1.3.5.2: Dot Plots

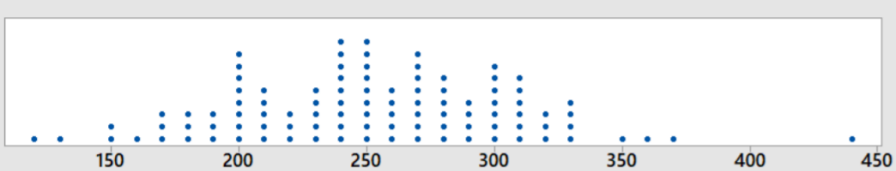
A dot plot represents each value of a data set as a dot on a simple numeric scale. Multiple values are stacked to create a shape for the data. If the data set is large, each dot can represent multiple values of the data.

Example: Weights of apples

A Chilean agricultural researcher collected a sample of 100 Royal Gala apples.[20] The weight of each apple (reported in grams) is shown in the table below:

228	272	196	435	195	242	265	330	298	248
320	189	278	261	203	282	246	203	274	231
282	311	275	297	194	183	308	245	185	260
235	149	312	274	218	307	324	256	203	206
310	182	245	167	297	276	248	262	327	292
287	118	265	235	246	310	200	289	299	230
237	205	164	231	133	222	326	353	252	237
214	274	253	197	244	209	236	290	296	272
315	173	224	202	246	363	299	325	151	242
170	261	270	284	365	213	184	240	302	233

Here is the data organized into a dot plot, in which each dot represents one apple. The scaling of the horizontal axis rounds each apple's weight to the nearest 10 grams.



The center of the data is about 250, meaning that a typical apple would weight about 250 grams. The range of weights is between 110 and 440 grams, although the 440 gram apple is an outlier, an unusually large apple. The next highest weight is only 370 grams. Not counting the outlier, the data is symmetric and clustered towards the center.

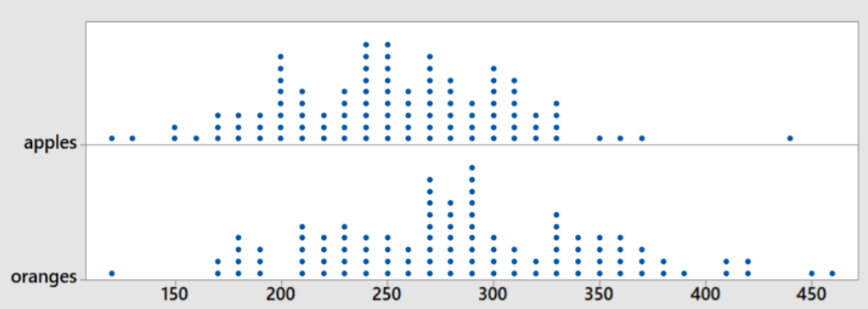
Dot plots can also be used to compare multiple populations.

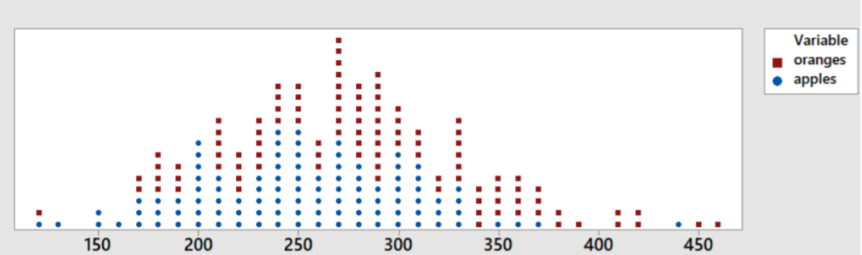
Example: Dot plots can also be used to compare multiple populations

The Chilean agricultural researcher collected a sample of 100 navel oranges[21] and recorded the weight of each orange in grams.

332	298	342	287	392	358	279	165	289	329
265	233	192	214	286	221	381	277	317	285
273	410	419	292	288	283	181	348	356	330
248	245	366	212	458	424	342	208	122	184
285	360	277	363	324	336	230	327	218	237
305	290	249	166	244	273	218	177	277	279
274	194	379	409	286	272	261	306	330	239
350	447	284	304	267	225	193	223	334	264
288	273	229	305	257	342	209	295	238	233
365	348	253	352	304	266	273	372	181	208

We can now add the weights of the oranges to the dot plot of the apple weights made in the prior example. The first chart keeps apples and oranges in separate graphs while the second chart combines data with a different marker for apples and orange. This second chart is called a **stacked dot plot**.





From the graphs, we can see that the typical orange weighs about 30 grams more than the typical apple. The spread of weights for apples and oranges is about the same. The shapes of both graphs are symmetric and clustered towards the center. There is a high outlier for apples at 440 grams and a low outlier for oranges at 120 grams.
