

DATA-2010_Project

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DATA 2010 Project

```
nv_tourist <- read.csv("non-verbal tourist data.csv")
```

Note: Original dataset switched TAudio1 and Proxemics

new_nv_tourist rectified this error

```
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ----- tidyverse 2.0.0 --
## v dplyr      1.1.2      v readr      2.1.4
## v forcats    1.0.0      v stringr   1.5.0
## v ggplot2    3.4.2      v tibble    3.2.1
## v lubridate  1.9.2      v tidyr     1.3.0
## v purrr      1.0.1
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()     masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
new_nv_tourist <- nv_tourist |>
  rename(
    handshake_indiff = GImg1,
    hug_indiff = GImg2,
    kiss_indiff = GImg3,
    consent_post = PImg1,
    interest_post = PImg2,
    neutral_post = PImg3,
    reflexive_post = PImg4,
    negative_post = PImg5,
    relax_score = Tense...relaxed,
    anarchic_score = Authoritative..anarchic,
    friendly_score = Hostile...friendly,
    authoritative = Proxemics,
    sarcastic = TAudio2,
```

```

    friendly = TAudio3,
    spitting = QAudio1,
    hum = QAudio2,
    sigh = QAudio3,
    proxemics = TAudio1,
    client_type = Type.of.Client
)
new_nv_tourist

```

##	sex	age	country	returning	handshake_indiff	hug_indiff	kiss_indiff
## 1	F	42	uruguay	no	likes	indiferent	indiferent
## 2	M	60	brasil	no	likes	indiferent	indiferent
## 3	F	25	england	no	indiferent	indiferent	indiferent
## 4	M	43	canada	no	likes	dislikes	dislikes
## 5	M	30	hungary	no	indiferent	indiferent	indiferent
## 6	F	31	canada	yes	likes	likes	likes
## 7	M	64	canada	yes	indiferent	likes	likes
## 8	M	51	argentina	yes	likes	likes	likes
## 9	F	28	hungary	no	likes	likes	likes
## 10	M	78	england	yes	likes	likes	likes
## 11	F	36	england	yes	likes	likes	likes
## 12	F	33	polish	yes	likes	likes	likes
## 13	M	37	england	yes	likes	likes	likes
## 14	M	28	england	yes	likes	indiferent	likes
## 15	F	56	argentina	no	likes	likes	likes
## 16	M	56	argentina	no	likes	indiferent	likes
## 17	F	53	colombia	no	likes	likes	likes
## 18	M	55	canada	yes	likes	indiferent	likes
## 19	M	67	canada	yes	likes	likes	likes
## 20	F	24	england	yes	likes	likes	likes
## 21	F	58	canada	yes	likes	likes	likes
## 22	M	34	canada	no	indiferent	likes	likes
## 23	F	58	scotland	yes	likes	likes	likes
## 24	M	61	polish	yes	likes	likes	likes
## 25	F	56	polish	yes	likes	likes	likes
## 26	F	48	canada	yes	likes	likes	likes
## 27	M	49	canada	yes	likes	likes	likes
## 28	F	39	canada	yes	likes	likes	likes
## 29	F	63	canada	no	likes	likes	likes
## 30	M	65	canada	no	likes	likes	likes
## 31	F	45	scotland	yes	likes	indiferent	likes
## 32	M	48	scotland	yes	likes	likes	indiferent
## 33	M	76	england	yes	likes	likes	likes
## 34	F	36	england	yes	likes	likes	likes
## 35	M	42	england	yes	likes	likes	likes
## 36	F	66	england	yes	likes	likes	likes
## 37	M	71	england	yes	likes	likes	likes
## 38	M	80	england	no	likes	indiferent	likes
## 39	F	49	canada	yes	likes	likes	indiferent
## 40	M	67	canada	yes	likes	likes	likes
## 41	F	63	canada	yes	likes	likes	likes
## 42	M	46	england	yes	likes	likes	likes
## 43	F	39	canada	no	likes	likes	likes

## 44	F	40	england	yes	likes	likes	likes
## 45	F	81	chile	yes	likes	likes	likes
## 46	F	77	england	yes	indiferent	likes	likes
## 47	F	51	england	yes	likes	indiferent	indiferent
## 48	M	53	england	yes	likes	indiferent	indiferent
## 49	F	34	england	no	likes	indiferent	indiferent
## 50	M	53	germany	yes	indiferent	indiferent	indiferent
## 51	F	38	england	no	likes	likes	indiferent
## 52	F	56	england	yes	likes	indiferent	indiferent
## 53	M	53	england	yes	likes	indiferent	indiferent
## 54	M	41	cuba	no	likes	indiferent	indiferent
## 55	M	26	italy	yes	likes	likes	indiferent
## 56	M	30	england	no	dislikes	dislikes	dislikes
## 57	F	29	russia	no	likes	indiferent	indiferent
## 58	M	47	italy	no	indiferent	dislikes	dislikes
## 59	M	58	italy	no	indiferent	dislikes	dislikes
## 60	F	40	mexico	no	indiferent	indiferent	dislikes
## 61	M	38	germany	no	dislikes	dislikes	dislikes
## 62	F	56	england	no	indiferent	dislikes	dislikes
## 63	M	26	england	no	indiferent	dislikes	dislikes
## 64	F	56	russia	no	indiferent	dislikes	dislikes
## 65	F	48	germany	no	indiferent	dislikes	dislikes
## 66	F	25	spain	no	indiferent	indiferent	indiferent
## 67	F	25	spain	no	indiferent	indiferent	likes
## 68	F	27	spain	no	indiferent	indiferent	likes
## 69	F	36	england	no	indiferent	dislikes	dislikes
## 70	M	38	russia	no	dislikes	dislikes	dislikes
## 71	F	46	canada	no	dislikes	indiferent	indiferent
## 72	M	39	germany	no	dislikes	dislikes	?
## 73	M	27	canada	no	dislikes	likes	indiferent
##			consent_post	interest_post	neutral_post	reflexive_post	negative_post
## 1			likes	likes	indiferent	indiferent	dislikes
## 2			likes	likes	likes	likes	?
## 3			likes	likes	indiferent	likes	dislikes
## 4			likes	likes	indiferent	indiferent	dislikes
## 5			likes	likes	indiferent	likes	dislikes
## 6			likes	likes	likes	likes	dislikes
## 7			likes	likes	indiferent	indiferent	dislikes
## 8			likes	likes	indiferent	likes	dislikes
## 9			likes	likes	indiferent	indiferent	dislikes
## 10			likes	likes	likes	likes	indiferent
## 11			likes	likes	likes	likes	dislikes
## 12			likes	likes	likes	likes	dislikes
## 13			likes	likes	likes	likes	dislikes
## 14			likes	likes	likes	likes	dislikes
## 15			likes	likes	likes	likes	dislikes
## 16			likes	likes	likes	likes	dislikes
## 17			likes	likes	likes	indiferent	dislikes
## 18			likes	likes	likes	likes	dislikes
## 19			likes	likes	likes	dislikes	dislikes
## 20			likes	likes	likes	indiferent	dislikes
## 21			likes	likes	likes	likes	dislikes
## 22			likes	likes	likes	likes	dislikes
## 23			likes	likes	likes	likes	dislikes

## 24	likes	likes	likes	likes	dislikes	
## 25	likes	likes	likes	likes	dislikes	
## 26	likes	likes	likes	likes	dislikes	
## 27	likes	likes	likes	likes	dislikes	
## 28	likes	likes	likes	likes	dislikes	
## 29	likes	likes	likes	likes	dislikes	
## 30	likes	likes	likes	likes	dislikes	
## 31	likes	likes	likes	indiferent	dislikes	
## 32	likes	likes	likes	likes	dislikes	
## 33	likes	likes	likes	likes	dislikes	
## 34	likes	likes	likes	likes	dislikes	
## 35	likes	likes	likes	likes	dislikes	
## 36	likes	likes	likes	likes	dislikes	
## 37	likes	likes	likes	likes	dislikes	
## 38	likes	likes	likes	likes	dislikes	
## 39	likes	likes	likes	likes	?	
## 40	likes	likes	likes	likes	dislikes	
## 41	likes	likes	likes	likes	dislikes	
## 42	likes	likes	indiferent	likes	dislikes	
## 43	likes	likes	likes	likes	dislikes	
## 44	likes	likes	likes	likes	dislikes	
## 45	likes	likes	indiferent	likes	dislikes	
## 46	likes	likes	likes	indiferent	dislikes	
## 47	likes	likes	likes	indiferent	dislikes	
## 48	likes	likes	likes	dislikes	dislikes	
## 49	likes	likes	likes	indiferent	dislikes	
## 50	likes	likes	dislikes	indiferent	dislikes	
## 51	likes	likes	likes	indiferent	dislikes	
## 52	likes	likes	likes	likes	dislikes	
## 53	likes	likes	likes	likes	dislikes	
## 54	likes	likes	dislikes	indiferent	dislikes	
## 55	likes	likes	likes	likes	dislikes	
## 56	likes	likes	dislikes	dislikes	dislikes	
## 57	likes	likes	likes	likes	dislikes	
## 58	likes	likes	dislikes	dislikes	dislikes	
## 59	indiferent	likes	indiferent	dislikes	dislikes	
## 60	likes	likes	dislikes	dislikes	dislikes	
## 61	likes	likes	dislikes	dislikes	dislikes	
## 62	likes	likes	dislikes	indiferent	dislikes	
## 63	likes	likes	dislikes	dislikes	dislikes	
## 64	likes	likes	dislikes	dislikes	dislikes	
## 65	indiferent	likes	dislikes	dislikes	dislikes	
## 66	likes	likes	dislikes	dislikes	dislikes	
## 67	likes	likes	dislikes	dislikes	dislikes	
## 68	likes	likes	dislikes	dislikes	dislikes	
## 69	likes	likes	dislikes	indiferent	dislikes	
## 70	likes	likes	dislikes	indiferent	dislikes	
## 71	indiferent	likes	dislikes	indiferent	dislikes	
## 72	likes	likes	dislikes	dislikes	dislikes	
## 73	likes	likes	dislikes	dislikes	dislikes	
##	relax_score	anarchic_score	friendly_score	proxemics	sarcastic	friendly
## 1	4	8	3	C	dislikes	dislikes
## 2	2	9	1	B	dislikes	dislikes
## 3	5	10	5	C	dislikes	dislikes

## 4	3	2	1	C	dislikes	dislikes
## 5	3	9	3	C	dislikes	dislikes
## 6	1	9	1	B	indiferent	dislikes
## 7	1	10	2	B	dislikes	dislikes
## 8	1	9	1	B	indiferent	dislikes
## 9	4	3	3	C	indiferent	dislikes
## 10	1	3	2	A	dislikes	indiferent
## 11	1	4	1	A	dislikes	indiferent
## 12	1	1	3	A	indiferent	dislikes
## 13	1	2	1	A	dislikes	indiferent
## 14	1	7	5	A	indiferent	indiferent
## 15	1	8	1	B	dislikes	dislikes
## 16	1	10	4	B	dislikes	dislikes
## 17	3	8	2	B	dislikes	indiferent
## 18	2	4	5	B	dislikes	dislikes
## 19	1	6	1	B	indiferent	indiferent
## 20	5	3	4	B	dislikes	likes
## 21	1	6	1	B	dislikes	dislikes
## 22	1	3	1	A	dislikes	dislikes
## 23	1	10	2	A	dislikes	dislikes
## 24	1	10	2	B	dislikes	dislikes
## 25	1	4	2	B	dislikes	dislikes
## 26	1	7	1	A	indiferent	dislikes
## 27	1	9	1	A	dislikes	dislikes
## 28	1	1	1	A	indiferent	dislikes
## 29	1	7	3	B	indiferent	dislikes
## 30	1	6	1	B	indiferent	dislikes
## 31	1	3	1	B	dislikes	indiferent
## 32	5	10	1	B	dislikes	dislikes
## 33	1	6	1	B	dislikes	indiferent
## 34	1	5	1	A	dislikes	indiferent
## 35	1	5	3	A	dislikes	indiferent
## 36	1	2	1	A	dislikes	indiferent
## 37	1	2	2	A	dislikes	indiferent
## 38	1	8	1	B	dislikes	dislikes
## 39	2	2	2	B	dislikes	dislikes
## 40	1	1	1	A	dislikes	dislikes
## 41	1	1	1	A	dislikes	dislikes
## 42	1	1	1	B	dislikes	indiferent
## 43	1	4	1	A	dislikes	dislikes
## 44	1	?	1	A	dislikes	dislikes
## 45	1	2	1	A	dislikes	dislikes
## 46	2	7	5	A	dislikes	indiferent
## 47	3	3	4	C	dislikes	indiferent
## 48	2	4	1	B	dislikes	dislikes
## 49	2	2	3	C	indiferent	dislikes
## 50	5	2	2	B	dislikes	dislikes
## 51	2	2	4	B	dislikes	dislikes
## 52	1	1	1	B	dislikes	dislikes
## 53	1	1	1	B	dislikes	dislikes
## 54	2	3	2	B	dislikes	dislikes
## 55	2	4	2	B	dislikes	dislikes
## 56	5	9	2	C	dislikes	likes
## 57	5	5	1	C	indiferent	dislikes

## 58	2	8	2	C	dislikes	dislikes
## 59	4	2	1	C	dislikes	dislikes
## 60	2	10	3	A	indiferent	dislikes
## 61	3	3	2	C	indiferent	dislikes
## 62	5	2	1	D	dislikes	dislikes
## 63	4	2	5	C	dislikes	dislikes
## 64	5	4	6	D	dislikes	dislikes
## 65	5	9	6	D	dislikes	dislikes
## 66	3	4	2	C	dislikes	dislikes
## 67	2	6	2	C	dislikes	dislikes
## 68	3	9	2	C	dislikes	dislikes
## 69	5	7	4	C	dislikes	dislikes
## 70	5	2	5	C	dislikes	dislikes
## 71	2	1	2	A	dislikes	dislikes
## 72	5	4	4	C	dislikes	dislikes
## 73	4	9	5	A	dislikes	dislikes
##	spitting	hum	sigh	authoritative	client_type	
## 1	indiferent	dislikes	dislikes	dislikes	0	
## 2	likes	likes	dislikes	dislikes	0	
## 3	likes	dislikes	dislikes	dislikes	0	
## 4	likes	dislikes	indiferent	dislikes	0	
## 5	likes	indiferent	dislikes	dislikes	0	
## 6	likes	indiferent	dislikes	dislikes	1	
## 7	likes	indiferent	dislikes	dislikes	1	
## 8	likes	indiferent	dislikes	dislikes	1	
## 9	likes	indiferent	dislikes	dislikes	1	
## 10	likes	dislikes	likes	indiferent	2	
## 11	likes	indiferent	likes	dislikes	2	
## 12	likes	dislikes	indiferent	dislikes	2	
## 13	likes	dislikes	indiferent	dislikes	2	
## 14	likes	indiferent	indiferent	dislikes	2	
## 15	likes	dislikes	indiferent	dislikes	2	
## 16	likes	dislikes	indiferent	dislikes	2	
## 17	likes	dislikes	dislikes	dislikes	2	
## 18	likes	dislikes	dislikes	dislikes	2	
## 19	likes	dislikes	dislikes	indiferent	2	
## 20	likes	dislikes	dislikes	dislikes	2	
## 21	likes	dislikes	dislikes	dislikes	2	
## 22	likes	dislikes	dislikes	indiferent	2	
## 23	likes	dislikes	dislikes	dislikes	2	
## 24	likes	dislikes	dislikes	dislikes	2	
## 25	likes	dislikes	dislikes	dislikes	2	
## 26	likes	dislikes	dislikes	indiferent	2	
## 27	likes	dislikes	dislikes	dislikes	2	
## 28	likes	dislikes	dislikes	dislikes	2	
## 29	likes	dislikes	dislikes	dislikes	2	
## 30	likes	dislikes	dislikes	dislikes	2	
## 31	likes	dislikes	dislikes	dislikes	2	
## 32	likes	dislikes	dislikes	dislikes	2	
## 33	likes	dislikes	dislikes	dislikes	2	
## 34	likes	dislikes	dislikes	indiferent	2	
## 35	likes	dislikes	dislikes	dislikes	2	
## 36	likes	dislikes	dislikes	likes	2	
## 37	likes	dislikes	dislikes	dislikes	2	

```
## 38    likes    dislikes    dislikes    dislikes    2
## 39    likes    dislikes    dislikes    dislikes    2
## 40    likes    dislikes    dislikes    dislikes    2
## 41    likes    dislikes    dislikes    dislikes    2
## 42    likes    dislikes    indiferent    dislikes    2
## 43    likes    dislikes    dislikes    dislikes    2
## 44    likes    indiferent    dislikes    dislikes    2
## 45    likes    dislikes    dislikes    indiferent    2
## 46    likes    dislikes    indiferent    indiferent    3
## 47    likes    indiferent    dislikes    dislikes    3
## 48    likes    dislikes    indiferent    dislikes    3
## 49    likes    dislikes    dislikes    dislikes    3
## 50    likes    dislikes    dislikes    dislikes    3
## 51    likes    dislikes    dislikes    dislikes    3
## 52    likes    dislikes    dislikes    dislikes    3
## 53    likes    dislikes    dislikes    dislikes    3
## 54    likes    dislikes    dislikes    dislikes    3
## 55    likes    dislikes    indiferent    dislikes    3
## 56    likes    dislikes    dislikes    dislikes    4
## 57    likes    dislikes    dislikes    dislikes    4
## 58    likes    dislikes    dislikes    dislikes    4
## 59    dislikes    dislikes    dislikes    dislikes    4
## 60    dislikes    dislikes    dislikes    dislikes    4
## 61    indiferent    dislikes    dislikes    dislikes    4
## 62    dislikes    dislikes    dislikes    dislikes    4
## 63    likes    dislikes    dislikes    dislikes    4
## 64    likes    dislikes    indiferent    dislikes    4
## 65    likes    dislikes    dislikes    dislikes    4
## 66    likes    dislikes    dislikes    dislikes    4
## 67    indiferent    dislikes    dislikes    dislikes    4
## 68    likes    dislikes    dislikes    dislikes    4
## 69    likes    dislikes    dislikes    dislikes    4
## 70    dislikes    dislikes    dislikes    dislikes    5
## 71    indiferent    indiferent    dislikes    indiferent    5
## 72    indiferent    dislikes    dislikes    dislikes    5
## 73    likes    dislikes    dislikes    likes    5
```

```
# checking for missing values...
```

```
# the dataset uses "?" to indicate a missing value
```

```
contains_missing <- function(row) {
  any(row == "?")
}
```

```
rows_w_missing_val <- apply(new_nv_tourist, 1, contains_missing)
print(new_nv_tourist[rows_w_missing_val,])
```

```
##    sex age country returning handshake_indiff hug_indiff kiss_indiff
## 2    M 60 brasil      no          likes indiferent indiferent
## 39   F 49 canada      yes          likes      likes indiferent
## 44   F 40 england     yes          likes      likes      likes
## 72   M 39 germany     no          dislikes dislikes      ?
##    consent_post interest_post neutral_post reflexive_post negative_post
## 2      likes      likes      likes      likes      ?
```

## 39	likes	likes	likes	likes	?	
## 44	likes	likes	likes	likes	dislikes	
## 72	likes	likes	dislikes	dislikes	dislikes	
##	relax_score	anarchic_score	friendly_score	proxemics	sarcastic	friendly
## 2	2	9	1	B	dislikes	dislikes
## 39	2	2	2	B	dislikes	dislikes
## 44	1	?	1	A	dislikes	dislikes
## 72	5	4	4	C	dislikes	dislikes
##	spitting	hum	sigh	authoritative	client_type	
## 2	likes	likes	dislikes	dislikes	0	
## 39	likes	dislikes	dislikes	dislikes	2	
## 44	likes	indiferent	dislikes	dislikes	2	
## 72	indiferent	dislikes	dislikes	dislikes	5	