

Assignment 4

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Section 10.5 Problem 5

What does `tibble::enframe()` do? When might you use it?

`enframe()` takes atomic vectors/lists and makes them into two column data frames. This is useful when you load in data as a list and you want to convert it into a data frame, or you have to set variables and then you want to save the variables you set as a data frame.

Section 12.6.1 Problem 3

I claimed that `iso2` and `iso3` were redundant with `country`. Confirm this claim.

If we take the number of distinct values in `iso2` and `iso3` we will see that this number is the same:

```
who <- tidyr::who
iso2_count <- n_distinct(who["iso2"])
iso3_count <- n_distinct(who["iso3"])
iso2_count
```

```
## [1] 219
```

```
iso3_count
```

```
## [1] 219
```

At the very least this means that they have the same number of distinct values. Furthermore, if we look at the unique values in `iso2` and `iso3`, we will see that they are the same, with the exception that `iso3` is a 3 letter abbreviation:

```
iso2_unique <- unique(who["iso2"])
iso3_unique <- unique(who["iso3"])
iso2_unique
```

```
## # A tibble: 219 x 1
```

```
##   iso2
```

```
##   <chr>
```

```
## 1 AF
```

```
## 2 AL
```

```
## 3 DZ
```

```
## 4 AS
```

```
## 5 AD
```

```
## 6 AO
```

```
## 7 AI
```

```
## 8 AG
```

```
## 9 AR
```

```
## 10 AM
```

```
## # ... with 209 more rows
```

```
iso3_unique
```

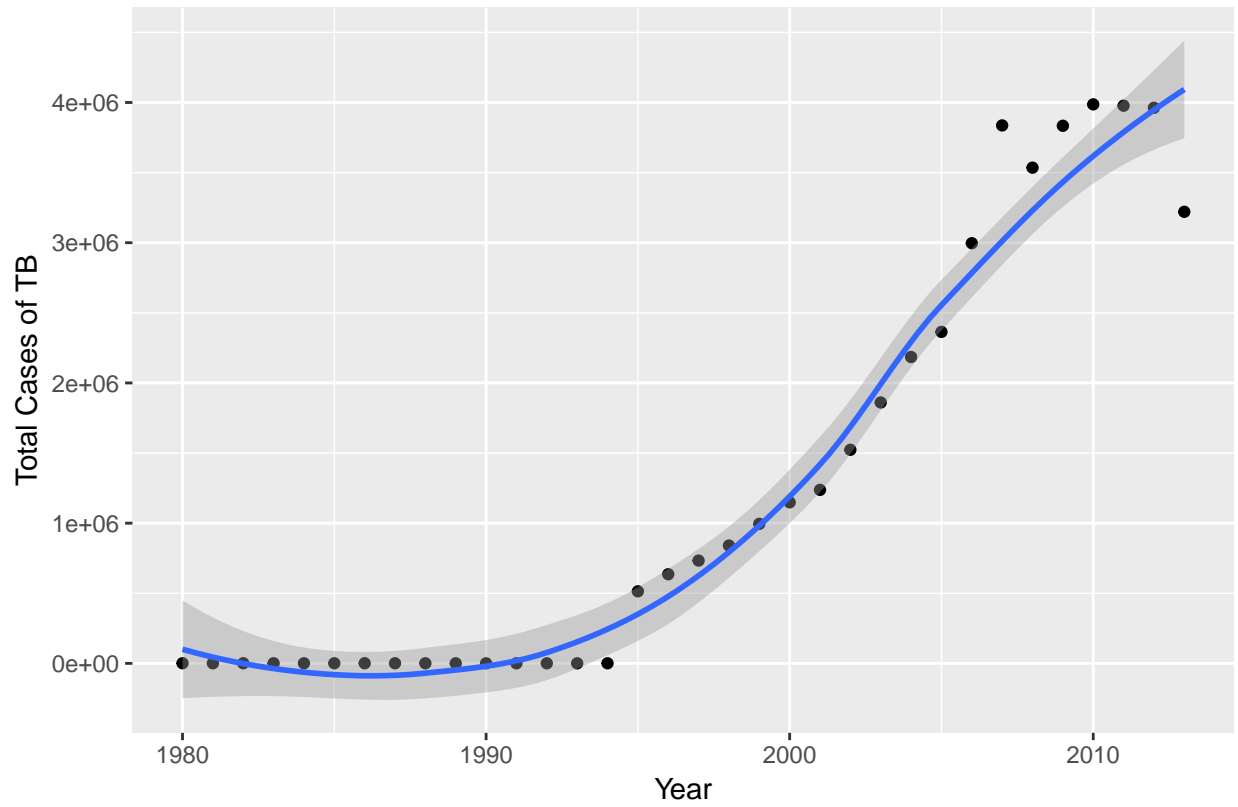
```
## # A tibble: 219 x 1
##   iso3
##   <chr>
## 1 AFG
## 2 ALB
## 3 DZA
## 4 ASM
## 5 AND
## 6 AGO
## 7 AIA
## 8 ATG
## 9 ARG
## 10 ARM
## # ... with 209 more rows
```

Section 12.6.1 Problem 4

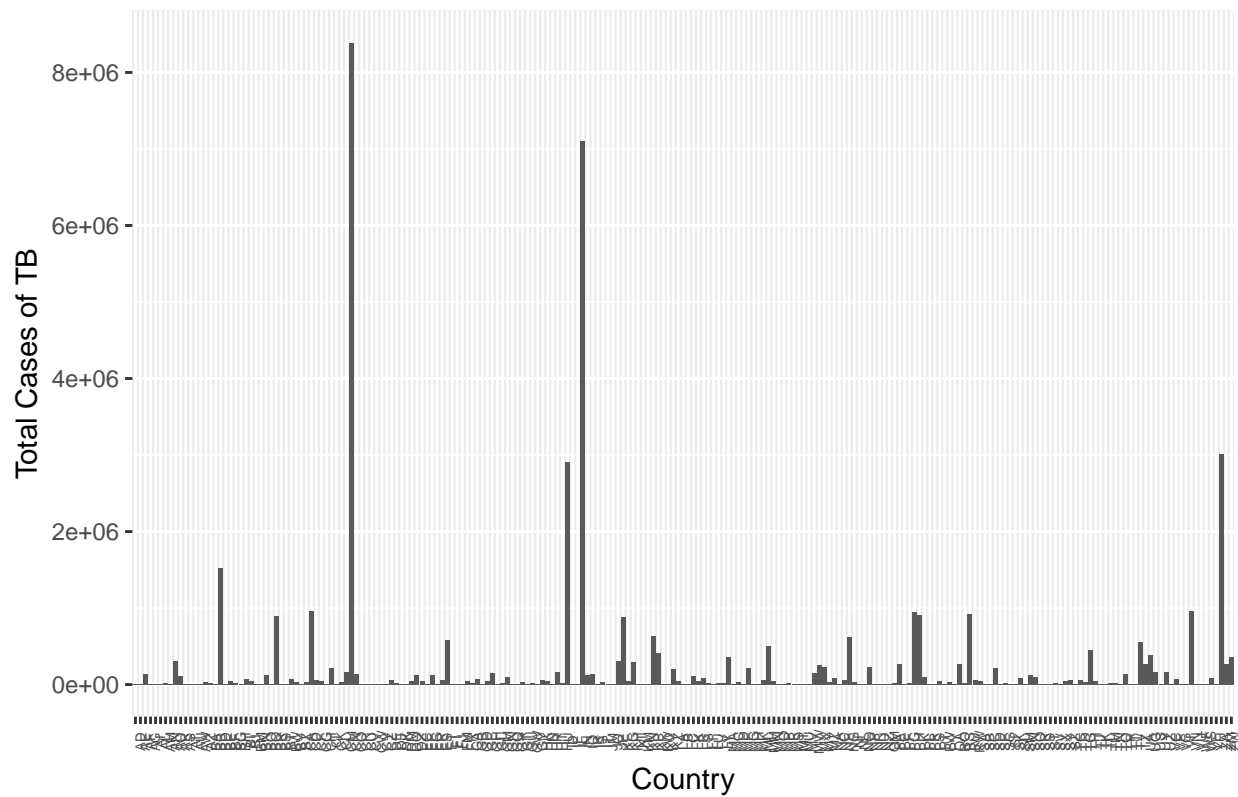
For each country, year, and sex, compute the total number of cases of TB. Make an informative visualization of the data.

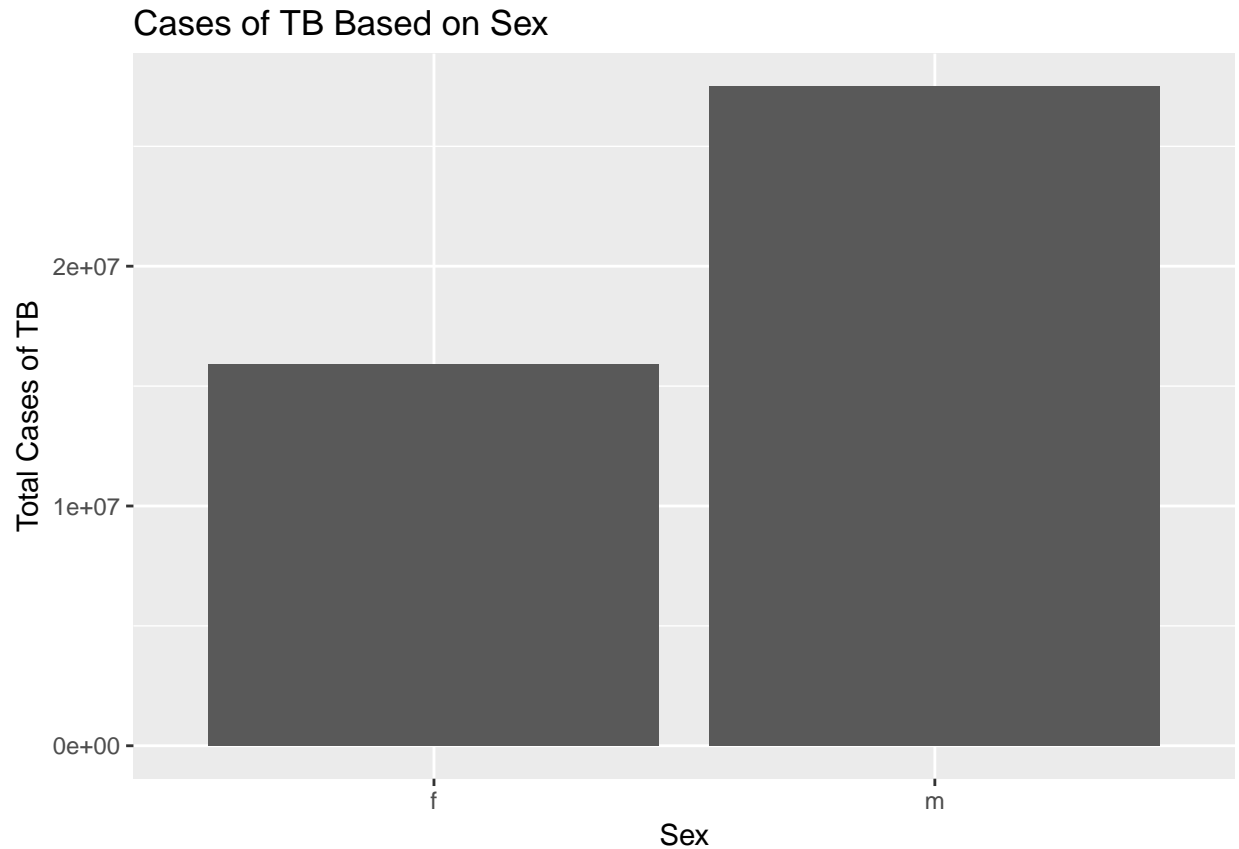
```
## `geom_smooth()` using method = 'loess'
```

Cases of TB Over the Years



Cases of TB per Country





Case Study

```
## Parsed with column specification:
## cols(
##   .default = col_integer(),
##   artist.inverted = col_character(),
##   track = col_character(),
##   time = col_time(format = ""),
##   genre = col_character(),
##   date.entered = col_date(format = ""),
##   date.peaked = col_date(format = ""),
##   x66th.week = col_character(),
##   x67th.week = col_character(),
##   x68th.week = col_character(),
##   x69th.week = col_character(),
##   x70th.week = col_character(),
##   x71st.week = col_character(),
##   x72nd.week = col_character(),
##   x73rd.week = col_character(),
##   x74th.week = col_character(),
##   x75th.week = col_character(),
##   x76th.week = col_character()
## )
## See spec(...) for full column specifications.
```

Reproducing Table 4 to Table 6

```
# transformed_table <- melt(rawdat, id = c("religion"), variable.name = "income", value.name = "freq")
# OR
```

```
transformed_table_v2 <- rawdat %>% gather(key = "income", value = "freq", -religion)
transformed_table_v2
```

##	religion	income	freq
## 1	Agnostic	<\$10k	27
## 2	Atheist	<\$10k	12
## 3	Buddhist	<\$10k	27
## 4	Catholic	<\$10k	418
## 5	Don't know/refused	<\$10k	15
## 6	Evangelical Prot	<\$10k	575
## 7	Hindu	<\$10k	1
## 8	Historically Black Prot	<\$10k	228
## 9	Jehovah's Witness	<\$10k	20
## 10	Jewish	<\$10k	19
## 11	Mainline Prot	<\$10k	289
## 12	Mormon	<\$10k	29
## 13	Muslim	<\$10k	6
## 14	Orthodox	<\$10k	13
## 15	Other Christian	<\$10k	9
## 16	Other Faiths	<\$10k	20
## 17	Other World Religions	<\$10k	5
## 18	Unaffiliated	<\$10k	217
## 19	Agnostic	\$10-20k	34
## 20	Atheist	\$10-20k	27
## 21	Buddhist	\$10-20k	21
## 22	Catholic	\$10-20k	617
## 23	Don't know/refused	\$10-20k	14
## 24	Evangelical Prot	\$10-20k	869
## 25	Hindu	\$10-20k	9
## 26	Historically Black Prot	\$10-20k	244
## 27	Jehovah's Witness	\$10-20k	27
## 28	Jewish	\$10-20k	19
## 29	Mainline Prot	\$10-20k	495
## 30	Mormon	\$10-20k	40
## 31	Muslim	\$10-20k	7
## 32	Orthodox	\$10-20k	17
## 33	Other Christian	\$10-20k	7
## 34	Other Faiths	\$10-20k	33
## 35	Other World Religions	\$10-20k	2
## 36	Unaffiliated	\$10-20k	299
## 37	Agnostic	\$20-30k	60
## 38	Atheist	\$20-30k	37
## 39	Buddhist	\$20-30k	30
## 40	Catholic	\$20-30k	732
## 41	Don't know/refused	\$20-30k	15
## 42	Evangelical Prot	\$20-30k	1064
## 43	Hindu	\$20-30k	7
## 44	Historically Black Prot	\$20-30k	236
## 45	Jehovah's Witness	\$20-30k	24

## 46	Jewish	\$20-30k	25
## 47	Mainline Prot	\$20-30k	619
## 48	Mormon	\$20-30k	48
## 49	Muslim	\$20-30k	9
## 50	Orthodox	\$20-30k	23
## 51	Other Christian	\$20-30k	11
## 52	Other Faiths	\$20-30k	40
## 53	Other World Religions	\$20-30k	3
## 54	Unaffiliated	\$20-30k	374
## 55	Agnostic	\$30-40k	81
## 56	Atheist	\$30-40k	52
## 57	Buddhist	\$30-40k	34
## 58	Catholic	\$30-40k	670
## 59	Don't know/refused	\$30-40k	11
## 60	Evangelical Prot	\$30-40k	982
## 61	Hindu	\$30-40k	9
## 62	Historically Black Prot	\$30-40k	238
## 63	Jehovah's Witness	\$30-40k	24
## 64	Jewish	\$30-40k	25
## 65	Mainline Prot	\$30-40k	655
## 66	Mormon	\$30-40k	51
## 67	Muslim	\$30-40k	10
## 68	Orthodox	\$30-40k	32
## 69	Other Christian	\$30-40k	13
## 70	Other Faiths	\$30-40k	46
## 71	Other World Religions	\$30-40k	4
## 72	Unaffiliated	\$30-40k	365
## 73	Agnostic	\$40-50k	76
## 74	Atheist	\$40-50k	35
## 75	Buddhist	\$40-50k	33
## 76	Catholic	\$40-50k	638
## 77	Don't know/refused	\$40-50k	10
## 78	Evangelical Prot	\$40-50k	881
## 79	Hindu	\$40-50k	11
## 80	Historically Black Prot	\$40-50k	197
## 81	Jehovah's Witness	\$40-50k	21
## 82	Jewish	\$40-50k	30
## 83	Mainline Prot	\$40-50k	651
## 84	Mormon	\$40-50k	56
## 85	Muslim	\$40-50k	9
## 86	Orthodox	\$40-50k	32
## 87	Other Christian	\$40-50k	13
## 88	Other Faiths	\$40-50k	49
## 89	Other World Religions	\$40-50k	2
## 90	Unaffiliated	\$40-50k	341
## 91	Agnostic	\$50-75k	137
## 92	Atheist	\$50-75k	70
## 93	Buddhist	\$50-75k	58
## 94	Catholic	\$50-75k	1116
## 95	Don't know/refused	\$50-75k	35
## 96	Evangelical Prot	\$50-75k	1486
## 97	Hindu	\$50-75k	34
## 98	Historically Black Prot	\$50-75k	223
## 99	Jehovah's Witness	\$50-75k	30

## 100	Jewish	\$50-75k	95
## 101	Mainline Prot	\$50-75k	1107
## 102	Mormon	\$50-75k	112
## 103	Muslim	\$50-75k	23
## 104	Orthodox	\$50-75k	47
## 105	Other Christian	\$50-75k	14
## 106	Other Faiths	\$50-75k	63
## 107	Other World Religions	\$50-75k	7
## 108	Unaffiliated	\$50-75k	528
## 109	Agnostic	\$75-100k	122
## 110	Atheist	\$75-100k	73
## 111	Buddhist	\$75-100k	62
## 112	Catholic	\$75-100k	949
## 113	Don't know/refused	\$75-100k	21
## 114	Evangelical Prot	\$75-100k	949
## 115	Hindu	\$75-100k	47
## 116	Historically Black Prot	\$75-100k	131
## 117	Jehovah's Witness	\$75-100k	15
## 118	Jewish	\$75-100k	69
## 119	Mainline Prot	\$75-100k	939
## 120	Mormon	\$75-100k	85
## 121	Muslim	\$75-100k	16
## 122	Orthodox	\$75-100k	38
## 123	Other Christian	\$75-100k	18
## 124	Other Faiths	\$75-100k	46
## 125	Other World Religions	\$75-100k	3
## 126	Unaffiliated	\$75-100k	407
## 127	Agnostic	\$100-150k	109
## 128	Atheist	\$100-150k	59
## 129	Buddhist	\$100-150k	39
## 130	Catholic	\$100-150k	792
## 131	Don't know/refused	\$100-150k	17
## 132	Evangelical Prot	\$100-150k	723
## 133	Hindu	\$100-150k	48
## 134	Historically Black Prot	\$100-150k	81
## 135	Jehovah's Witness	\$100-150k	11
## 136	Jewish	\$100-150k	87
## 137	Mainline Prot	\$100-150k	753
## 138	Mormon	\$100-150k	49
## 139	Muslim	\$100-150k	8
## 140	Orthodox	\$100-150k	42
## 141	Other Christian	\$100-150k	14
## 142	Other Faiths	\$100-150k	40
## 143	Other World Religions	\$100-150k	4
## 144	Unaffiliated	\$100-150k	321
## 145	Agnostic	>150k	84
## 146	Atheist	>150k	74
## 147	Buddhist	>150k	53
## 148	Catholic	>150k	633
## 149	Don't know/refused	>150k	18
## 150	Evangelical Prot	>150k	414
## 151	Hindu	>150k	54
## 152	Historically Black Prot	>150k	78
## 153	Jehovah's Witness	>150k	6

## 154	Jewish	>150k	151
## 155	Mainline Prot	>150k	634
## 156	Mormon	>150k	42
## 157	Muslim	>150k	6
## 158	Orthodox	>150k	46
## 159	Other Christian	>150k	12
## 160	Other Faiths	>150k	41
## 161	Other World Religions	>150k	4
## 162	Unaffiliated	>150k	258
## 163	Agnostic Don't know/refused		96
## 164	Atheist Don't know/refused		76
## 165	Buddhist Don't know/refused		54
## 166	Catholic Don't know/refused		1489
## 167	Don't know/refused Don't know/refused		116
## 168	Evangelical Prot Don't know/refused		1529
## 169	Hindu Don't know/refused		37
## 170	Historically Black Prot Don't know/refused		339
## 171	Jehovah's Witness Don't know/refused		37
## 172	Jewish Don't know/refused		162
## 173	Mainline Prot Don't know/refused		1328
## 174	Mormon Don't know/refused		69
## 175	Muslim Don't know/refused		22
## 176	Orthodox Don't know/refused		73
## 177	Other Christian Don't know/refused		18
## 178	Other Faiths Don't know/refused		71
## 179	Other World Religions Don't know/refused		8
## 180	Unaffiliated Don't know/refused		597

Reproducing Table 7 to Table 8

```
bb_v2 <- bb_data %>% gather(key = "week", value = "rank", -year, -artist, -time, -track, -date)
bb_v3 <- bb_v2 %>% separate(week, c("rem", "week"), sep = 2)
bb_v4 <- bb_v3 %>% select(year, artist, track, time, date, week, rank)
View(bb_v4)
```