

Loops-Part 2

2023-04-11

```
dinosaur_lengths <- read.csv(file = "../data raw/dinosaur_lengths.csv")
head(dinosaur_lengths)
```

```
##      species  lengths
## 1 Stegosauria 18.52588
## 2 Ankylosauria 16.43598
## 3 Ankylosauria 23.73421
## 4   Sauropoda 23.93411
## 5 Ankylosauria 21.68718
## 6 Ankylosauria 21.38363
```

```
get_mass_from_length_by_name <- function(length, dinosaur_name) {
  if (dinosaur_name == "Stegosauria") {
    a <- 10.95
    b <- 2.64
  } else if (dinosaur_name == "Theropoda") {
    a <- 0.73
    b <- 3.63
  } else if (dinosaur_name == "Sauropoda") {
    a <- 214.44
    b <- 1.46
  } else {
    a = 25.37
    b = 2.49
  }
  mass <- a * length^b
  return(mass)
}
```

```
lengths <- dinosaur_lengths$lengths
species <- dinosaur_lengths$species
tot_mass <- vector(length = length(lengths))
tot_mass
```

```
## [1] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [13] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [25] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [37] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [49] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [61] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [73] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [85] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [97] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
```

```
## [109] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [121] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [133] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [145] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [157] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [169] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [181] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [193] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [205] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [217] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [229] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [241] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [253] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [265] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [277] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [289] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [301] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [313] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [325] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [337] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [349] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [361] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [373] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [385] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [397] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [409] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [421] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [433] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [445] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [457] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [469] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [481] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [493] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
```

```
head(tot_mass)
```

```
## [1] FALSE FALSE FALSE FALSE FALSE FALSE
```

```
for(i in 1:length(species)){
  tot_mass[i] <- get_mass_from_length_by_name(lengths[i], species[i])
}
```

```
head(tot_mass)
```

```
## [1] 24341.68 27017.90 67453.38 22114.19 53884.76 52026.34
```

```
dinosaur_lengths %>% mutate(tot_mass = tot_mass)
```

```
##      species  lengths  tot_mass
## 1  Stegosauria 18.525885 24341.681
## 2  Ankylosauria 16.435982 27017.903
## 3  Ankylosauria 23.734212 67453.385
```

## 4	Sauropoda	23.934110	22114.190
## 5	Ankylosauria	21.687176	53884.759
## 6	Ankylosauria	21.383631	52026.344
## 7	Theropoda	22.312167	57349.470
## 8	Theropoda	15.177487	14160.494
## 9	Theropoda	21.446707	49677.749
## 10	Stegosauria	22.799622	42105.917
## 11	Theropoda	13.874089	10221.747
## 12	Sauropoda	18.630249	15339.988
## 13	Theropoda	23.629352	70624.102
## 14	Sauropoda	25.229956	23883.825
## 15	Stegosauria	19.680160	28552.864
## 16	Stegosauria	16.799397	18801.370
## 17	Sauropoda	21.910793	19438.673
## 18	Ankylosauria	20.935821	49355.616
## 19	Sauropoda	22.041318	19607.970
## 20	Sauropoda	19.202574	16032.845
## 21	Ankylosauria	20.875224	49000.667
## 22	Theropoda	21.526282	50350.112
## 23	Sauropoda	19.150231	15969.078
## 24	Stegosauria	19.946113	29582.848
## 25	Sauropoda	18.514847	15201.456
## 26	Sauropoda	16.616480	12980.541
## 27	Theropoda	13.766857	9937.867
## 28	Sauropoda	13.513882	9599.415
## 29	Theropoda	21.395192	49245.963
## 30	Stegosauria	18.382292	23846.751
## 31	Theropoda	21.923531	53805.661
## 32	Theropoda	21.869568	53326.467
## 33	Ankylosauria	20.077169	44468.206
## 34	Stegosauria	15.635502	15554.977
## 35	Stegosauria	16.711957	18544.119
## 36	Ankylosauria	21.673004	53797.122
## 37	Ankylosauria	15.674131	24006.414
## 38	Theropoda	24.662437	82492.318
## 39	Sauropoda	20.714691	17909.041
## 40	Theropoda	20.020150	38694.503
## 41	Stegosauria	29.116277	80303.181
## 42	Sauropoda	22.029638	19592.802
## 43	Sauropoda	14.477335	10614.785
## 44	Stegosauria	19.940483	29560.809
## 45	Stegosauria	27.886823	71658.477
## 46	Ankylosauria	23.681443	67080.579
## 47	Theropoda	24.782679	83961.661
## 48	Ankylosauria	20.712699	48056.243
## 49	Stegosauria	19.072531	26284.040
## 50	Stegosauria	17.757446	21766.002
## 51	Theropoda	22.954382	63571.873
## 52	Theropoda	11.684894	5480.255
## 53	Theropoda	19.306435	33917.314
## 54	Theropoda	17.300944	22778.032
## 55	Sauropoda	17.344495	13819.165
## 56	Stegosauria	17.566690	21154.149
## 57	Sauropoda	20.497137	17635.099

## 58	Theropoda	15.299351	14577.594
## 59	Ankylosauria	15.815042	24547.408
## 60	Sauropoda	17.527311	14032.340
## 61	Theropoda	18.704207	30231.694
## 62	Ankylosauria	19.122301	39387.229
## 63	Stegosauria	13.850023	11293.886
## 64	Theropoda	23.822637	72743.800
## 65	Sauropoda	25.082211	23679.901
## 66	Theropoda	23.022423	64258.574
## 67	Theropoda	15.400667	14931.085
## 68	Sauropoda	19.440595	16323.818
## 69	Ankylosauria	10.921151	9763.574
## 70	Ankylosauria	20.986008	49650.743
## 71	Ankylosauria	21.265106	51311.261
## 72	Stegosauria	11.920137	7599.703
## 73	Ankylosauria	19.718387	42515.789
## 74	Ankylosauria	18.046124	34097.022
## 75	Ankylosauria	15.579136	23645.771
## 76	Ankylosauria	16.922221	29052.218
## 77	Theropoda	21.111917	46920.035
## 78	Theropoda	23.620585	70529.031
## 79	Sauropoda	13.402894	9484.528
## 80	Ankylosauria	20.158619	44918.762
## 81	Theropoda	23.416358	68340.494
## 82	Stegosauria	23.373049	44959.626
## 83	Ankylosauria	23.557742	66211.479
## 84	Stegosauria	24.006718	48249.486
## 85	Stegosauria	14.050305	11730.174
## 86	Ankylosauria	21.605897	53383.309
## 87	Theropoda	21.752230	52295.177
## 88	Ankylosauria	17.235685	30410.778
## 89	Ankylosauria	17.743845	32692.589
## 90	Ankylosauria	18.384039	35709.058
## 91	Theropoda	20.253688	40358.292
## 92	Stegosauria	22.123932	38891.137
## 93	Stegosauria	20.272605	30878.439
## 94	Sauropoda	21.668335	19125.425
## 95	Ankylosauria	19.540805	41568.769
## 96	Ankylosauria	20.219118	45255.186
## 97	Sauropoda	12.630509	8697.216
## 98	Sauropoda	22.056242	19627.357
## 99	Ankylosauria	19.258500	40089.476
## 100	Ankylosauria	24.511875	73091.694
## 101	Stegosauria	14.781536	13411.390
## 102	Stegosauria	20.826875	33157.499
## 103	Sauropoda	14.719243	10874.733
## 104	Theropoda	17.662684	24554.930
## 105	Sauropoda	19.843013	16819.494
## 106	Stegosauria	16.669995	18421.449
## 107	Ankylosauria	20.586719	47331.734
## 108	Stegosauria	17.081280	19645.723
## 109	Theropoda	19.950237	38206.241
## 110	Theropoda	21.854817	53196.019
## 111	Stegosauria	17.935253	22346.109

## 112	Ankylosauria	23.184109	63627.457
## 113	Stegosauria	18.037832	22685.103
## 114	Ankylosauria	17.835808	33116.123
## 115	Sauropoda	17.167692	13613.983
## 116	Theropoda	19.425964	34685.790
## 117	Ankylosauria	19.582304	41788.932
## 118	Stegosauria	16.749576	18654.525
## 119	Ankylosauria	19.981305	43941.397
## 120	Theropoda	26.110978	101482.428
## 121	Stegosauria	30.291943	89149.257
## 122	Ankylosauria	18.450472	36031.232
## 123	Sauropoda	22.966281	20820.837
## 124	Ankylosauria	20.748215	48261.689
## 125	Sauropoda	24.022000	22232.852
## 126	Stegosauria	26.023810	59702.598
## 127	Ankylosauria	26.453796	88372.183
## 128	Sauropoda	19.438928	16321.774
## 129	Theropoda	17.294841	22748.880
## 130	Ankylosauria	26.433893	88206.724
## 131	Ankylosauria	15.144502	22037.148
## 132	Ankylosauria	11.584650	11308.082
## 133	Ankylosauria	22.214407	57205.917
## 134	Sauropoda	26.731885	25987.768
## 135	Theropoda	21.463400	49818.253
## 136	Stegosauria	14.653452	13106.766
## 137	Ankylosauria	21.577484	53208.680
## 138	Stegosauria	20.575755	32112.443
## 139	Ankylosauria	21.897141	55193.143
## 140	Theropoda	15.957161	16984.463
## 141	Sauropoda	14.705513	10859.926
## 142	Theropoda	25.563801	93973.020
## 143	Stegosauria	24.758633	52342.265
## 144	Sauropoda	21.688789	19151.788
## 145	Ankylosauria	27.081149	93683.154
## 146	Sauropoda	17.460389	13954.186
## 147	Ankylosauria	20.242038	45383.035
## 148	Sauropoda	18.364710	15021.820
## 149	Stegosauria	21.470875	35933.327
## 150	Theropoda	28.555509	140435.607
## 151	Stegosauria	17.348434	20467.332
## 152	Theropoda	17.525493	23869.639
## 153	Ankylosauria	17.087488	29763.860
## 154	Ankylosauria	21.034986	49939.780
## 155	Theropoda	15.479944	15211.979
## 156	Theropoda	22.285273	57098.945
## 157	Theropoda	17.468425	23588.700
## 158	Theropoda	18.200778	27381.008
## 159	Theropoda	24.941591	85932.513
## 160	Ankylosauria	24.349404	71891.314
## 161	Sauropoda	13.254200	9331.295
## 162	Ankylosauria	12.705635	14232.179
## 163	Ankylosauria	17.626038	32154.790
## 164	Stegosauria	20.549772	32005.502
## 165	Stegosauria	16.030294	16613.444

## 166	Theropoda	12.925642	7904.857
## 167	Ankylosauria	22.124472	56630.975
## 168	Stegosauria	19.091268	26352.263
## 169	Sauropoda	22.250676	19880.480
## 170	Sauropoda	18.799335	15543.679
## 171	Sauropoda	18.757874	15493.654
## 172	Sauropoda	17.108957	13546.034
## 173	Ankylosauria	20.142624	44830.073
## 174	Theropoda	19.640269	36095.081
## 175	Theropoda	20.535941	42437.608
## 176	Ankylosauria	20.818615	48670.468
## 177	Ankylosauria	14.340065	19236.798
## 178	Stegosauria	24.631902	51637.913
## 179	Ankylosauria	22.595632	59681.734
## 180	Theropoda	20.757092	44120.181
## 181	Sauropoda	13.452268	9535.583
## 182	Theropoda	22.575036	59840.348
## 183	Ankylosauria	20.582800	47309.303
## 184	Ankylosauria	18.459268	36074.016
## 185	Ankylosauria	21.725455	54121.896
## 186	Stegosauria	23.345957	44822.176
## 187	Theropoda	15.198763	14232.684
## 188	Stegosauria	21.200605	34751.496
## 189	Theropoda	14.260099	11292.437
## 190	Ankylosauria	22.305495	57791.773
## 191	Ankylosauria	21.044196	49994.243
## 192	Ankylosauria	19.918394	43597.716
## 193	Theropoda	17.136539	22002.082
## 194	Sauropoda	21.999874	19554.166
## 195	Sauropoda	16.829116	13223.770
## 196	Ankylosauria	13.115608	15403.296
## 197	Ankylosauria	21.003064	49751.285
## 198	Theropoda	23.472346	68935.505
## 199	Stegosauria	12.800283	9172.206
## 200	Theropoda	25.268845	90096.476
## 201	Stegosauria	18.937819	25796.762
## 202	Stegosauria	24.442161	50594.426
## 203	Stegosauria	26.391105	61952.966
## 204	Sauropoda	22.443509	20132.528
## 205	Ankylosauria	18.148462	34580.529
## 206	Sauropoda	17.482025	13979.439
## 207	Theropoda	15.554902	15481.074
## 208	Stegosauria	14.218262	12104.000
## 209	Theropoda	17.090753	21789.436
## 210	Theropoda	21.946334	54009.090
## 211	Sauropoda	17.338647	13812.364
## 212	Sauropoda	12.001277	8071.939
## 213	Sauropoda	23.210221	21144.506
## 214	Theropoda	20.754197	44097.848
## 215	Sauropoda	19.380586	16250.303
## 216	Theropoda	23.577763	70065.996
## 217	Sauropoda	14.992141	11170.349
## 218	Sauropoda	24.459547	22826.560
## 219	Stegosauria	22.546931	40885.088

## 220	Sauropoda	20.223190	17292.043
## 221	Sauropoda	21.097578	18394.391
## 222	Theropoda	21.516562	50267.629
## 223	Stegosauria	27.758468	70791.032
## 224	Theropoda	18.396366	28464.276
## 225	Stegosauria	22.660569	41431.346
## 226	Ankylosauria	18.905341	38283.875
## 227	Sauropoda	17.707042	14242.918
## 228	Ankylosauria	18.481716	36183.349
## 229	Ankylosauria	27.492288	97264.774
## 230	Stegosauria	24.699768	52014.366
## 231	Stegosauria	20.757105	32865.058
## 232	Ankylosauria	14.877972	21084.066
## 233	Sauropoda	15.661718	11906.150
## 234	Sauropoda	20.758496	17964.362
## 235	Theropoda	15.376012	14844.497
## 236	Sauropoda	16.703436	13079.836
## 237	Theropoda	24.115960	76048.107
## 238	Stegosauria	16.813773	18843.875
## 239	Ankylosauria	23.262213	64162.537
## 240	Stegosauria	20.237508	30737.511
## 241	Stegosauria	21.926815	37983.026
## 242	Sauropoda	21.346381	18711.957
## 243	Stegosauria	18.023325	22636.970
## 244	Sauropoda	29.405760	29868.755
## 245	Theropoda	20.584050	42799.606
## 246	Ankylosauria	19.440752	41040.814
## 247	Theropoda	20.693626	43632.463
## 248	Theropoda	26.260017	103600.943
## 249	Ankylosauria	17.399863	31137.202
## 250	Ankylosauria	19.416675	40914.372
## 251	Sauropoda	14.210877	10330.761
## 252	Stegosauria	18.327572	23659.805
## 253	Stegosauria	16.908694	19126.024
## 254	Stegosauria	16.233725	17175.845
## 255	Theropoda	18.316315	28017.230
## 256	Stegosauria	25.129391	54437.041
## 257	Ankylosauria	19.997763	44031.570
## 258	Theropoda	16.841323	20657.057
## 259	Sauropoda	16.873788	13275.051
## 260	Ankylosauria	27.660750	98755.593
## 261	Sauropoda	12.154013	8222.362
## 262	Ankylosauria	20.189226	45088.778
## 263	Theropoda	26.627688	108964.075
## 264	Ankylosauria	22.038066	56081.862
## 265	Theropoda	11.894576	5845.741
## 266	Stegosauria	19.092455	26356.588
## 267	Ankylosauria	24.372611	72062.043
## 268	Theropoda	22.553797	59636.239
## 269	Sauropoda	18.226947	14857.582
## 270	Stegosauria	23.389595	45043.701
## 271	Stegosauria	23.850883	47427.024
## 272	Ankylosauria	18.146841	34572.838
## 273	Ankylosauria	23.815888	68032.864

## 274	Sauropoda	15.572433	11807.182
## 275	Sauropoda	27.840167	27575.709
## 276	Sauropoda	20.926769	18177.367
## 277	Ankylosauria	22.682827	60256.855
## 278	Sauropoda	23.930002	22108.648
## 279	Stegosauria	21.004418	33908.940
## 280	Ankylosauria	18.681384	37164.558
## 281	Ankylosauria	16.234045	26198.900
## 282	Ankylosauria	19.158517	39573.238
## 283	Ankylosauria	14.896902	21150.927
## 284	Stegosauria	23.549831	45862.941
## 285	Stegosauria	18.241100	23366.240
## 286	Theropoda	15.741441	16165.694
## 287	Sauropoda	14.147412	10263.470
## 288	Ankylosauria	13.929702	17895.161
## 289	Stegosauria	18.434779	24026.928
## 290	Stegosauria	20.907549	33497.651
## 291	Ankylosauria	18.292703	35268.938
## 292	Theropoda	15.634371	15770.110
## 293	Theropoda	21.267830	48190.121
## 294	Stegosauria	20.814950	33107.401
## 295	Sauropoda	22.741084	20523.437
## 296	Theropoda	17.003367	21387.730
## 297	Theropoda	15.634806	15771.706
## 298	Sauropoda	16.310406	12632.938
## 299	Theropoda	18.376383	28352.199
## 300	Sauropoda	14.277598	10401.651
## 301	Theropoda	20.364058	41162.369
## 302	Sauropoda	19.779111	16740.472
## 303	Theropoda	18.591663	29576.590
## 304	Stegosauria	19.752793	28831.907
## 305	Sauropoda	23.568634	21622.906
## 306	Ankylosauria	21.092777	50282.116
## 307	Stegosauria	19.196293	26736.709
## 308	Sauropoda	21.308801	18663.882
## 309	Sauropoda	14.717348	10872.689
## 310	Sauropoda	16.696776	13072.222
## 311	Stegosauria	21.328726	35308.681
## 312	Sauropoda	20.105810	17145.703
## 313	Sauropoda	22.050987	19620.530
## 314	Stegosauria	6.528009	1550.370
## 315	Ankylosauria	24.766086	74993.797
## 316	Stegosauria	13.949455	11509.202
## 317	Stegosauria	16.015998	16574.358
## 318	Theropoda	25.639282	94984.150
## 319	Sauropoda	13.367563	9448.048
## 320	Stegosauria	25.463799	56370.430
## 321	Ankylosauria	17.608617	32075.712
## 322	Theropoda	21.232368	47899.078
## 323	Stegosauria	19.407797	27521.456
## 324	Theropoda	17.732135	24907.229
## 325	Sauropoda	16.457857	12800.024
## 326	Stegosauria	21.132347	34456.895
## 327	Ankylosauria	19.203134	39803.110

##	328	Stegosauria	16.912635	19137.794
##	329	Sauropoda	13.012892	9084.302
##	330	Ankylosauria	22.884836	61601.958
##	331	Sauropoda	22.644286	20396.019
##	332	Sauropoda	11.554321	7636.822
##	333	Sauropoda	18.723718	15452.482
##	334	Ankylosauria	21.642562	53609.164
##	335	Theropoda	14.325845	11482.576
##	336	Ankylosauria	24.894147	75963.091
##	337	Sauropoda	23.344275	21323.042
##	338	Stegosauria	16.193233	17062.973
##	339	Theropoda	17.648221	24482.018
##	340	Stegosauria	16.998220	19394.529
##	341	Theropoda	22.789438	61929.256
##	342	Ankylosauria	21.806641	54626.894
##	343	Theropoda	18.510961	29113.203
##	344	Theropoda	21.837643	53044.431
##	345	Stegosauria	16.486595	17891.216
##	346	Stegosauria	17.726416	21665.733
##	347	Theropoda	17.052268	21611.857
##	348	Sauropoda	17.429040	13917.623
##	349	Stegosauria	17.741674	21715.000
##	350	Ankylosauria	20.043909	44285.004
##	351	Sauropoda	14.393911	10525.601
##	352	Stegosauria	20.494209	31777.548
##	353	Theropoda	20.988563	45932.499
##	354	Sauropoda	19.500086	16396.801
##	355	Ankylosauria	25.283007	78952.154
##	356	Stegosauria	17.524672	21020.829
##	357	Sauropoda	13.417468	9499.589
##	358	Ankylosauria	19.215688	39867.938
##	359	Sauropoda	15.643802	11886.269
##	360	Sauropoda	17.153166	13597.168
##	361	Ankylosauria	28.921318	110345.215
##	362	Theropoda	19.098517	32610.060
##	363	Theropoda	21.543505	50496.496
##	364	Sauropoda	24.718945	23180.857
##	365	Theropoda	16.882051	20838.975
##	366	Stegosauria	19.382310	27426.143
##	367	Theropoda	21.678605	51655.501
##	368	Theropoda	21.746023	52241.022
##	369	Theropoda	18.227640	27527.983
##	370	Stegosauria	22.559946	40947.425
##	371	Stegosauria	19.184022	26691.614
##	372	Stegosauria	18.177737	23152.573
##	373	Stegosauria	23.066528	43419.737
##	374	Theropoda	20.772165	44236.593
##	375	Theropoda	22.632652	60396.602
##	376	Sauropoda	19.076144	15878.961
##	377	Stegosauria	27.724371	70561.697
##	378	Sauropoda	20.288979	17374.235
##	379	Sauropoda	14.212386	10332.362
##	380	Theropoda	19.450469	34844.884
##	381	Ankylosauria	22.517699	59170.501

## 382	Stegosauria	23.150742	43839.492
## 383	Ankylosauria	16.751426	28327.574
## 384	Theropoda	13.888346	10259.928
## 385	Stegosauria	18.526589	24344.124
## 386	Ankylosauria	25.511200	80738.440
## 387	Theropoda	17.448391	23490.643
## 388	Theropoda	15.462906	15151.289
## 389	Stegosauria	22.371936	40052.674
## 390	Stegosauria	20.305639	31011.453
## 391	Ankylosauria	15.299113	22601.611
## 392	Stegosauria	21.553737	36300.595
## 393	Theropoda	18.441159	28716.671
## 394	Sauropoda	23.427956	21434.730
## 395	Ankylosauria	18.404205	35806.670
## 396	Theropoda	18.309119	27977.292
## 397	Theropoda	15.103791	13912.492
## 398	Ankylosauria	21.128045	50491.722
## 399	Ankylosauria	23.976432	69180.551
## 400	Theropoda	20.919648	45387.391
## 401	Stegosauria	17.718086	21638.866
## 402	Theropoda	14.755350	12782.316
## 403	Ankylosauria	21.424007	52271.287
## 404	Ankylosauria	19.447438	41075.968
## 405	Ankylosauria	14.552851	19955.436
## 406	Theropoda	23.960125	74279.377
## 407	Theropoda	16.517232	19250.194
## 408	Theropoda	16.610536	19647.872
## 409	Theropoda	20.066724	39022.265
## 410	Ankylosauria	21.662099	53729.749
## 411	Ankylosauria	18.293286	35271.738
## 412	Sauropoda	13.366428	9446.876
## 413	Stegosauria	20.812542	33097.292
## 414	Ankylosauria	24.096192	70044.174
## 415	Theropoda	17.489952	23694.389
## 416	Sauropoda	18.763987	15501.027
## 417	Sauropoda	17.060766	13490.363
## 418	Sauropoda	11.214438	7311.070
## 419	Theropoda	22.912957	63156.403
## 420	Theropoda	20.279257	40543.550
## 421	Sauropoda	22.298560	19942.976
## 422	Ankylosauria	17.154490	30055.308
## 423	Ankylosauria	16.186443	26008.034
## 424	Sauropoda	27.363421	26888.995
## 425	Ankylosauria	22.971664	62185.578
## 426	Sauropoda	20.867939	18102.809
## 427	Theropoda	27.711182	125939.133
## 428	Ankylosauria	13.792734	17460.225
## 429	Ankylosauria	17.566802	31886.388
## 430	Sauropoda	17.835361	14393.863
## 431	Ankylosauria	25.882954	83699.895
## 432	Theropoda	22.801215	62045.506
## 433	Theropoda	22.611716	60194.052
## 434	Stegosauria	21.655309	36753.957
## 435	Ankylosauria	25.542956	80988.924

## 436	Ankylosauria	19.059172	39064.253
## 437	Stegosauria	20.563393	32061.537
## 438	Ankylosauria	21.254484	51247.465
## 439	Theropoda	23.333491	67466.670
## 440	Sauropoda	20.491284	17627.746
## 441	Stegosauria	18.476770	24171.682
## 442	Sauropoda	26.682534	25917.752
## 443	Theropoda	23.298383	67098.902
## 444	Ankylosauria	22.280893	57633.184
## 445	Sauropoda	20.548215	17699.295
## 446	Sauropoda	21.496001	18903.752
## 447	Sauropoda	16.745317	13127.745
## 448	Sauropoda	20.225919	17295.450
## 449	Stegosauria	22.820939	42209.926
## 450	Sauropoda	24.898180	23426.667
## 451	Theropoda	27.277970	118937.988
## 452	Ankylosauria	21.160621	50685.788
## 453	Sauropoda	20.917672	18165.832
## 454	Ankylosauria	19.434040	41005.544
## 455	Stegosauria	23.734146	46816.660
## 456	Ankylosauria	17.549466	31808.088
## 457	Stegosauria	24.918262	53237.908
## 458	Theropoda	17.372396	23121.375
## 459	Stegosauria	18.976956	25937.746
## 460	Ankylosauria	18.844082	37975.734
## 461	Stegosauria	23.890839	47637.068
## 462	Ankylosauria	19.640004	42096.208
## 463	Theropoda	27.807810	127540.554
## 464	Ankylosauria	27.198110	94693.878
## 465	Sauropoda	16.026426	12313.099
## 466	Sauropoda	25.513351	24276.516
## 467	Stegosauria	15.614805	15500.675
## 468	Sauropoda	19.265651	16109.794
## 469	Stegosauria	15.790534	15965.471
## 470	Theropoda	21.978444	54296.492
## 471	Ankylosauria	20.033497	44227.748
## 472	Ankylosauria	20.569070	47230.765
## 473	Sauropoda	17.811687	14365.977
## 474	Theropoda	29.277012	153749.934
## 475	Theropoda	22.502256	59143.016
## 476	Sauropoda	21.199521	18524.301
## 477	Theropoda	12.103778	6227.675
## 478	Stegosauria	14.862825	13606.978
## 479	Ankylosauria	20.562641	47194.014
## 480	Ankylosauria	14.391395	19408.712
## 481	Stegosauria	24.174902	49146.996
## 482	Theropoda	26.280632	103896.484
## 483	Stegosauria	21.943576	38059.728
## 484	Stegosauria	22.586902	41076.716
## 485	Ankylosauria	20.477159	46707.004
## 486	Theropoda	18.666861	30013.153
## 487	Stegosauria	22.737870	41805.513
## 488	Stegosauria	17.234142	20113.277
## 489	Stegosauria	18.447708	24071.440

```
## 490 Ankylosauria 18.033631 34038.279
## 491 Ankylosauria 19.216290 39871.049
## 492 Sauropoda 12.423338 8489.727
## 493 Sauropoda 25.565633 24349.181
## 494 Ankylosauria 20.637215 47621.347
## 495 Ankylosauria 17.972465 33751.531
## 496 Theropoda 20.860254 44921.367
## 497 Stegosauria 19.066745 26262.993
## 498 Sauropoda 19.894607 16883.382
## 499 Sauropoda 17.878476 14444.693
## 500 Ankylosauria 12.386286 13358.074
```

```
head(tot_mass)
```

```
## [1] 24341.68 27017.90 67453.38 22114.19 53884.76 52026.34
```

```
dinosaur_lengths %>%
  group_by(species) %>%
  summarise(mean_mass = mean(tot_mass)) -> mass_species
```

```
library(ggplot2)
unzip("individual_collar_data.zip")

data_files <- list.files(pattern = "collar-data-*.txt")

for(i in 1:(collar-data-)) {
  print(ggplot(data, aes(x = long, y = lat[ , i])) +
    geom_point())
} # Printing ggplot within for-loop
```

```
## Error: <text>:6:25: unexpected ')'
```

```
## 5:
```

```
## 6: for(i in 1:(collar-data-)
```

```
## ^
```