HW2

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目錄

Dataset Description

This dataset includes 173 species of mushrooms with caps from various families and one entry for each species.Each species is identified as definitely edible, definitely poisonous, or of unknown edibility and not recommended (the latter class was combined with the poisonous class).

Variable	Data Type	Description	Note
family	nominal	String of the name of the family of mushroom species	
name	nominal	String of the of the mushroom species	
class	nominal	Edibility of the mushroom	e=edible, p=poisonous
cap-diameter	cardinal	Cap diameter in cm	two values=min max, one value=mean
cap-shape	nominal	Shape of the mushroom cap	bell=b, conical=c, convex=x, flat=f, sunken=s, spherical=p, others=o
cap-surface	nominal	Texture of the mushroom cap surface	fibrous=i, grooves=g, scaly=y, smooth=s, shiny=h, leathery=l, silky=k, sticky=t, wrinkled=w, fleshy=e
cap-color	nominal	Color of the mushroom cap	brown=n, buff=b, gray=g, green=r, pink=p, purple=u, red=e, white=w, yellow=y, blue=l, orange=o, black=k
does-bruise-bleed	nominal	Whether the mushroom bruises or bleeds	bruises-or-bleeding=t,no=f

Variable	Data Type	Description	Note
gill-attachment	nominal	How the gills attach to the stem	adnate=a, adnexed=x, decurrent=d, free=e, sinuate=s, pores=p, none=f, unknown=?
gill-spacing	nominal	Spacing between gills	close=c, distant=d, none=f
gill-color	nominal	Color of the gills	see cap-color + none=f
stem-height	cardinal	Stem height in cm	two values=min max, one value=mean
stem-width	cardinal	Stem width in mm	two values=min max, one value=mean
stem-root	nominal	Root structure of the stem	bulbous=b, swollen=s, club=c, cup=u, equal=e, rhizomorphs=z, rooted=r
stem-surface	nominal	Texture of the stem surface	see cap-surface + none=f
stem-color	nominal	Color of the stem	see cap-color + none=f
veil-type	nominal	Type of veil covering the mushroom	partial=p, universal=u
veil-color	nominal	Color of the veil	see cap-color + none=f
has-ring	nominal	Whether the mushroom has a ring	ring=t, none=f
ring-type	nominal	Type of ring around the stem	cobwebby=c, evanescent=e, flaring=r, grooved=g, large=l, pendant=p, sheathing=s, zone=z, scaly=y, movable=m, none=f, unknown=?
spore-print-color	nominal	Color of the spore print	see cap color
habitat	nominal	Where the mushroom is typically found	grasses=g, leaves=l, meadows=m, paths=p, heaths=h, urban=u, waste=w, woods=d
season	nominal	Season when the mushroom appears	spring=s, summer=u, autumn=a, winter=w

Data processing

- Because some continuous variable present as a list [min,max] , I split the list as two variable min and max.

```
library(stringr)
library(dplyr)
library(reticulate)
library(Hmisc)
```

```r
library(readxl)
setwd("D:/ncku2021-2024/2025_spring/stat_consult/HW2")
data <- read.csv("primary_data.csv", sep=";", header=TRUE, na.strings = "")
colnames(data) <- tolower(colnames(data))

### data processing
string_split_1 <- function(var_name){
  a <- str_remove_all(data[,var_name], "\\[|\\]")
  a <- str_split(a, ", ", simplify = TRUE)
  min_name <- paste(var_name, "min", sep = "_")
  max_name <- paste(var_name, "max", sep = "_")

  result <- t(apply(a, 1, function(x) {
    if (x[2] != "") {
      return(as.numeric(x))
    } else {
      return(c(NA, NA))
    }
  }))

  data[[min_name]] <- result[, 1]
  data[[max_name]] <- result[, 2]
  data <- data %>% select(-var_name)

  return(data)
}

data <- string_split_1("cap.diameter")
data <- string_split_1("stem.height")
data <- string_split_1("stem.width")

### describe the data
latex(describe(data), file="")
```

data

26 Variables 173 Observations

family

n	missing	distinct
173	0	23

lowest : Amanita Family Bolbitius Family Bolete Family Bracket Fungi Chanterelle Family
highest: Russula Family Saddle-Cup Family Stropharia Family Tricholoma Family Wax Gill Family

name

n	missing	distinct
173	0	173

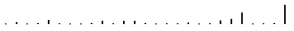
lowest : Amethyst Deceiver Aniseed Funnel Cap Apricot Fungus Bare-toothed Russula Bay Bolete
highest: Yellow-gilled Russula Yellow-staining Mushroom Yellow-stemmed Bell Cap Yellow Swamp Russula Yellow Wax cap

class

n	missing	distinct
173	0	2

Value	e	p
Frequency	77	96
Proportion	0.445	0.555

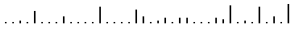
cap.shape



n	missing	distinct
173	0	27

```
lowest : [b, f, s] [b, f]    [b, x, f] [b, x]    [b]
highest: [x, f]    [x, o]    [x, p]    [x, s]    [x]
```

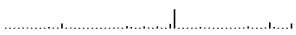
cap.surface



n	missing	distinct
133	40	40

```
lowest : [d, e, y, i] [d, k, s]    [d, k]       [d, s]       [d]
highest: [t]          [w, t]       [w]          [y, s]       [y]
```

cap.color



n	missing	distinct
173	0	67

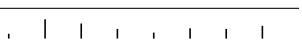
```
lowest : [b, p, e, y]    [b, u]          [b]             [e, n, p, w]    [e, n, y]
highest: [y, n]          [y, o, g, n, r] [y, o, r, n]    [y, o]          [y]
```

does.bruise.or.bleed

n	missing	distinct
173	0	2

Value	[f]	[t]
Frequency	143	30
Proportion	0.827	0.173

gill.attachment



n	missing	distinct
145	28	8

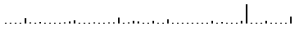
Value	[a, d]	[a]	[d]	[e]	[f]	[p]	[s]	[x]
Frequency	8	32	25	16	10	17	16	21
Proportion	0.055	0.221	0.172	0.110	0.069	0.117	0.110	0.145

gill.spacing

n	missing	distinct
102	71	3

Value	[c]	[d]	[f]
Frequency	70	22	10
Proportion	0.686	0.216	0.098

gill.color



n	missing	distinct
173	0	59

```
lowest : [b, p, w] [b, u]    [b]       [e]       [f]
highest: [y, o, e] [y, r, k] [y, r]    [y, w]    [y]
```

stem.root

n	missing	distinct
27	146	5

Value	[b]	[c]	[f]	[r]	[s]
Frequency	9	2	3	4	9
Proportion	0.333	0.074	0.111	0.148	0.333

stem.surface

n	missing	distinct
65	108	14

Value	[f]	[g]	[h]	[i, s]	[i, t]	[i, y]	[i]	[k, s]	[k]	[s, h]	[s]	[t]
Frequency	3	5	1	1	1	1	11	1	4	1	15	7
Proportion	0.046	0.077	0.015	0.015	0.015	0.015	0.169	0.015	0.062	0.015	0.231	0.108

Value	[y, s]	[y]
Frequency	1	13
Proportion	0.015	0.200

stem.color

n	missing	distinct
173	0	41

```
lowest : [b, u]    [e, n]    [e, u, y] [e, y]    [e]
highest: [w]       [y, e, n] [y, n]    [y, o, k] [y]
```

veil.type

n	missing	distinct	value
9	164	1	[u]

```
Value      [u]
Frequency    9
Proportion   1
```

veil.color

n	missing	distinct
21	152	7

```
Value      [e, n]    [k]    [n]    [u]    [w] [y, w]    [y]
Frequency       1      1      1      1     15      1      1
Proportion  0.048  0.048  0.048  0.048  0.714  0.048  0.048
```

has.ring

n	missing	distinct
173	0	2

```
Value        [f]   [t]
Frequency    130    43
Proportion 0.751 0.249
```

ring.type

n	missing	distinct
166	7	13

```
Value      [e, g]    [e]    [f] [g, p]    [g] [l, e] [l, p] [l, r]    [l]    [m]    [p]    [r]
Frequency       1      6    137      2      2      1      1      2      2      1      2      3
Proportion  0.006  0.036  0.825  0.012  0.012  0.006  0.006  0.012  0.012  0.006  0.012  0.018

Value         [z]
Frequency       6
Proportion  0.036
```

spore.print.color

n	missing	distinct
18	155	8

```
Value         [g] [k, r] [k, u]    [k]    [n] [p, w]    [p]    [w]
Frequency       1      1      1      5      3      1      3      3
Proportion  0.056  0.056  0.056  0.278  0.167  0.056  0.167  0.167
```

habitat

n	missing	distinct
173	0	21

```
lowest : [d, h]    [d]       [g, d, h] [g, d]    [g, h, d]
highest: [m, d]    [m, h]    [m]       [p, d]    [w]
```

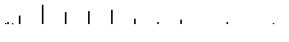
season

n	missing	distinct
173	0	10

```
Value            [a, w]          [a]    [s, a, w] [s, u, a, w]    [s, u, a]       [s, u]
Frequency            15           16            1           13            5            3
Proportion        0.087        0.092        0.006        0.075        0.029        0.017

Value               [s]    [u, a, w]       [u, a]          [u]
Frequency             1           12          106            1
Proportion        0.006        0.069        0.613        0.006
```

cap.diameter_min

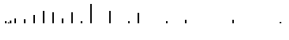


n	missing	distinct	Info	Mean	pMedian	Gmd	.05	.10	.25	.50	.75	.90	.95
172	1	13	0.976	3.776	3.5	2.533	1	1	2	3	5	7	8

Value	0.4	0.5	0.7	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	10.0	12.0
Frequency	2	4	1	17	39	24	26	29	11	4	9	4	2
Proportion	0.012	0.023	0.006	0.099	0.227	0.140	0.151	0.169	0.064	0.023	0.052	0.023	0.012

For the frequency table, variable is rounded to the nearest 0

cap.diameter_max



n	missing	distinct	Info	Mean	pMedian	Gmd	.05	.10	.25	.50	.75	.90	.95
172	1	19	0.991	9.199	8.5	6.147	2	3	5	8	12	15	20

Value	1.0	1.3	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	12.0	14.0
Frequency	3	1	4	7	6	12	18	16	7	16	3	28	18	3
Proportion	0.017	0.006	0.023	0.041	0.035	0.070	0.105	0.093	0.041	0.093	0.017	0.163	0.105	0.017

Value	15.0	18.0	20.0	25.0	30.0
Frequency	15	3	5	5	2
Proportion	0.087	0.017	0.029	0.029	0.012

For the frequency table, variable is rounded to the nearest 0

stem.height_min

n	missing	distinct	Info	Mean	pMedian	Gmd	.05	.10	.25	.50	.75	.90	.95
170	3	11	0.955	4.382	4	2.157	2	2	3	4	5	7	8

Value	1	2	3	4	5	6	7	8	10	12	15
Frequency	2	21	38	52	24	15	3	7	5	1	2
Proportion	0.012	0.124	0.224	0.306	0.141	0.088	0.018	0.041	0.029	0.006	0.012

For the frequency table, variable is rounded to the nearest 0

stem.height_max

n	missing	distinct	Info	Mean	pMedian	Gmd	.05	.10	.25	.50	.75	.90	.95
170	3	18	0.976	9.029	8.5	4.205	4.45	5.00	6.00	8.00	10.00	15.00	15.00

Value	2	3	4	5	6	7	8	9	10	11	12	14	15	18
Frequency	1	2	6	14	25	16	37	2	35	1	12	1	10	1
Proportion	0.006	0.012	0.035	0.082	0.147	0.094	0.218	0.012	0.206	0.006	0.071	0.006	0.059	0.006

Value	20	25	30	35
Frequency	4	1	1	1
Proportion	0.024	0.006	0.006	0.006

For the frequency table, variable is rounded to the nearest 0

stem.width_min

n	missing	distinct	Info	Mean	pMedian	Gmd	.05	.10	.25	.50	.75	.90	.95
162	11	15	0.98	8.83	8	6.785	2	2	4	8	10	20	20

Value	0.5	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	10.0	12.0	15.0	20.0	30.0
Frequency	1	6	17	12	12	19	7	1	10	38	1	20	16	1
Proportion	0.006	0.037	0.105	0.074	0.074	0.117	0.043	0.006	0.062	0.235	0.006	0.123	0.099	0.006

Value	40.0
Frequency	1
Proportion	0.006

For the frequency table, variable is rounded to the nearest 0

stem.width_max

n	missing	distinct	Info	Mean	pMedian	Gmd	.05	.10	.25	.50	.75	.90	.95
162	11	20	0.991	16.58	15	13.51	3	4	8	15	20	30	40

Value	1	2	3	4	5	6	7	8	10	12	15	18	20	25
Frequency	1	5	10	9	5	3	3	17	15	11	19	4	26	10
Proportion	0.006	0.031	0.062	0.056	0.031	0.019	0.019	0.105	0.093	0.068	0.117	0.025	0.160	0.062

Value	30	40	50	60	80	100
Frequency	11	8	1	2	1	1
Proportion	0.068	0.049	0.006	0.012	0.006	0.006

For the frequency table, variable is rounded to the nearest 0

- There are 173 obs in this data set, 55.5% is poisonous, 44.5% is edible.
- It is notable that many variable has some missging value, such as spore.print.color has 155 missing values.
- For does-bruise-bleed, the majority of mushrooms do not bruise or bleed (82.7%).

- For gill spacing, most mushrooms have close gills (68.6%).
- For has ring, the majority of mushrooms do not have a ring (75.1%).
- Some variable has the combination of characteristic, such as : cap color : there are 67 combinations of the color, gill color : there are 59 combinations of the color, so I decide to split the combinations.

```
str_split_2 <- function(var_name, categories) {
  data <- data %>%
    mutate(!!var_name := str_remove_all(.data[[var_name]], "\\[|\\]")) %>%
    mutate(!!var_name := str_split(.data[[var_name]], ", "))

  for (category in categories) {
    new_col_name <- paste0(var_name, "_", category)
    data[[new_col_name]] <- sapply(data[[var_name]], function(x) {
      if (is.null(x) || all(is.na(x))) {
        return(NA)
      } else {
        return(as.integer(category %in% x))
      }
    })

    data[[new_col_name]] <- factor(data[[new_col_name]], levels = c(0, 1))
  }

  data <- data %>% select(-all_of(var_name))

  return(data)
}

categories_df <- read_excel("categories.xlsx")
variables_to_encode <- split(categories_df$Category, categories_df$Variable)
head(variables_to_encode)
```

$cap.color [1] “n” “b” “g” “r” “p” “u” “e” “w” “y” “l” “o” “k”

$cap.shape [1] “b” “c” “x” “f” “s” “p” “o”

$cap.surface [1] “i” “g” “y” “s” “h” “l” “k” “t” “w” “e”

$gill.attachment [1] “a” “x” “d” “e” “s” “p” “f”

$gill.color [1] “n” “b” “g” “r” “p” “u” “e” “w” “y” “l” “o” “k” “f”

$habitat [1] “g” “l” “m” “p” “h” “u” “w” “d”

```
for (var in names(variables_to_encode)) {
  if (var %in% colnames(data)) {
    data <- str_split_2(var, variables_to_encode[[var]])
  }
}

data <- data %>%
  select_if(~ any(. != 0, na.rm = TRUE))


library(table1)
library(knitr)
```

```r
data$class <- factor(data$class,
                     levels = c("p","e"),
                     labels = c("Poisonous", "Edible"))


table <- table1(~.|class,data = data)
kable(table)
```

	Poisonous	Edible	Overall
	(N=96)	(N=77)	(N=173)
family			
Amanita Family	5 (5.2%)	3 (3.9%)	8 (4.6%)
Bolbitius Family	2 (2.1%)	1 (1.3%)	3 (1.7%)
Bolete Family	3 (3.1%)	11 (14.3%)	14 (8.1%)
Bracket Fungi	6 (6.3%)	1 (1.3%)	7 (4.0%)
Cortinarius Family	11 (11.5%)	0 (0%)	11 (6.4%)
Crepidotus Family	1 (1.0%)	0 (0%)	1 (0.6%)
Ear-Pick Family	1 (1.0%)	0 (0%)	1 (0.6%)
Entoloma Family	6 (6.3%)	1 (1.3%)	7 (4.0%)
Ink Cap Family	7 (7.3%)	6 (7.8%)	13 (7.5%)
Jelly Discs Family	1 (1.0%)	0 (0%)	1 (0.6%)
Lepiota Family	1 (1.0%)	2 (2.6%)	3 (1.7%)
Mushroom Family	1 (1.0%)	4 (5.2%)	5 (2.9%)
Paxillus Family	3 (3.1%)	0 (0%)	3 (1.7%)
Russula Family	16 (16.7%)	11 (14.3%)	27 (15.6%)
Saddle-Cup Family	1 (1.0%)	0 (0%)	1 (0.6%)
Stropharia Family	7 (7.3%)	1 (1.3%)	8 (4.6%)
Tricholoma Family	20 (20.8%)	23 (29.9%)	43 (24.9%)
Wax Gill Family	4 (4.2%)	4 (5.2%)	8 (4.6%)
Chanterelle Family	0 (0%)	3 (3.9%)	3 (1.7%)
Hydnum Family	0 (0%)	1 (1.3%)	1 (0.6%)
Morel Family	0 (0%)	1 (1.3%)	1 (0.6%)
Oyster Mushroom Family	0 (0%)	2 (2.6%)	2 (1.2%)
Pluteus Family	0 (0%)	2 (2.6%)	2 (1.2%)
name			
Apricot Fungus	1 (1.0%)	0 (0%)	1 (0.6%)
Beechwood Sickener	1 (1.0%)	0 (0%)	1 (0.6%)
Birch Russula	1 (1.0%)	0 (0%)	1 (0.6%)
Bitter Bolete	1 (1.0%)	0 (0%)	1 (0.6%)
Blackening Wax Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Blood-red Cortinarius	1 (1.0%)	0 (0%)	1 (0.6%)
Blue Leptonia	1 (1.0%)	0 (0%)	1 (0.6%)
Brick Caps	1 (1.0%)	0 (0%)	1 (0.6%)
Brown Bell Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Brown Goblet	1 (1.0%)	0 (0%)	1 (0.6%)
Brown Roll-rim	1 (1.0%)	0 (0%)	1 (0.6%)
Charcoal Pholiota	1 (1.0%)	0 (0%)	1 (0.6%)
Club-footed Funnel Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Clustered Tough Shank	1 (1.0%)	0 (0%)	1 (0.6%)
Common Ink Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Common White Inocybe	1 (1.0%)	0 (0%)	1 (0.6%)
Dark-centred Hebeloma	1 (1.0%)	0 (0%)	1 (0.6%)
Death Cap	1 (1.0%)	0 (0%)	1 (0.6%)

	Poisonous	Edible	Overall
Destroying Angel	1 (1.0%)	0 (0%)	1 (0.6%)
Dotted-stemmed Bolete	1 (1.0%)	0 (0%)	1 (0.6%)
Dung Roundhead	1 (1.0%)	0 (0%)	1 (0.6%)
Ear-pick Fungus	1 (1.0%)	0 (0%)	1 (0.6%)
Egg-shell Toadstool	1 (1.0%)	0 (0%)	1 (0.6%)
Egg Yolk Fungus	1 (1.0%)	0 (0%)	1 (0.6%)
Elfin’ s Saddle	1 (1.0%)	0 (0%)	1 (0.6%)
False Chanterelle	1 (1.0%)	0 (0%)	1 (0.6%)
False Panther Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Fleecy Milk Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Fly Agaric	1 (1.0%)	0 (0%)	1 (0.6%)
Fragile Russula	1 (1.0%)	0 (0%)	1 (0.6%)
Fuzzy Polypore	1 (1.0%)	0 (0%)	1 (0.6%)
Geranium-scented Russula	1 (1.0%)	0 (0%)	1 (0.6%)
Grass-green Russula	1 (1.0%)	0 (0%)	1 (0.6%)
Hairy Stereum	1 (1.0%)	0 (0%)	1 (0.6%)
Hay Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Horse-hair Fungus	1 (1.0%)	0 (0%)	1 (0.6%)
Ivory Clitocybe	1 (1.0%)	0 (0%)	1 (0.6%)
Jelly Babies	1 (1.0%)	0 (0%)	1 (0.6%)
Lilac Bell Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Little Wheel Fungus	1 (1.0%)	0 (0%)	1 (0.6%)
Livid Entoloma	1 (1.0%)	0 (0%)	1 (0.6%)
Lurid Bolete	1 (1.0%)	0 (0%)	1 (0.6%)
Magic Mushroom	1 (1.0%)	0 (0%)	1 (0.6%)
Magpie Ink Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Moss Pixy Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Oak Milk Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Olive-brown Panellus	1 (1.0%)	0 (0%)	1 (0.6%)
Orange-red Wax Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Orange Bell Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Orange Moss Agaric	1 (1.0%)	0 (0%)	1 (0.6%)
Panther Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Parrot Wax Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Petticoat Fungus	1 (1.0%)	0 (0%)	1 (0.6%)
Plums and custard	1 (1.0%)	0 (0%)	1 (0.6%)
Poison Pie	1 (1.0%)	0 (0%)	1 (0.6%)
Purple Cortinarius	1 (1.0%)	0 (0%)	1 (0.6%)
Red-banded Cortinarius	1 (1.0%)	0 (0%)	1 (0.6%)
Red-staining Inocybe	1 (1.0%)	0 (0%)	1 (0.6%)
Rooting Shank	1 (1.0%)	0 (0%)	1 (0.6%)
Rufous Milk Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Russet Tough Shank	1 (1.0%)	0 (0%)	1 (0.6%)
Rusty Carpet Ink Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Rusty Wood Rotter	1 (1.0%)	0 (0%)	1 (0.6%)
Saffron Parasol	1 (1.0%)	0 (0%)	1 (0.6%)
Shaggy Pholiota	1 (1.0%)	0 (0%)	1 (0.6%)
Silky Nolanea	1 (1.0%)	0 (0%)	1 (0.6%)
Silver Leaf Fungus	1 (1.0%)	0 (0%)	1 (0.6%)
Slimy Milk Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Small Brown Milk Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Soap-scented Tricholoma	1 (1.0%)	0 (0%)	1 (0.6%)

	Poisonous	Edible	Overall
Soft Slipper Toadstool	1 (1.0%)	0 (0%)	1 (0.6%)
Spectacular Gymnopile	1 (1.0%)	0 (0%)	1 (0.6%)
Spotted Tough Shank	1 (1.0%)	0 (0%)	1 (0.6%)
Spruce Milk Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Stinking Parasol	1 (1.0%)	0 (0%)	1 (0.6%)
Stinking Russula	1 (1.0%)	0 (0%)	1 (0.6%)
Straw-coloured Inocybe	1 (1.0%)	0 (0%)	1 (0.6%)
Striated Nolanea	1 (1.0%)	0 (0%)	1 (0.6%)
Stump Bell Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Sulphur Tricholoma	1 (1.0%)	0 (0%)	1 (0.6%)
Sulphur Tuft	1 (1.0%)	0 (0%)	1 (0.6%)
Sweet Milk Cap	1 (1.0%)	0 (0%)	1 (0.6%)
The Sickener	1 (1.0%)	0 (0%)	1 (0.6%)
Tufted Bell Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Turban Fungus	1 (1.0%)	0 (0%)	1 (0.6%)
Ugly Milk Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Umbrella Navel Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Velvet Roll-rim	1 (1.0%)	0 (0%)	1 (0.6%)
Verdigris Toadstool	1 (1.0%)	0 (0%)	1 (0.6%)
Weeping Widow	1 (1.0%)	0 (0%)	1 (0.6%)
White Leptonia	1 (1.0%)	0 (0%)	1 (0.6%)
White Saddle	1 (1.0%)	0 (0%)	1 (0.6%)
Wood Woolly-foot	1 (1.0%)	0 (0%)	1 (0.6%)
Woolly Milk Cap	1 (1.0%)	0 (0%)	1 (0.6%)
Yellow-staining Mushroom	1 (1.0%)	0 (0%)	1 (0.6%)
Yellow Wax cap	1 (1.0%)	0 (0%)	1 (0.6%)
Amethyst Deceiver	0 (0%)	1 (1.3%)	1 (0.6%)
Aniseed Funnel Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Bare-toothed Russula	0 (0%)	1 (1.3%)	1 (0.6%)
Bay Bolete	0 (0%)	1 (1.3%)	1 (0.6%)
Blackening Russula	0 (0%)	1 (1.3%)	1 (0.6%)
Blackish Purple Russula	0 (0%)	1 (1.3%)	1 (0.6%)
Bleeding Brown Mushroom	0 (0%)	1 (1.3%)	1 (0.6%)
Bonnet Bell Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Branched Oyster Mushroom	0 (0%)	1 (1.3%)	1 (0.6%)
Brown Birch Bolete	0 (0%)	1 (1.3%)	1 (0.6%)
Brown Stew Fungus	0 (0%)	1 (1.3%)	1 (0.6%)
Bulbous Honey Fungus	0 (0%)	1 (1.3%)	1 (0.6%)
Cep	0 (0%)	1 (1.3%)	1 (0.6%)
Changeable Melanoleuca	0 (0%)	1 (1.3%)	1 (0.6%)
Chanterelle	0 (0%)	1 (1.3%)	1 (0.6%)
Clouded Agaric	0 (0%)	1 (1.3%)	1 (0.6%)
Clustered Brown Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Coconut-scented Milk Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Common Crumble Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Common Funnel Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Common Morel	0 (0%)	1 (1.3%)	1 (0.6%)
Common Yellow Russula	0 (0%)	1 (1.3%)	1 (0.6%)
Crab-scented Russula	0 (0%)	1 (1.3%)	1 (0.6%)
Cultivated Mushroom	0 (0%)	1 (1.3%)	1 (0.6%)
Dryad’ s Saddle	0 (0%)	1 (1.3%)	1 (0.6%)

	Poisonous	Edible	Overall
Fairies' Bonnets	0 (0%)	1 (1.3%)	1 (0.6%)
Fairy Parasol	0 (0%)	1 (1.3%)	1 (0.6%)
Fairy Ring Champignon	0 (0%)	1 (1.3%)	1 (0.6%)
False Death Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Fawn Pluteus	0 (0%)	1 (1.3%)	1 (0.6%)
Field Blewit	0 (0%)	1 (1.3%)	1 (0.6%)
Field Mushroom	0 (0%)	1 (1.3%)	1 (0.6%)
Glistening Ink Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Greasy Tough Shank	0 (0%)	1 (1.3%)	1 (0.6%)
Grey Tricholoma	0 (0%)	1 (1.3%)	1 (0.6%)
Hedgehog Fungus	0 (0%)	1 (1.3%)	1 (0.6%)
Herald of Winter	0 (0%)	1 (1.3%)	1 (0.6%)
Honey Fungus	0 (0%)	1 (1.3%)	1 (0.6%)
Horn of Plenty	0 (0%)	1 (1.3%)	1 (0.6%)
Horse Mushroom	0 (0%)	1 (1.3%)	1 (0.6%)
Ivory Wax Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Larch Bolete	0 (0%)	1 (1.3%)	1 (0.6%)
Meadow Wax Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Milky Bell Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Orange Birch Bolete	0 (0%)	1 (1.3%)	1 (0.6%)
Oyster Mushroom	0 (0%)	1 (1.3%)	1 (0.6%)
Parasitic Bolete	0 (0%)	1 (1.3%)	1 (0.6%)
Parasol Mushroom	0 (0%)	1 (1.3%)	1 (0.6%)
Peppery Bolete	0 (0%)	1 (1.3%)	1 (0.6%)
Peppery Milk Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Porcelain Mushroom	0 (0%)	1 (1.3%)	1 (0.6%)
Red-cracked Bolete	0 (0%)	1 (1.3%)	1 (0.6%)
Saffron Milk Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Scaly Tricholoma	0 (0%)	1 (1.3%)	1 (0.6%)
Scarlet Hood	0 (0%)	1 (1.3%)	1 (0.6%)
Shaggy Ink Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Shaggy Parasol	0 (0%)	1 (1.3%)	1 (0.6%)
Shallow-pored Bolete	0 (0%)	1 (1.3%)	1 (0.6%)
Slippery Jack	0 (0%)	1 (1.3%)	1 (0.6%)
Small Bleeding Bell Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Spring Agaric	0 (0%)	1 (1.3%)	1 (0.6%)
St George's Mushroom	0 (0%)	1 (1.3%)	1 (0.6%)
Tawny Grisette	0 (0%)	1 (1.3%)	1 (0.6%)
The Blusher	0 (0%)	1 (1.3%)	1 (0.6%)
The Charcoal Burner	0 (0%)	1 (1.3%)	1 (0.6%)
The Deceiver	0 (0%)	1 (1.3%)	1 (0.6%)
The Miller	0 (0%)	1 (1.3%)	1 (0.6%)
Tubed Chanterelle	0 (0%)	1 (1.3%)	1 (0.6%)
Two-toned Crumble Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Veined Pluteus	0 (0%)	1 (1.3%)	1 (0.6%)
Velvet Shank	0 (0%)	1 (1.3%)	1 (0.6%)
Wood Blewit	0 (0%)	1 (1.3%)	1 (0.6%)
Yellow-brown Tricholoma	0 (0%)	1 (1.3%)	1 (0.6%)
Yellow-cracked Bolete	0 (0%)	1 (1.3%)	1 (0.6%)
Yellow-gilled Russula	0 (0%)	1 (1.3%)	1 (0.6%)
Yellow-stemmed Bell Cap	0 (0%)	1 (1.3%)	1 (0.6%)
Yellow Swamp Russula	0 (0%)	1 (1.3%)	1 (0.6%)

	Poisonous	Edible	Overall
does.bruise.or.bleed			
[f]	80 (83.3%)	63 (81.8%)	143 (82.7%)
[t]	16 (16.7%)	14 (18.2%)	30 (17.3%)
gill.spacing			
[c]	41 (42.7%)	29 (37.7%)	70 (40.5%)
[d]	9 (9.4%)	13 (16.9%)	22 (12.7%)
[f]	6 (6.3%)	4 (5.2%)	10 (5.8%)
Missing	40 (41.7%)	31 (40.3%)	71 (41.0%)
stem.root			
[b]	3 (3.1%)	6 (7.8%)	9 (5.2%)
[c]	2 (2.1%)	0 (0%)	2 (1.2%)
[f]	3 (3.1%)	0 (0%)	3 (1.7%)
[r]	4 (4.2%)	0 (0%)	4 (2.3%)
[s]	5 (5.2%)	4 (5.2%)	9 (5.2%)
Missing	79 (82.3%)	67 (87.0%)	146 (84.4%)
veil.type			
[u]	6 (6.3%)	3 (3.9%)	9 (5.2%)
Missing	90 (93.8%)	74 (96.1%)	164 (94.8%)
cap.diameter_min			
Mean (SD)	3.47 (2.27)	4.16 (2.38)	3.78 (2.34)
Median [Min, Max]	3.00 [0.400, 10.0]	4.00 [0.500, 12.0]	3.00 [0.400, 12.0]
Missing	0 (0%)	1 (1.3%)	1 (0.6%)
cap.diameter_max			
Mean (SD)	8.29 (5.58)	10.3 (5.76)	9.20 (5.73)
Median [Min, Max]	7.00 [1.00, 30.0]	10.0 [1.50, 30.0]	8.00 [1.00, 30.0]
Missing	0 (0%)	1 (1.3%)	1 (0.6%)
stem.height_min			
Mean (SD)	4.27 (2.22)	4.52 (2.20)	4.38 (2.21)
Median [Min, Max]	4.00 [1.00, 15.0]	4.00 [2.00, 15.0]	4.00 [1.00, 15.0]
Missing	3 (3.1%)	0 (0%)	3 (1.7%)
stem.height_max			
Mean (SD)	8.57 (3.80)	9.58 (5.03)	9.03 (4.41)
Median [Min, Max]	8.00 [2.00, 20.0]	8.00 [3.00, 35.0]	8.00 [2.00, 35.0]
Missing	3 (3.1%)	0 (0%)	3 (1.7%)
stem.width_min			
Mean (SD)	7.67 (5.65)	10.2 (6.90)	8.83 (6.36)
Median [Min, Max]	5.00 [0.500, 20.0]	10.0 [1.00, 40.0]	8.00 [0.500, 40.0]
Missing	7 (7.3%)	4 (5.2%)	11 (6.4%)
stem.width_max			
Mean (SD)	14.4 (11.8)	19.2 (15.9)	16.6 (13.9)
Median [Min, Max]	10.0 [1.00, 60.0]	15.0 [2.00, 100]	15.0 [1.00, 100]
Missing	7 (7.3%)	4 (5.2%)	11 (6.4%)
cap.color_n			
0	39 (40.6%)	25 (32.5%)	64 (37.0%)
1	57 (59.4%)	52 (67.5%)	109 (63.0%)
cap.color_b			
0	94 (97.9%)	72 (93.5%)	166 (96.0%)
1	2 (2.1%)	5 (6.5%)	7 (4.0%)
cap.color_g			
0	82 (85.4%)	63 (81.8%)	145 (83.8%)
1	14 (14.6%)	14 (18.2%)	28 (16.2%)
cap.color_r			

	Poisonous	Edible	Overall
0	85 (88.5%)	75 (97.4%)	160 (92.5%)
1	11 (11.5%)	2 (2.6%)	13 (7.5%)
cap.color_p			
0	89 (92.7%)	73 (94.8%)	162 (93.6%)
1	7 (7.3%)	4 (5.2%)	11 (6.4%)
cap.color_u			
0	91 (94.8%)	72 (93.5%)	163 (94.2%)
1	5 (5.2%)	5 (6.5%)	10 (5.8%)
cap.color_e			
0	78 (81.3%)	70 (90.9%)	148 (85.5%)
1	18 (18.8%)	7 (9.1%)	25 (14.5%)
cap.color_w			
0	78 (81.3%)	61 (79.2%)	139 (80.3%)
1	18 (18.8%)	16 (20.8%)	34 (19.7%)
cap.color_y			
0	68 (70.8%)	61 (79.2%)	129 (74.6%)
1	28 (29.2%)	16 (20.8%)	44 (25.4%)
cap.color_l			
0	94 (97.9%)	73 (94.8%)	167 (96.5%)
1	2 (2.1%)	4 (5.2%)	6 (3.5%)
cap.color_o			
0	81 (84.4%)	70 (90.9%)	151 (87.3%)
1	15 (15.6%)	7 (9.1%)	22 (12.7%)
cap.color_k			
0	90 (93.8%)	74 (96.1%)	164 (94.8%)
1	6 (6.3%)	3 (3.9%)	9 (5.2%)
cap.shape_b			
0	78 (81.3%)	72 (93.5%)	150 (86.7%)
1	18 (18.8%)	5 (6.5%)	23 (13.3%)
cap.shape_c			
0	92 (95.8%)	73 (94.8%)	165 (95.4%)
1	4 (4.2%)	4 (5.2%)	8 (4.6%)
cap.shape_x			
0	40 (41.7%)	23 (29.9%)	63 (36.4%)
1	56 (58.3%)	54 (70.1%)	110 (63.6%)
cap.shape_f			
0	58 (60.4%)	41 (53.2%)	99 (57.2%)
1	38 (39.6%)	36 (46.8%)	74 (42.8%)
cap.shape_s			
0	77 (80.2%)	60 (77.9%)	137 (79.2%)
1	19 (19.8%)	17 (22.1%)	36 (20.8%)
cap.shape_p			
0	91 (94.8%)	67 (87.0%)	158 (91.3%)
1	5 (5.2%)	10 (13.0%)	15 (8.7%)
cap.shape_o			
0	88 (91.7%)	73 (94.8%)	161 (93.1%)
1	8 (8.3%)	4 (5.2%)	12 (6.9%)
cap.surface_i			
0	68 (70.8%)	56 (72.7%)	124 (71.7%)
1	7 (7.3%)	2 (2.6%)	9 (5.2%)
Missing	21 (21.9%)	19 (24.7%)	40 (23.1%)
cap.surface_g			

	Poisonous	Edible	Overall
0	66 (68.8%)	51 (66.2%)	117 (67.6%)
1	9 (9.4%)	7 (9.1%)	16 (9.2%)
Missing	21 (21.9%)	19 (24.7%)	40 (23.1%)
cap.surface_y			
0	64 (66.7%)	46 (59.7%)	110 (63.6%)
1	11 (11.5%)	12 (15.6%)	23 (13.3%)
Missing	21 (21.9%)	19 (24.7%)	40 (23.1%)
cap.surface_s			
0	60 (62.5%)	40 (51.9%)	100 (57.8%)
1	15 (15.6%)	18 (23.4%)	33 (19.1%)
Missing	21 (21.9%)	19 (24.7%)	40 (23.1%)
cap.surface_h			
0	62 (64.6%)	45 (58.4%)	107 (61.8%)
1	13 (13.5%)	13 (16.9%)	26 (15.0%)
Missing	21 (21.9%)	19 (24.7%)	40 (23.1%)
cap.surface_l			
0	73 (76.0%)	56 (72.7%)	129 (74.6%)
1	2 (2.1%)	2 (2.6%)	4 (2.3%)
Missing	21 (21.9%)	19 (24.7%)	40 (23.1%)
cap.surface_k			
0	66 (68.8%)	57 (74.0%)	123 (71.1%)
1	9 (9.4%)	1 (1.3%)	10 (5.8%)
Missing	21 (21.9%)	19 (24.7%)	40 (23.1%)
cap.surface_t			
0	53 (55.2%)	43 (55.8%)	96 (55.5%)
1	22 (22.9%)	15 (19.5%)	37 (21.4%)
Missing	21 (21.9%)	19 (24.7%)	40 (23.1%)
cap.surface_w			
0	70 (72.9%)	55 (71.4%)	125 (72.3%)
1	5 (5.2%)	3 (3.9%)	8 (4.6%)
Missing	21 (21.9%)	19 (24.7%)	40 (23.1%)
cap.surface_e			
0	68 (70.8%)	54 (70.1%)	122 (70.5%)
1	7 (7.3%)	4 (5.2%)	11 (6.4%)
Missing	21 (21.9%)	19 (24.7%)	40 (23.1%)
gill.attachment_a			
0	54 (56.3%)	51 (66.2%)	105 (60.7%)
1	24 (25.0%)	16 (20.8%)	40 (23.1%)
Missing	18 (18.8%)	10 (13.0%)	28 (16.2%)
gill.attachment_x			
0	66 (68.8%)	58 (75.3%)	124 (71.7%)
1	12 (12.5%)	9 (11.7%)	21 (12.1%)
Missing	18 (18.8%)	10 (13.0%)	28 (16.2%)
gill.attachment_d			
0	59 (61.5%)	53 (68.8%)	112 (64.7%)
1	19 (19.8%)	14 (18.2%)	33 (19.1%)
Missing	18 (18.8%)	10 (13.0%)	28 (16.2%)
gill.attachment_e			
0	72 (75.0%)	57 (74.0%)	129 (74.6%)
1	6 (6.3%)	10 (13.0%)	16 (9.2%)
Missing	18 (18.8%)	10 (13.0%)	28 (16.2%)
gill.attachment_s			

	Poisonous	Edible	Overall
0	69 (71.9%)	60 (77.9%)	129 (74.6%)
1	9 (9.4%)	7 (9.1%)	16 (9.2%)
Missing	18 (18.8%)	10 (13.0%)	28 (16.2%)
gill.attachment_p			
0	73 (76.0%)	55 (71.4%)	128 (74.0%)
1	5 (5.2%)	12 (15.6%)	17 (9.8%)
Missing	18 (18.8%)	10 (13.0%)	28 (16.2%)
gill.attachment_f			
0	72 (75.0%)	63 (81.8%)	135 (78.0%)
1	6 (6.3%)	4 (5.2%)	10 (5.8%)
Missing	18 (18.8%)	10 (13.0%)	28 (16.2%)
gill.color_n			
0	64 (66.7%)	62 (80.5%)	126 (72.8%)
1	32 (33.3%)	15 (19.5%)	47 (27.2%)
gill.color_b			
0	94 (97.9%)	74 (96.1%)	168 (97.1%)
1	2 (2.1%)	3 (3.9%)	5 (2.9%)
gill.color_g			
0	83 (86.5%)	67 (87.0%)	150 (86.7%)
1	13 (13.5%)	10 (13.0%)	23 (13.3%)
gill.color_r			
0	90 (93.8%)	75 (97.4%)	165 (95.4%)
1	6 (6.3%)	2 (2.6%)	8 (4.6%)
gill.color_p			
0	80 (83.3%)	65 (84.4%)	145 (83.8%)
1	16 (16.7%)	12 (15.6%)	28 (16.2%)
gill.color_u			
0	92 (95.8%)	74 (96.1%)	166 (96.0%)
1	4 (4.2%)	3 (3.9%)	7 (4.0%)
gill.color_e			
0	92 (95.8%)	75 (97.4%)	167 (96.5%)
1	4 (4.2%)	2 (2.6%)	6 (3.5%)
gill.color_w			
0	61 (63.5%)	39 (50.6%)	100 (57.8%)
1	35 (36.5%)	38 (49.4%)	73 (42.2%)
gill.color_y			
0	69 (71.9%)	60 (77.9%)	129 (74.6%)
1	27 (28.1%)	17 (22.1%)	44 (25.4%)
gill.color_o			
0	88 (91.7%)	72 (93.5%)	160 (92.5%)
1	8 (8.3%)	5 (6.5%)	13 (7.5%)
gill.color_k			
0	87 (90.6%)	71 (92.2%)	158 (91.3%)
1	9 (9.4%)	6 (7.8%)	15 (8.7%)
gill.color_f			
0	90 (93.8%)	73 (94.8%)	163 (94.2%)
1	6 (6.3%)	4 (5.2%)	10 (5.8%)
habitat_g			
0	73 (76.0%)	62 (80.5%)	135 (78.0%)
1	23 (24.0%)	15 (19.5%)	38 (22.0%)
habitat_l			
0	89 (92.7%)	66 (85.7%)	155 (89.6%)

	Poisonous	Edible	Overall
1	7 (7.3%)	11 (14.3%)	18 (10.4%)
habitat_m			
0	87 (90.6%)	69 (89.6%)	156 (90.2%)
1	9 (9.4%)	8 (10.4%)	17 (9.8%)
habitat_p			
0	94 (97.9%)	77 (100%)	171 (98.8%)
1	2 (2.1%)	0 (0%)	2 (1.2%)
habitat_h			
0	88 (91.7%)	72 (93.5%)	160 (92.5%)
1	8 (8.3%)	5 (6.5%)	13 (7.5%)
habitat_u			
0	96 (100%)	76 (98.7%)	172 (99.4%)
1	0 (0%)	1 (1.3%)	1 (0.6%)
habitat_w			
0	96 (100%)	76 (98.7%)	172 (99.4%)
1	0 (0%)	1 (1.3%)	1 (0.6%)
habitat_d			
0	14 (14.6%)	8 (10.4%)	22 (12.7%)
1	82 (85.4%)	69 (89.6%)	151 (87.3%)
has.ring_t			
0	70 (72.9%)	60 (77.9%)	130 (75.1%)
1	26 (27.1%)	17 (22.1%)	43 (24.9%)
has.ring_f			
0	26 (27.1%)	17 (22.1%)	43 (24.9%)
1	70 (72.9%)	60 (77.9%)	130 (75.1%)
ring.type_e			
0	88 (91.7%)	70 (90.9%)	158 (91.3%)
1	5 (5.2%)	3 (3.9%)	8 (4.6%)
Missing	3 (3.1%)	4 (5.2%)	7 (4.0%)
ring.type_r			
0	91 (94.8%)	70 (90.9%)	161 (93.1%)
1	2 (2.1%)	3 (3.9%)	5 (2.9%)
Missing	3 (3.1%)	4 (5.2%)	7 (4.0%)
ring.type_g			
0	90 (93.8%)	71 (92.2%)	161 (93.1%)
1	3 (3.1%)	2 (2.6%)	5 (2.9%)
Missing	3 (3.1%)	4 (5.2%)	7 (4.0%)
ring.type_l			
0	91 (94.8%)	69 (89.6%)	160 (92.5%)
1	2 (2.1%)	4 (5.2%)	6 (3.5%)
Missing	3 (3.1%)	4 (5.2%)	7 (4.0%)
ring.type_p			
0	90 (93.8%)	71 (92.2%)	161 (93.1%)
1	3 (3.1%)	2 (2.6%)	5 (2.9%)
Missing	3 (3.1%)	4 (5.2%)	7 (4.0%)
ring.type_z			
0	87 (90.6%)	73 (94.8%)	160 (92.5%)
1	6 (6.3%)	0 (0%)	6 (3.5%)
Missing	3 (3.1%)	4 (5.2%)	7 (4.0%)
ring.type_m			
0	93 (96.9%)	72 (93.5%)	165 (95.4%)
1	0 (0%)	1 (1.3%)	1 (0.6%)

	Poisonous	Edible	Overall
Missing	3 (3.1%)	4 (5.2%)	7 (4.0%)
ring.type_f			
0	17 (17.7%)	12 (15.6%)	29 (16.8%)
1	76 (79.2%)	61 (79.2%)	137 (79.2%)
Missing	3 (3.1%)	4 (5.2%)	7 (4.0%)
season_s			
0	85 (88.5%)	65 (84.4%)	150 (86.7%)
1	11 (11.5%)	12 (15.6%)	23 (13.3%)
season_u			
0	17 (17.7%)	16 (20.8%)	33 (19.1%)
1	79 (82.3%)	61 (79.2%)	140 (80.9%)
season_a			
0	2 (2.1%)	3 (3.9%)	5 (2.9%)
1	94 (97.9%)	74 (96.1%)	168 (97.1%)
season_w			
0	80 (83.3%)	52 (67.5%)	132 (76.3%)
1	16 (16.7%)	25 (32.5%)	41 (23.7%)
spore.print.color_n			
0	10 (10.4%)	5 (6.5%)	15 (8.7%)
1	3 (3.1%)	0 (0%)	3 (1.7%)
Missing	83 (86.5%)	72 (93.5%)	155 (89.6%)
spore.print.color_g			
0	13 (13.5%)	4 (5.2%)	17 (9.8%)
1	0 (0%)	1 (1.3%)	1 (0.6%)
Missing	83 (86.5%)	72 (93.5%)	155 (89.6%)
spore.print.color_r			
0	12 (12.5%)	5 (6.5%)	17 (9.8%)
1	1 (1.0%)	0 (0%)	1 (0.6%)
Missing	83 (86.5%)	72 (93.5%)	155 (89.6%)
spore.print.color_p			
0	10 (10.4%)	4 (5.2%)	14 (8.1%)
1	3 (3.1%)	1 (1.3%)	4 (2.3%)
Missing	83 (86.5%)	72 (93.5%)	155 (89.6%)
spore.print.color_u			
0	12 (12.5%)	5 (6.5%)	17 (9.8%)
1	1 (1.0%)	0 (0%)	1 (0.6%)
Missing	83 (86.5%)	72 (93.5%)	155 (89.6%)
spore.print.color_w			
0	11 (11.5%)	3 (3.9%)	14 (8.1%)
1	2 (2.1%)	2 (2.6%)	4 (2.3%)
Missing	83 (86.5%)	72 (93.5%)	155 (89.6%)
spore.print.color_k			
0	7 (7.3%)	4 (5.2%)	11 (6.4%)
1	6 (6.3%)	1 (1.3%)	7 (4.0%)
Missing	83 (86.5%)	72 (93.5%)	155 (89.6%)
stem.color_n			
0	53 (55.2%)	50 (64.9%)	103 (59.5%)
1	43 (44.8%)	27 (35.1%)	70 (40.5%)
stem.color_b			
0	96 (100%)	76 (98.7%)	172 (99.4%)
1	0 (0%)	1 (1.3%)	1 (0.6%)
stem.color_g			

	Poisonous	Edible	Overall
0	89 (92.7%)	70 (90.9%)	159 (91.9%)
1	7 (7.3%)	7 (9.1%)	14 (8.1%)
stem.color_r			
0	93 (96.9%)	76 (98.7%)	169 (97.7%)
1	3 (3.1%)	1 (1.3%)	4 (2.3%)
stem.color_p			
0	93 (96.9%)	76 (98.7%)	169 (97.7%)
1	3 (3.1%)	1 (1.3%)	4 (2.3%)
stem.color_u			
0	91 (94.8%)	75 (97.4%)	166 (96.0%)
1	5 (5.2%)	2 (2.6%)	7 (4.0%)
stem.color_e			
0	88 (91.7%)	74 (96.1%)	162 (93.6%)
1	8 (8.3%)	3 (3.9%)	11 (6.4%)
stem.color_w			
0	65 (67.7%)	35 (45.5%)	100 (57.8%)
1	31 (32.3%)	42 (54.5%)	73 (42.2%)
stem.color_y			
0	73 (76.0%)	68 (88.3%)	141 (81.5%)
1	23 (24.0%)	9 (11.7%)	32 (18.5%)
stem.color_l			
0	95 (99.0%)	76 (98.7%)	171 (98.8%)
1	1 (1.0%)	1 (1.3%)	2 (1.2%)
stem.color_o			
0	89 (92.7%)	72 (93.5%)	161 (93.1%)
1	7 (7.3%)	5 (6.5%)	12 (6.9%)
stem.color_k			
0	93 (96.9%)	76 (98.7%)	169 (97.7%)
1	3 (3.1%)	1 (1.3%)	4 (2.3%)
stem.color_f			
0	93 (96.9%)	77 (100%)	170 (98.3%)
1	3 (3.1%)	0 (0%)	3 (1.7%)
stem.surface_i			
0	32 (33.3%)	19 (24.7%)	51 (29.5%)
1	9 (9.4%)	5 (6.5%)	14 (8.1%)
Missing	55 (57.3%)	53 (68.8%)	108 (62.4%)
stem.surface_g			
0	36 (37.5%)	24 (31.2%)	60 (34.7%)
1	5 (5.2%)	0 (0%)	5 (2.9%)
Missing	55 (57.3%)	53 (68.8%)	108 (62.4%)
stem.surface_y			
0	31 (32.3%)	19 (24.7%)	50 (28.9%)
1	10 (10.4%)	5 (6.5%)	15 (8.7%)
Missing	55 (57.3%)	53 (68.8%)	108 (62.4%)
stem.surface_s			
0	33 (34.4%)	13 (16.9%)	46 (26.6%)
1	8 (8.3%)	11 (14.3%)	19 (11.0%)
Missing	55 (57.3%)	53 (68.8%)	108 (62.4%)
stem.surface_h			
0	39 (40.6%)	24 (31.2%)	63 (36.4%)
1	2 (2.1%)	0 (0%)	2 (1.2%)
Missing	55 (57.3%)	53 (68.8%)	108 (62.4%)

	Poisonous	Edible	Overall
stem.surface_k			
0	38 (39.6%)	22 (28.6%)	60 (34.7%)
1	3 (3.1%)	2 (2.6%)	5 (2.9%)
Missing	55 (57.3%)	53 (68.8%)	108 (62.4%)
stem.surface_t			
0	37 (38.5%)	20 (26.0%)	57 (32.9%)
1	4 (4.2%)	4 (5.2%)	8 (4.6%)
Missing	55 (57.3%)	53 (68.8%)	108 (62.4%)
stem.surface_f			
0	38 (39.6%)	24 (31.2%)	62 (35.8%)
1	3 (3.1%)	0 (0%)	3 (1.7%)
Missing	55 (57.3%)	53 (68.8%)	108 (62.4%)
veil.color_n			
0	10 (10.4%)	9 (11.7%)	19 (11.0%)
1	2 (2.1%)	0 (0%)	2 (1.2%)
Missing	84 (87.5%)	68 (88.3%)	152 (87.9%)
veil.color_u			
0	11 (11.5%)	9 (11.7%)	20 (11.6%)
1	1 (1.0%)	0 (0%)	1 (0.6%)
Missing	84 (87.5%)	68 (88.3%)	152 (87.9%)
veil.color_e			
0	11 (11.5%)	9 (11.7%)	20 (11.6%)
1	1 (1.0%)	0 (0%)	1 (0.6%)
Missing	84 (87.5%)	68 (88.3%)	152 (87.9%)
veil.color_w			
0	4 (4.2%)	1 (1.3%)	5 (2.9%)
1	8 (8.3%)	8 (10.4%)	16 (9.2%)
Missing	84 (87.5%)	68 (88.3%)	152 (87.9%)
veil.color_y			
0	12 (12.5%)	7 (9.1%)	19 (11.0%)
1	0 (0%)	2 (2.6%)	2 (1.2%)
Missing	84 (87.5%)	68 (88.3%)	152 (87.9%)
veil.color_k			
0	11 (11.5%)	9 (11.7%)	20 (11.6%)
1	1 (1.0%)	0 (0%)	1 (0.6%)
Missing	84 (87.5%)	68 (88.3%)	152 (87.9%)

- For family of the mushroom,
  - In the Cortinarius Family, 6.4% of the mushrooms belong to this family, and all of them are poisonous.
  - Among poisonous mushrooms, the Tricholoma and Russula Families have a higher proportion compared to other families.
- Poisonous mushrooms tend to have a smaller cap diameter, stem height, and stem width.
- For the cap color, the proportion of green (r) in poisonous mushrooms (11.5%) is higher than in edible mushrooms, indicating that most edible mushrooms do not have a green cap.
- For the gill color, the proportion of the brown(n) in poisonous (33.3%) is higher than the one in edible (19.5%).
- For habitat, poisonous mushrooms are rarely found in locations other than woods (d).