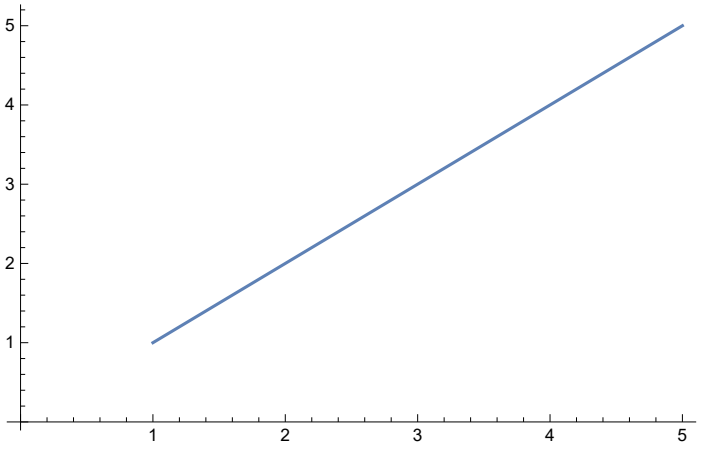
First look at lists

In[89]:=
```
List[1, 2, 3, 4, 5]
```
Out[89]=
```
{1, 2, 3, 4, 5}
```

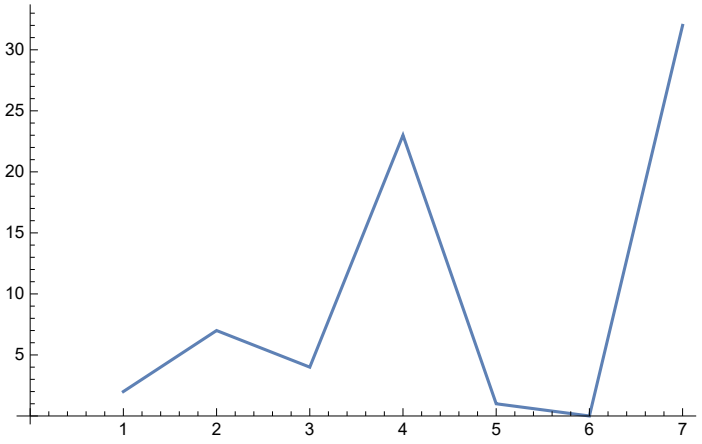
In[90]:=
```
k = List[1, 2, 3, 4, 5]
```
Out[90]=
```
{1, 2, 3, 4, 5}
```

In[91]:=
```
ListLinePlot[k]
```
Out[91]=



In[92]:=
```
k = {2, 7, 4, 23, 1, 0, 32}
```
Out[92]=
```
{2, 7, 4, 23, 1, 0, 32}
```

In[93]:=
```
ListLinePlot[k]
```
Out[93]=

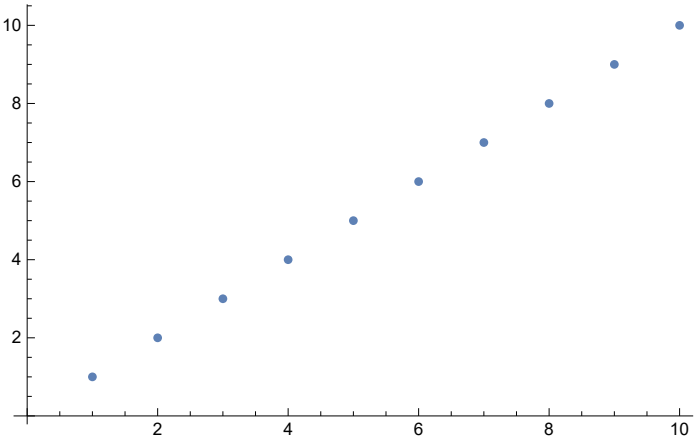


In[94]:=
```
Reverse[k]
```
Out[94]=
```
{32, 0, 1, 23, 4, 7, 2}
```

In[95]:=
```
Range[10]
```
Out[95]=
```
{1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
```

In[96]:=
```
ListPlot[Range[10]]
```

Out[96]=



In[97]:=
```
k1 = List[1, 2, 3, 4, 5]
```

Out[97]= {1, 2, 3, 4, 5}

In[98]:=
```
k2 = List[6, 7, 8, 9, 10]
```

Out[98]= {6, 7, 8, 9, 10}

In[99]:=
```
Join[k1, k2]
```

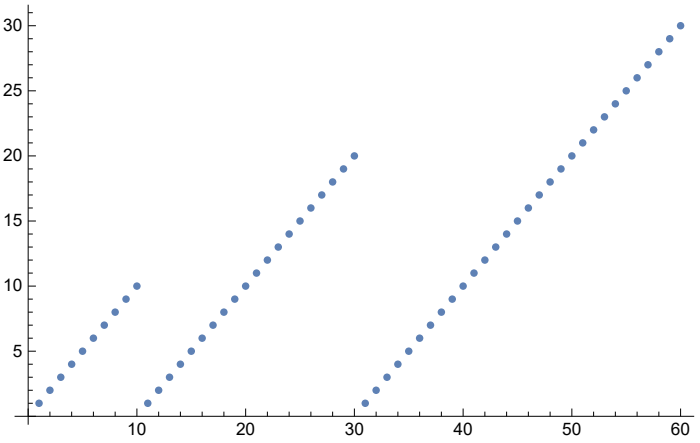
Out[99]= {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

In[100]:=
```
Join[Range[5], Range[3]]
```

Out[100]= {1, 2, 3, 4, 5, 1, 2, 3}

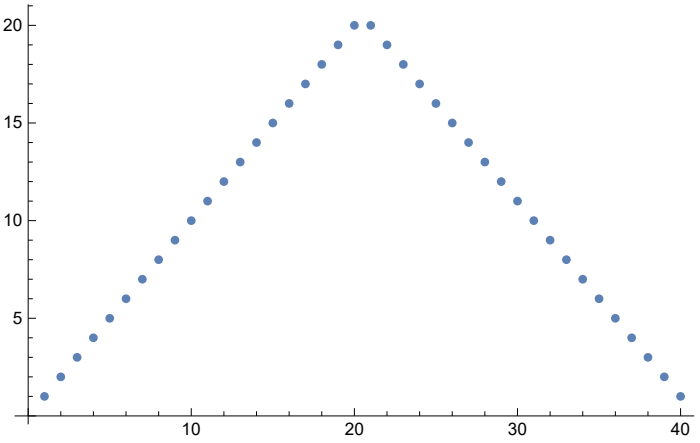
In[101]:=
```
ListPlot[Join[Range[10], Range[20], Range[30]]]
```

Out[101]=



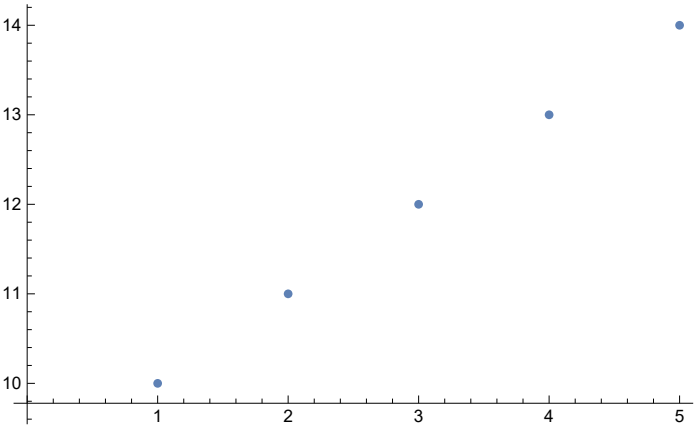
In[102]:=
```
ListPlot[Join[Range[20], Reverse[Range[20]]]]
```

Out[102]=



In[103]:=
```
ListPlot[{10, 11, 12, 13, 14}]
```

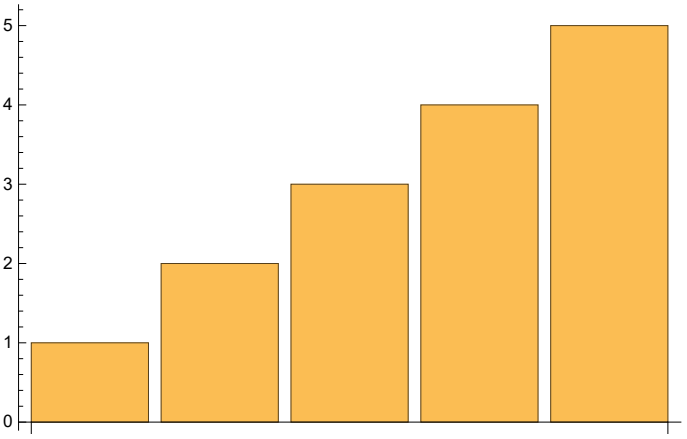
Out[103]=



Displaying Lists

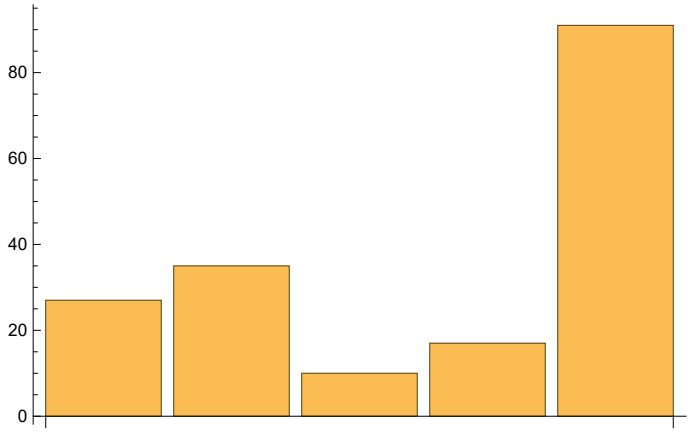
In[104]:=
```
BarChart[k1]
```

Out[104]=



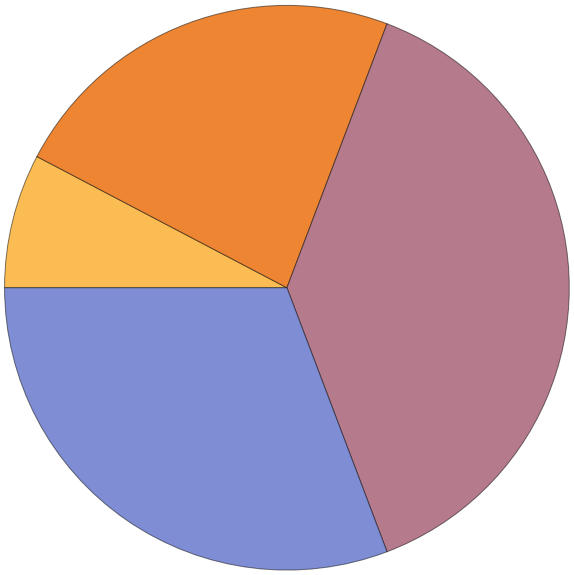
In[105]:=
```
BarChart[{27, 35, 10, 17, 91}]
```

Out[105]=



In[106]:=
```
PieChart[{1, 3, 5, 4}]
```

Out[106]=



In[107]:=
```
NumberLinePlot[{1, 3, 5, 4}]
```

Out[107]=

masses of the planet »

planets PLANETS [mass]

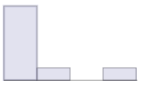
Assuming "planet" is referring to planets | Use as referring to minor planets or referring to exoplanets instead

Input interpretation:

planets PLANETS [mass]

planets	mass

Summary:

total	2.668×10^{27} kg 447 $M_\oplus$
median	4.639×10^{25} kg 7.77 $M_\oplus$
lowest	3.301×10^{23} kg (Mercury) 0.0553 $M_\oplus$
highest	1.898×10^{27} kg (Jupiter) 317.8 $M_\oplus$
distribution	

+ Units

Ranked values:

Reverse

		visual	ratios	
1	Jupiter		5750	1
2	Saturn		1722	0.2994
3	Neptune		310.3	0.054
4	Uranus		263	0.04573
5	Earth		18.1	0.003146
6	Venus		14.74	0.002564
7	Mars		1.944	3.381×10^{-4}
8	Mercury		1	1.739×10^{-4}

Mass rankings:

Reverse

1	Jupiter	1.898×10^{27} kg 317.8 $M_\oplus$
2	Saturn	5.683×10^{26} kg 95.2 $M_\oplus$
3	Neptune	1.024×10^{26} kg 17.15 $M_\oplus$
4	Uranus	8.681×10^{25} kg 14.54 $M_\oplus$

5	Earth	5.97×10^{24} kg
6	Venus	4.867×10^{24} kg 0.815 $M_\oplus$
7	Mars	6.417×10^{23} kg 0.1074 $M_\oplus$
8	Mercury	3.301×10^{23} kg 0.0553 $M_\oplus$

✚ Units

Unit conversions for total mass 2.668×10^27 kg:

5.881×10^{27} lb (pounds)

2.668×10^{30} grams

2.668×10^{24} t (metric tons)

0.001342 $M_\odot$ (solar masses)

Comparisons for total mass 2.668×10^27 kg:

≈ (0.015 ≈ 1/66) × mass of AB Doradus C (≈ 93 M_J)

≈ (0.016 ≈ 1/61) ×
mass of EBLM J0555−57Ab (smallest known main sequence star as of 2018) (≈ 85 M_J)

≈ 1.4 × Jupiter mass (1.89813×10^{27} kg)

Corresponding quantity:

Weight w of a body from $w = mg$:

2.616×10^{28} N (newtons)

2.616×10^{33} dynes

2.668×10^{30} ponds

5.881×10^{27} lbf (pounds-force)

Out[•]= $\{3.301\times10^{23}\text{ kg}, 4.867\times10^{24}\text{ kg}, 5.97\times10^{24}\text{ kg}, 6.417\times10^{23}\text{ kg},$
$1.898\times10^{27}\text{ kg}, 5.683\times10^{26}\text{ kg}, 8.681\times10^{25}\text{ kg}, 1.0243\times10^{26}\text{ kg}\}$

In[•]:= **NumberLinePlot EntityClass Planet Mass**

(no interpretations available) ?

In[•]:= **PieCha[EntityClass["Planet",All][mass]**

(no interpretations available) ?

In[ ]:=
```
EntityClass["Planet",All][mass]
```
(no interpretations available)

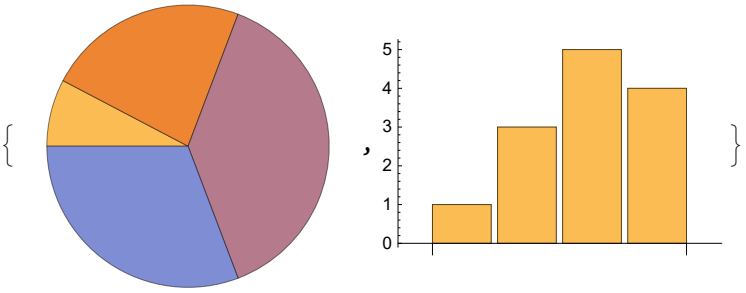
PieChart: Null is not a valid dataset or list of datasets.

In[108]:=
```
PieChart[Null]
```

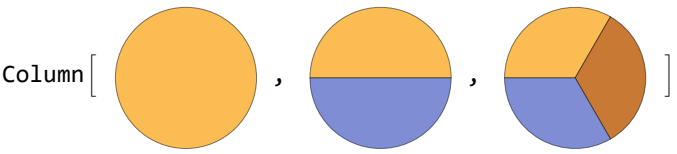
PieChart: Null is not a valid dataset or list of datasets.

Out[108]=
```
PieChart[Null]
```

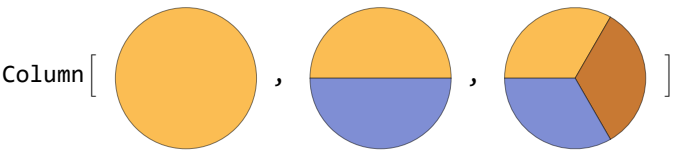
In[109]:=
```
{PieChart[{1, 3, 5, 4}], BarChart[{1, 3, 5, 4}]}
```

Out[109]=


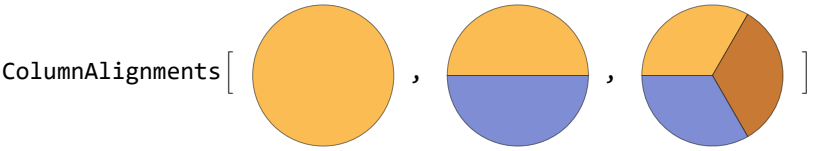
In[110]:=
```
Column[PieChart[{1}], PieChart[{1, 1}], PieChart[{1, 1, 1}]]
```

Out[110]=


In[111]:=
```
Column[PieChart[{1}], PieChart[{1, 1}], PieChart[{1, 1, 1}]]
```

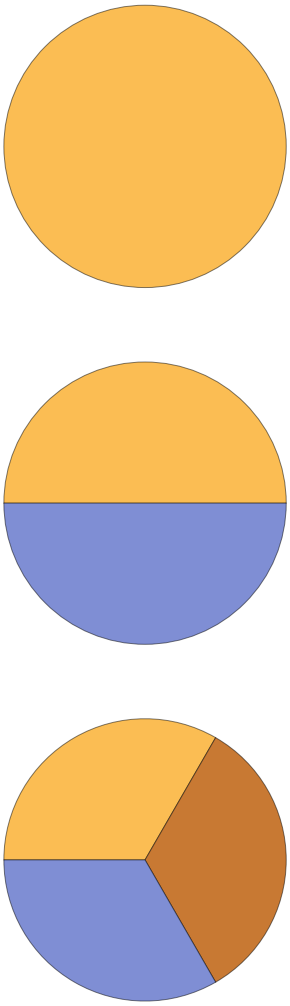
Out[111]=


In[112]:=
```
ColumnAlignments[PieChart[{1}], PieChart[{1, 1}], PieChart[{1, 1, 1}]]
```

Out[112]=


In[113]:=
```
Column[{PieChart[{1}], PieChart[{1, 1}], PieChart[{1, 1, 1}]}]
```

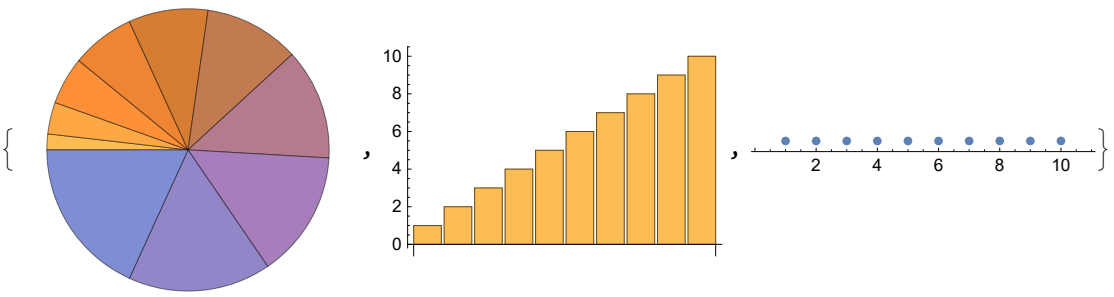
Out[113]=



In[114]:=
```
k = Range[10]
List[PieChart[k], BarChart[k], NumberLinePlot[k]]
```

Out[114]=
```
{1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
```

Out[115]=

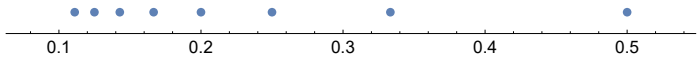


In[116]:=
```
1 / Range[2, 5]
```

Out[116]=
$$\left\{\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}\right\}$$

In[117]:=
```
NumberLinePlot[1 / Range[2, 9]]
```

Out[117]=



Operations on List

In[118]:=
```
{1, 2, 3} + {1, 2, 3, 4}
```

Thread: Objects of unequal length in {1, 2, 3} + {1, 2, 3, 4} cannot be combined.

Out[118]=
```
{1, 2, 3} + {1, 2, 3, 4}
```

In[119]:=
```
{1, 2, 3} + {1, 2, 3}
```

Out[119]=
```
{2, 4, 6}
```

In[120]:=
```
{1, 2, 3} + 10
```

Out[120]=
```
{11, 12, 13}
```

In[121]:=
```
Part[{6, 2, 5, 1, 0, 9}, 3]
```

Out[121]=
```
5
```

So, basically what this Part function does is, it fetches the value at a particular index in the list.

In[122]:=
```
Take[{1, 2, 3, 4, 5, 6}, 3]
```

Out[122]=
```
{1, 2, 3}
```

The take command what it does is it takes the first n values of list as another sub-list, where n is the user input. The alternative to the part function is

In[123]:=
```
{7, 6, 5}[[2]]
```

Out[123]=
```
6
```

The above statement does the same task as Part function, just we need to change the index no. within “[[]]”

In[124]:=
```
Drop[{1, 2, 3, 4, 5, 6}, 3]
```

Out[124]=
```
{4, 5, 6}
```

The above function above basically drops the no. of elements in the list and displays all other remaining elements starting from the beginning.

In[125]:=
```
Count[{7, 4, 0, 1, 7, 2, 99, 24, 63, 7, 3, 9, 7}, 7]
```

Out[125]=
```
4
```

The count function counts the no. of occurrences of that particular element in the list.

In[126]:=
```
IntegerDigits[1957]
```
Out[126]=
```
{1, 9, 5, 7}
```

The above function makes a list of all the digits of the number given.

In[127]:=
```
Length[IntegerDigits[1957]]
```
Out[127]=
```
4
```

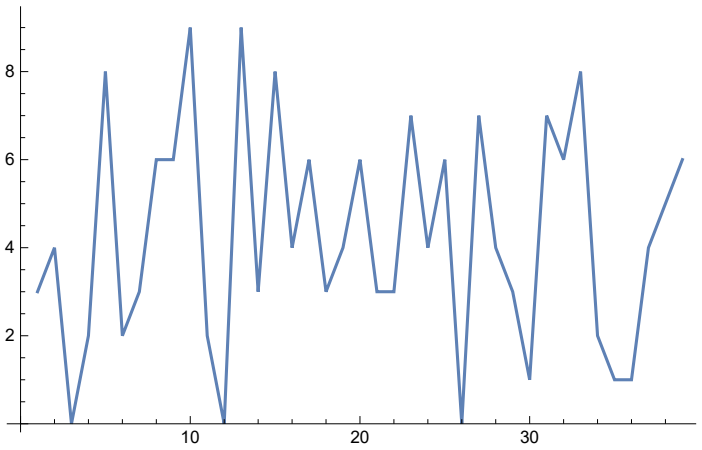
The above function provides the length of the list.

In[128]:=
```
Length["Aman"]
```
Out[128]=
```
0
```

In[129]:=
```
f[a_, b_] := Power[(a + b), 2]
```

In[130]:=
```
f[3, 4]
```
Out[130]=
```
49
```

In[131]:=
```
ListLinePlot[IntegerDigits[Power[2, 128]]]
```
Out[131]=



In[132]:=
```
List[PieChart[IntegerDigits[Power[2, 20]]],
 PieChart[IntegerDigits[Power[2, 40]]], PieChart[IntegerDigits[Power[2, 60]]]]
```
Out[132]=