

Statistical Consulting

Homework 2

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一、讀取資料、安裝包下載

```
library(reticulate)
library(Hmisc)
library(knitr)
library(stringr)
library(table1)
setwd("C:/Users/chars/Desktop/2025_Statistical_Consulting/Homework2")
mushroom <- read.csv("primary_data.csv", sep = ";")
```

二、資料前處理

將資料中缺失的欄位紀錄為 NA，並將 Variable Information 進行整理。

```
# mushroom[mushroom==""] <- NA
#
# content <- function(item) {
#   result <- lapply(item, function(text) {
#     value <- gsub("\\[|\\]", "", text)
#     if (grepl("\\d", value)) {
#       observation <- as.numeric(unlist(str_extract_all(value, "-?\\d+(\\.\\d+)?")))
#     } else {
#       observation <- unlist(str_extract_all(value, "[a-zA-Z]+"))
#     }
#     return(observation)
#   })
#   return(result)
# }
#
```

```

# preprocess <- function(data){
#   len <- c()
#   n <- length(lapply(data,content))
#   for (i in 1:n) {
#     len <- c(len, length(content(data)[[i]]))
#   }
#   maximum <- max(len)
#
#   if (class(unique(do.call(c,content(data))))=="numeric"){
#     mtx <- matrix(NA,nrow = n, ncol = maximum+1)
#     for (i in 1:n) {
#       if (length(content(data)[[i]])==1) {
#         if(is.na(content(data)[[i]])==FALSE){
#           mtx[i,1] <- content(data)[[i]]
#         }
#       }
#       else{
#         if(all(is.na(content(data)[[i]]))==FALSE){
#           mtx[i,2:(maximum+1)] <- content(data)[[i]]
#         }
#       }
#     }
#   }else{
#     col_name <- c(na.omit(unique(do.call(c,content(data))))))
#     mtx <- matrix(NA,nrow = n, ncol = length(col_name))
#     colnames(mtx) <- col_name
#     for (i in 1:n) {
#       for (j in 1:ncol(mtx)) {
#         for(k in 1:length(content(data)[[i]])){
#           if(is.na(content(data)[[i]][k])==FALSE){
#             if (colnames(mtx)[j]==content(data)[[i]][k]) {
#               mtx[i,j] <- 1
#             }
#           }
#         }
#       }
#       mtx[i,is.na(mtx[i,])] <- 0
#       if (sum(mtx[i,])==0){
#         mtx[i,mtx[i,]==0] <- NA
#       }
#     }
#   }
#   return(mtx)
# }
#
# cap_diameter <- preprocess(mushroom$cap.diameter)
# colnames(cap_diameter) <- c("cap_diameter_mean",
#                             "cap_diameter_min","cap_diameter_max")
#
# cap_shape <- preprocess(mushroom$cap.shape)
# colnames(cap_shape) <- paste(rep("cap_shape_",
#                                   length(colnames(cap_shape))),
#                               colnames(cap_shape))

```

```

#
# Cap_surface <- preprocess(mushroom$Cap.surface)
# colnames(Cap_surface) <- paste(rep("Cap_surface_",
#                                   length(colnames(Cap_surface))),
#                                colnames(Cap_surface))
#
#
# cap_color <- preprocess(mushroom$cap.color)
# colnames(cap_color) <- paste(rep("cap_color_",
#                                   length(colnames(cap_color))),
#                                colnames(cap_color))
#
#
# does_bruise_or_bleed <- preprocess(mushroom$does.bruise.or.bleed)
# colnames(does_bruise_or_bleed) <- paste(rep("does_bruise_or_bleed_",
#                                               length(colnames(does_bruise_or_bleed))),
#                                           colnames(does_bruise_or_bleed))
#
#
# gill_attachment <- preprocess(mushroom$gill.attachment)
# colnames(gill_attachment) <- paste(rep("gill_attachment_",
#                                         length(colnames(gill_attachment))),
#                                     colnames(gill_attachment))
#
#
# gill_spacing <- preprocess(mushroom$gill.spacing)
# colnames(gill_spacing) <- paste(rep("gill_spacing_",
#                                       length(colnames(gill_spacing))),
#                                   colnames(gill_spacing))
#
#
# gill_color <- preprocess(mushroom$gill.color)
# colnames(gill_color) <- paste(rep("gill_color_",
#                                     length(colnames(gill_color))),
#                                 colnames(gill_color))
#
#
# stem_height <- preprocess(mushroom$stem.height)
# colnames(stem_height) <- c("stem_height_mean",
#                             "stem_height_min",
#                             "stem_height_max")
#
#
# stem_width <- preprocess(mushroom$stem.width)
# colnames(stem_width) <- c("stem_width_mean",
#                             "stem_width_min", "stem_width_max")
#
#
# stem_root <- preprocess(mushroom$stem.root)
# colnames(stem_root) <- paste(rep("stem_root_",
#                                    length(colnames(stem_root))),
#                               colnames(stem_root))
#
#
#
# stem_surface <- preprocess(mushroom$stem.surface)
# colnames(stem_surface) <- paste(rep("stem_surface_",
#                                       length(colnames(stem_surface))),
#                                   colnames(stem_surface))
#
#
# stem_color <- preprocess(mushroom$stem.color)
# colnames(stem_color) <- paste(rep("stem_color_",
#                                     length(colnames(stem_color))),
#                                 colnames(stem_color))

```

```

#                               colnames(stem_color))
#
# veil_type <- preprocess(mushroom$veil.type)
# colnames(veil_type) <- paste(rep("veil_type_",
#                               length(colnames(veil_type))),
#                               colnames(veil_type))
#
# veil_color <- preprocess(mushroom$veil.color)
# colnames(veil_color) <- paste(rep("veil_color_",
#                               length(colnames(veil_color))),
#                               colnames(veil_color))
#
# has_ring <- preprocess(mushroom$has.ring)
# colnames(has_ring) <- paste(rep("has_ring_",
#                               length(colnames(has_ring))),
#                               colnames(has_ring))
#
# ring_type <- preprocess(mushroom$ring.type)
# colnames(ring_type) <- paste(rep("ring_type_",
#                               length(colnames(ring_type))),
#                               colnames(ring_type))
#
# Spore_print_color <- preprocess(mushroom$Spore.print.color)
# colnames(Spore_print_color) <- paste(rep("Spore_print_color_",
#                               length(colnames(Spore_print_color))),
#                               colnames(Spore_print_color))
#
# habitat <- preprocess(mushroom$habitat)
# colnames(habitat) <- paste(rep("habitat_",
#                               length(colnames(habitat))),
#                               colnames(habitat))
#
# ring_type <- preprocess(mushroom$ring.type)
# colnames(ring_type) <- paste(rep("ring_type_",
#                               length(colnames(ring_type))),
#                               colnames(ring_type))
#

```

```

mushroom <- read.csv("mushroom.csv")
for (i in 1:ncol(mushroom)) {
  if (all(i != c(5:7,62:67))){
    mushroom[,i] <- as.factor(mushroom[,i])
  }
}
mushroom <- mushroom[,-c(1:3)]

```

```

latex(describe(mushroom),file="")

```

mushroom
 130 Variables 173 Observations

class

n	missing	distinct
173	0	2

Value	e	p
Frequency	77	96
Proportion	0.445	0.555

cap_diameter_mean

n	missing	distinct	Info	Mean
1	172	1	0	50

Value	50
Frequency	1
Proportion	1

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

cap_shape_x

n	missing	distinct
173	0	2

Value	0	1
Frequency	63	110
Proportion	0.364	0.636

cap_shape_f

n	missing	distinct
173	0	2

Value	0	1
Frequency	99	74
Proportion	0.572	0.428

cap_shape_p

n	missing	distinct
173	0	2

Value	0	1
Frequency	158	15
Proportion	0.913	0.087

cap_shape_b

	n	missing	distinct
	173	0	2

Value	0	1
Frequency	150	23
Proportion	0.867	0.133

cap_shape_c

	n	missing	distinct
	173	0	2

Value	0	1
Frequency	165	8
Proportion	0.954	0.046

cap_shape_s

	n	missing	distinct
	173	0	2

Value	0	1
Frequency	137	36
Proportion	0.792	0.208

cap_shape_o

	n	missing	distinct
	173	0	2

Value	0	1
Frequency	161	12
Proportion	0.931	0.069

Cap_surface_g

	n	missing	distinct
	133	40	2

Value	0	1
Frequency	117	16
Proportion	0.88	0.12

Cap_surface_h

	n	missing	distinct
	133	40	2

Value	0	1
Frequency	107	26
Proportion	0.805	0.195

Cap_surface_t

	n	missing	distinct
	133	40	2

Value	0	1
Frequency	96	37
Proportion	0.722	0.278

Cap_surface_y

n	missing	distinct
133	40	2

Value	0	1
Frequency	110	23
Proportion	0.827	0.173

Cap_surface_e

n	missing	distinct
133	40	2

Value	0	1
Frequency	122	11
Proportion	0.917	0.083

Cap_surface_s

n	missing	distinct
133	40	2

Value	0	1
Frequency	100	33
Proportion	0.752	0.248

Cap_surface_l

n	missing	distinct
133	40	2

Value	0	1
Frequency	129	4
Proportion	0.97	0.03

Cap_surface_d

n	missing	distinct
133	40	2

Value	0	1
Frequency	115	18
Proportion	0.865	0.135

Cap_surface_w

n	missing	distinct
133	40	2

Value	0	1
Frequency	125	8
Proportion	0.94	0.06

Cap_surface_i

n	missing	distinct
133	40	2

Value	0	1
Frequency	124	9
Proportion	0.932	0.068

Cap_surface_k

n	missing	distinct
133	40	2

Value	0	1
Frequency	123	10
Proportion	0.925	0.075

cap_color_e

n	missing	distinct
173	0	2

Value	0	1
Frequency	148	25
Proportion	0.855	0.145

cap_color_o

n	missing	distinct
173	0	2

Value	0	1
Frequency	151	22
Proportion	0.873	0.127

cap_color_n

n	missing	distinct
173	0	2

Value	0	1
Frequency	63	110
Proportion	0.364	0.636

cap_color_g

n	missing	distinct
173	0	2

Value	0	1
Frequency	145	28
Proportion	0.838	0.162

cap_color_r

n	missing	distinct
173	0	2

Value	0	1
Frequency	160	13
Proportion	0.925	0.075

cap_color_w

n	missing	distinct
173	0	2

Value	0	1
Frequency	138	35
Proportion	0.798	0.202

cap_color_y

n	missing	distinct
173	0	2

Value	0	1
Frequency	129	44
Proportion	0.746	0.254

cap_color_p

n	missing	distinct
173	0	2

Value	0	1
Frequency	162	11
Proportion	0.936	0.064

cap_color_b

n	missing	distinct
173	0	2

Value	0	1
Frequency	166	7
Proportion	0.96	0.04

cap_color_u

n	missing	distinct
173	0	2

Value	0	1
Frequency	163	10
Proportion	0.942	0.058

cap_color_l

n	missing	distinct
173	0	2

Value	0	1
Frequency	167	6
Proportion	0.965	0.035

cap_color_k

n	missing	distinct
173	0	2

Value	0	1
Frequency	164	9
Proportion	0.948	0.052

does_bruise_or_bleed_f

n	missing	distinct
173	0	2

Value	0	1
Frequency	30	143
Proportion	0.173	0.827

does_bruise_or_bleed_t

n	missing	distinct
173	0	2

Value	0	1
Frequency	143	30
Proportion	0.827	0.173

gill_attachment_e

n	missing	distinct
145	28	2

Value	0	1
Frequency	129	16
Proportion	0.89	0.11

gill_attachment_a

n	missing	distinct
145	28	2

Value	0	1
Frequency	105	40
Proportion	0.724	0.276

gill_attachment_d

n	missing	distinct
145	28	2

Value	0	1
Frequency	112	33
Proportion	0.772	0.228

gill_attachment_s

n	missing	distinct
145	28	2

Value	0	1
Frequency	129	16
Proportion	0.89	0.11

gill_attachment_x

n	missing	distinct
145	28	2

Value	0	1
Frequency	124	21
Proportion	0.855	0.145

gill_attachment_p

n	missing	distinct
145	28	2

Value	0	1
Frequency	128	17
Proportion	0.883	0.117

gill_attachment_.f

n	missing	distinct
145	28	2

Value	0	1
Frequency	135	10
Proportion	0.931	0.069

gill_spacing_.c

n	missing	distinct
102	71	2

Value	0	1
Frequency	32	70
Proportion	0.314	0.686

gill_spacing_.d

n	missing	distinct
102	71	2

Value	0	1
Frequency	80	22
Proportion	0.784	0.216

gill_spacing_.f

n	missing	distinct
102	71	2

Value	0	1
Frequency	92	10
Proportion	0.902	0.098

gill_color_.w

n	missing	distinct
173	0	2

Value	0	1
Frequency	100	73
Proportion	0.578	0.422

gill_color_.n

n	missing	distinct
173	0	2

Value	0	1
Frequency	126	47
Proportion	0.728	0.272

gill_color_.p

n	missing	distinct
173	0	2

Value	0	1
Frequency	145	28
Proportion	0.838	0.162

gill_color_u

n	missing	distinct
173	0	2

Value	0	1
Frequency	166	7
Proportion	0.96	0.04

gill_color_b

n	missing	distinct
173	0	2

Value	0	1
Frequency	168	5
Proportion	0.971	0.029

gill_color_g

n	missing	distinct
173	0	2

Value	0	1
Frequency	150	23
Proportion	0.867	0.133

gill_color_y

n	missing	distinct
173	0	2

Value	0	1
Frequency	129	44
Proportion	0.746	0.254

gill_color_r

n	missing	distinct
173	0	2

Value	0	1
Frequency	165	8
Proportion	0.954	0.046

gill_color_e

n	missing	distinct
173	0	2

Value	0	1
Frequency	167	6
Proportion	0.965	0.035

gill_color_o

n	missing	distinct
173	0	2

Value	0	1
Frequency	160	13
Proportion	0.925	0.075

gill_color_k

n	missing	distinct
173	0	2

Value	0	1
Frequency	158	15
Proportion	0.913	0.087

gill_color_f

n	missing	distinct
173	0	2

Value	0	1
Frequency	163	10
Proportion	0.942	0.058

stem_height_mean

n	missing	distinct	Info	Mean
3	170	1	0	0

Value	0
Frequency	3
Proportion	1

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_mean

n	missing	distinct	Info	Mean	pMedian	Gmd
11	162	4	0.918	4.091	5	5.055

Value	0	1	2	10
Frequency	3	3	1	4
Proportion	0.273	0.273	0.091	0.364

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

stem_root_s

n	missing	distinct
27	146	2

Value	0	1
Frequency	18	9
Proportion	0.667	0.333

stem_root_b

n	missing	distinct
27	146	2

Value	0	1
Frequency	18	9
Proportion	0.667	0.333

stem_root_r

n	missing	distinct
27	146	2

Value	0	1
Frequency	23	4
Proportion	0.852	0.148

stem_root_c

n	missing	distinct
27	146	2

Value	0	1
Frequency	25	2
Proportion	0.926	0.074

stem_root_f

n	missing	distinct
27	146	2

Value	0	1
Frequency	24	3
Proportion	0.889	0.111

stem_surface_y

n	missing	distinct
65	108	2

Value	0	1
Frequency	50	15
Proportion	0.769	0.231

stem_surface_s

n	missing	distinct
65	108	2

Value	0	1
Frequency	46	19
Proportion	0.708	0.292

stem_surface_k

n	missing	distinct
65	108	2

Value	0	1
Frequency	60	5
Proportion	0.923	0.077

stem_surface_i

n	missing	distinct
65	108	2

Value	0	1
Frequency	51	14
Proportion	0.785	0.215

stem_surface_h

n	missing	distinct
65	108	2

Value	0	1
Frequency	63	2
Proportion	0.969	0.031

stem_surface_t

n	missing	distinct
65	108	2

Value	0	1
Frequency	57	8
Proportion	0.877	0.123

stem_surface_g

n	missing	distinct
65	108	2

Value	0	1
Frequency	60	5
Proportion	0.923	0.077

stem_surface_f

n	missing	distinct
65	108	2

Value	0	1
Frequency	62	3
Proportion	0.954	0.046

stem_color_w

n	missing	distinct
173	0	2

Value	0	1
Frequency	99	74
Proportion	0.572	0.428

stem_color_y

n	missing	distinct
173	0	2

Value	0	1
Frequency	141	32
Proportion	0.815	0.185

stem_color_n

n	missing	distinct
173	0	2

Value	0	1
Frequency	103	70
Proportion	0.595	0.405

stem_color_b

n	missing	distinct
173	0	2

Value	0	1
Frequency	172	1
Proportion	0.994	0.006

stem_color_u

n	missing	distinct
173	0	2

Value	0	1
Frequency	166	7
Proportion	0.96	0.04

stem_color_l

n	missing	distinct
173	0	2

Value	0	1
Frequency	171	2
Proportion	0.988	0.012

stem_color_r

n	missing	distinct
173	0	2

Value	0	1
Frequency	169	4
Proportion	0.977	0.023

stem_color_p

n	missing	distinct
173	0	2

Value	0	1
Frequency	169	4
Proportion	0.977	0.023

stem_color_e

n	missing	distinct
173	0	2

Value	0	1
Frequency	162	11
Proportion	0.936	0.064

stem_color_k

n	missing	distinct
173	0	2

Value	0	1
Frequency	169	4
Proportion	0.977	0.023

stem_color_g

n	missing	distinct
173	0	2

Value	0	1
Frequency	159	14
Proportion	0.919	0.081

stem_color_o

n	missing	distinct
173	0	2

Value	0	1
Frequency	161	12
Proportion	0.931	0.069

stem_color_f

n	missing	distinct
173	0	2

Value	0	1
Frequency	170	3
Proportion	0.983	0.017

veil_type_u

n	missing	distinct	value
9	164	1	1

Value	1
Frequency	9
Proportion	1

veil_color_w

n	missing	distinct
21	152	2

Value	0	1
Frequency	5	16
Proportion	0.238	0.762

veil_color_y

n	missing	distinct
21	152	2

Value	0	1
Frequency	19	2
Proportion	0.905	0.095

veil_color_e

n	missing	distinct
21	152	2

Value	0	1
Frequency	20	1
Proportion	0.952	0.048

veil_color_n

n	missing	distinct
21	152	2

Value	0	1
Frequency	19	2
Proportion	0.905	0.095

veil_color_u

n	missing	distinct
21	152	2

Value	0	1
Frequency	20	1
Proportion	0.952	0.048

veil_color_k

n	missing	distinct
21	152	2

Value	0	1
Frequency	20	1
Proportion	0.952	0.048

has_ring_t

n	missing	distinct
173	0	2

Value	0	1
Frequency	130	43
Proportion	0.751	0.249

has_ring_f

n	missing	distinct
173	0	2

Value	0	1
Frequency	43	130
Proportion	0.249	0.751

ring_type_ring_type_g

n	missing	distinct
166	7	2

Value	0	1
Frequency	161	5
Proportion	0.97	0.03

ring_type_ring_type_p

n	missing	distinct
166	7	2

Value	0	1
Frequency	161	5
Proportion	0.97	0.03

ring_type_ring_type_e

n	missing	distinct
166	7	2

Value	0	1
Frequency	158	8
Proportion	0.952	0.048

ring_type_ring_type_l

n	missing	distinct
166	7	2

Value	0	1
Frequency	160	6
Proportion	0.964	0.036

ring_type_.ring_type_.f

n	missing	distinct
166	7	2

Value	0	1
Frequency	29	137
Proportion	0.175	0.825

ring_type_.ring_type_.m

n	missing	distinct
166	7	2

Value	0	1
Frequency	165	1
Proportion	0.994	0.006

ring_type_.ring_type_.r

n	missing	distinct
166	7	2

Value	0	1
Frequency	161	5
Proportion	0.97	0.03

ring_type_.ring_type_.z

n	missing	distinct
166	7	2

Value	0	1
Frequency	160	6
Proportion	0.964	0.036

Spore_print_color_.w

n	missing	distinct
18	155	2

Value	0	1
Frequency	14	4
Proportion	0.778	0.222

Spore_print_color_.p

n	missing	distinct
18	155	2

Value	0	1
Frequency	14	4
Proportion	0.778	0.222

Spore_print_color_.k

n	missing	distinct
18	155	2

Value	0	1
Frequency	11	7
Proportion	0.611	0.389

Spore_print_color_r

n	missing	distinct
18	155	2

Value	0	1
Frequency	17	1
Proportion	0.944	0.056

Spore_print_color_u

n	missing	distinct
18	155	2

Value	0	1
Frequency	17	1
Proportion	0.944	0.056

Spore_print_color_n

n	missing	distinct
18	155	2

Value	0	1
Frequency	15	3
Proportion	0.833	0.167

Spore_print_color_g

n	missing	distinct
18	155	2

Value	0	1
Frequency	17	1
Proportion	0.944	0.056

habitat_d

n	missing	distinct
173	0	2

Value	0	1
Frequency	22	151
Proportion	0.127	0.873

habitat_m

n	missing	distinct
173	0	2

Value	0	1
Frequency	156	17
Proportion	0.902	0.098

habitat_g

n	missing	distinct
173	0	2

Value	0	1
Frequency	135	38
Proportion	0.78	0.22

habitat_h

n	missing	distinct
173	0	2

Value	0	1
Frequency	160	13
Proportion	0.925	0.075

habitat_l

n	missing	distinct
173	0	2

Value	0	1
Frequency	155	18
Proportion	0.896	0.104

habitat_p

n	missing	distinct
173	0	2

Value	0	1
Frequency	171	2
Proportion	0.988	0.012

habitat_w

n	missing	distinct
173	0	2

Value	0	1
Frequency	172	1
Proportion	0.994	0.006

habitat_u

n	missing	distinct
173	0	2

Value	0	1
Frequency	172	1
Proportion	0.994	0.006

ring_type_ring_type_g.1

n	missing	distinct
166	7	2

Value	0	1
Frequency	161	5
Proportion	0.97	0.03

ring_type_ring_type_p.1

n	missing	distinct
166	7	2

Value	0	1
Frequency	161	5
Proportion	0.97	0.03

ring_type_.ring_type_.e.1

n missing distinct
166 7 2

Value 0 1
Frequency 158 8
Proportion 0.952 0.048

ring_type_.ring_type_.l.1

n missing distinct
166 7 2

Value 0 1
Frequency 160 6
Proportion 0.964 0.036

ring_type_.ring_type_.f.1

n missing distinct
166 7 2

Value 0 1
Frequency 29 137
Proportion 0.175 0.825

ring_type_.ring_type_.m.1

n missing distinct
166 7 2

Value 0 1
Frequency 165 1
Proportion 0.994 0.006

ring_type_.ring_type_.r.1

n missing distinct
166 7 2

Value 0 1
Frequency 161 5
Proportion 0.97 0.03

ring_type_.ring_type_.z.1

n missing distinct
166 7 2

Value 0 1
Frequency 160 6
Proportion 0.964 0.036

```
kable(table1(~(.)|class,data = mushroom))
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	e	p	Overall
	(N=77)	(N=96)	(N=173)
cap_diameter_mean			
Mean (SD)	50.0 (NA)	NA (NA)	50.0 (NA)
Median [Min, Max]	50.0 [50.0, 50.0]	NA [NA, NA]	50.0 [50.0, 50.0]
Missing	76 (98.7%)	96 (100%)	172 (99.4%)
cap_diameter_min			

	e	p	Overall
Mean (SD)	4.16 (2.38)	3.47 (2.27)	3.78 (2.34)
Median [Min, Max]	4.00 [0.500, 12.0]	3.00 [0.400, 10.0]	3.00 [0.400, 12.0]
Missing	1 (1.3%)	0 (0%)	1 (0.6%)
cap_diameter_max			
Mean (SD)	10.3 (5.76)	8.29 (5.58)	9.20 (5.73)
Median [Min, Max]	10.0 [1.50, 30.0]	7.00 [1.00, 30.0]	8.00 [1.00, 30.0]
Missing	1 (1.3%)	0 (0%)	1 (0.6%)
cap_shape_x			
0	23 (29.9%)	40 (41.7%)	63 (36.4%)
1	54 (70.1%)	56 (58.3%)	110 (63.6%)
cap_shape_f			
0	41 (53.2%)	58 (60.4%)	99 (57.2%)
1	36 (46.8%)	38 (39.6%)	74 (42.8%)
cap_shape_p			
0	67 (87.0%)	91 (94.8%)	158 (91.3%)
1	10 (13.0%)	5 (5.2%)	15 (8.7%)
cap_shape_b			
0	72 (93.5%)	78 (81.3%)	150 (86.7%)
1	5 (6.5%)	18 (18.8%)	23 (13.3%)
cap_shape_c			
0	73 (94.8%)	92 (95.8%)	165 (95.4%)
1	4 (5.2%)	4 (4.2%)	8 (4.6%)
cap_shape_s			
0	60 (77.9%)	77 (80.2%)	137 (79.2%)
1	17 (22.1%)	19 (19.8%)	36 (20.8%)
cap_shape_o			
0	73 (94.8%)	88 (91.7%)	161 (93.1%)
1	4 (5.2%)	8 (8.3%)	12 (6.9%)
Cap_surface_g			
0	51 (66.2%)	66 (68.8%)	117 (67.6%)
1	7 (9.1%)	9 (9.4%)	16 (9.2%)
Missing	19 (24.7%)	21 (21.9%)	40 (23.1%)
Cap_surface_h			
0	45 (58.4%)	62 (64.6%)	107 (61.8%)
1	13 (16.9%)	13 (13.5%)	26 (15.0%)
Missing	19 (24.7%)	21 (21.9%)	40 (23.1%)
Cap_surface_t			
0	43 (55.8%)	53 (55.2%)	96 (55.5%)
1	15 (19.5%)	22 (22.9%)	37 (21.4%)
Missing	19 (24.7%)	21 (21.9%)	40 (23.1%)
Cap_surface_y			
0	46 (59.7%)	64 (66.7%)	110 (63.6%)
1	12 (15.6%)	11 (11.5%)	23 (13.3%)
Missing	19 (24.7%)	21 (21.9%)	40 (23.1%)
Cap_surface_e			
0	54 (70.1%)	68 (70.8%)	122 (70.5%)
1	4 (5.2%)	7 (7.3%)	11 (6.4%)
Missing	19 (24.7%)	21 (21.9%)	40 (23.1%)
Cap_surface_s			
0	40 (51.9%)	60 (62.5%)	100 (57.8%)
1	18 (23.4%)	15 (15.6%)	33 (19.1%)
Missing	19 (24.7%)	21 (21.9%)	40 (23.1%)

	e	p	Overall
Cap_surface_.l			
0	56 (72.7%)	73 (76.0%)	129 (74.6%)
1	2 (2.6%)	2 (2.1%)	4 (2.3%)
Missing	19 (24.7%)	21 (21.9%)	40 (23.1%)
Cap_surface_.d			
0	50 (64.9%)	65 (67.7%)	115 (66.5%)
1	8 (10.4%)	10 (10.4%)	18 (10.4%)
Missing	19 (24.7%)	21 (21.9%)	40 (23.1%)
Cap_surface_.w			
0	55 (71.4%)	70 (72.9%)	125 (72.3%)
1	3 (3.9%)	5 (5.2%)	8 (4.6%)
Missing	19 (24.7%)	21 (21.9%)	40 (23.1%)
Cap_surface_.i			
0	56 (72.7%)	68 (70.8%)	124 (71.7%)
1	2 (2.6%)	7 (7.3%)	9 (5.2%)
Missing	19 (24.7%)	21 (21.9%)	40 (23.1%)
Cap_surface_.k			
0	57 (74.0%)	66 (68.8%)	123 (71.1%)
1	1 (1.3%)	9 (9.4%)	10 (5.8%)
Missing	19 (24.7%)	21 (21.9%)	40 (23.1%)
cap_color_.e			
0	70 (90.9%)	78 (81.3%)	148 (85.5%)
1	7 (9.1%)	18 (18.8%)	25 (14.5%)
cap_color_.o			
0	70 (90.9%)	81 (84.4%)	151 (87.3%)
1	7 (9.1%)	15 (15.6%)	22 (12.7%)
cap_color_.n			
0	24 (31.2%)	39 (40.6%)	63 (36.4%)
1	53 (68.8%)	57 (59.4%)	110 (63.6%)
cap_color_.g			
0	63 (81.8%)	82 (85.4%)	145 (83.8%)
1	14 (18.2%)	14 (14.6%)	28 (16.2%)
cap_color_.r			
0	75 (97.4%)	85 (88.5%)	160 (92.5%)
1	2 (2.6%)	11 (11.5%)	13 (7.5%)
cap_color_.w			
0	60 (77.9%)	78 (81.3%)	138 (79.8%)
1	17 (22.1%)	18 (18.8%)	35 (20.2%)
cap_color_.y			
0	61 (79.2%)	68 (70.8%)	129 (74.6%)
1	16 (20.8%)	28 (29.2%)	44 (25.4%)
cap_color_.p			
0	73 (94.8%)	89 (92.7%)	162 (93.6%)
1	4 (5.2%)	7 (7.3%)	11 (6.4%)
cap_color_.b			
0	72 (93.5%)	94 (97.9%)	166 (96.0%)
1	5 (6.5%)	2 (2.1%)	7 (4.0%)
cap_color_.u			
0	72 (93.5%)	91 (94.8%)	163 (94.2%)
1	5 (6.5%)	5 (5.2%)	10 (5.8%)
cap_color_.l			
0	73 (94.8%)	94 (97.9%)	167 (96.5%)

	e	p	Overall
1	4 (5.2%)	2 (2.1%)	6 (3.5%)
cap_color_k			
0	74 (96.1%)	90 (93.8%)	164 (94.8%)
1	3 (3.9%)	6 (6.3%)	9 (5.2%)
does_bruise_or_bleed_f			
0	14 (18.2%)	16 (16.7%)	30 (17.3%)
1	63 (81.8%)	80 (83.3%)	143 (82.7%)
does_bruise_or_bleed_t			
0	63 (81.8%)	80 (83.3%)	143 (82.7%)
1	14 (18.2%)	16 (16.7%)	30 (17.3%)
gill_attachment_e			
0	57 (74.0%)	72 (75.0%)	129 (74.6%)
1	10 (13.0%)	6 (6.3%)	16 (9.2%)
Missing	10 (13.0%)	18 (18.8%)	28 (16.2%)
gill_attachment_a			
0	51 (66.2%)	54 (56.3%)	105 (60.7%)
1	16 (20.8%)	24 (25.0%)	40 (23.1%)
Missing	10 (13.0%)	18 (18.8%)	28 (16.2%)
gill_attachment_d			
0	53 (68.8%)	59 (61.5%)	112 (64.7%)
1	14 (18.2%)	19 (19.8%)	33 (19.1%)
Missing	10 (13.0%)	18 (18.8%)	28 (16.2%)
gill_attachment_s			
0	60 (77.9%)	69 (71.9%)	129 (74.6%)
1	7 (9.1%)	9 (9.4%)	16 (9.2%)
Missing	10 (13.0%)	18 (18.8%)	28 (16.2%)
gill_attachment_x			
0	58 (75.3%)	66 (68.8%)	124 (71.7%)
1	9 (11.7%)	12 (12.5%)	21 (12.1%)
Missing	10 (13.0%)	18 (18.8%)	28 (16.2%)
gill_attachment_p			
0	55 (71.4%)	73 (76.0%)	128 (74.0%)
1	12 (15.6%)	5 (5.2%)	17 (9.8%)
Missing	10 (13.0%)	18 (18.8%)	28 (16.2%)
gill_attachment_f			
0	63 (81.8%)	72 (75.0%)	135 (78.0%)
1	4 (5.2%)	6 (6.3%)	10 (5.8%)
Missing	10 (13.0%)	18 (18.8%)	28 (16.2%)
gill_spacing_c			
0	17 (22.1%)	15 (15.6%)	32 (18.5%)
1	29 (37.7%)	41 (42.7%)	70 (40.5%)
Missing	31 (40.3%)	40 (41.7%)	71 (41.0%)
gill_spacing_d			
0	33 (42.9%)	47 (49.0%)	80 (46.2%)
1	13 (16.9%)	9 (9.4%)	22 (12.7%)
Missing	31 (40.3%)	40 (41.7%)	71 (41.0%)
gill_spacing_f			
0	42 (54.5%)	50 (52.1%)	92 (53.2%)
1	4 (5.2%)	6 (6.3%)	10 (5.8%)
Missing	31 (40.3%)	40 (41.7%)	71 (41.0%)
gill_color_w			
0	39 (50.6%)	61 (63.5%)	100 (57.8%)

	e	p	Overall
1	38 (49.4%)	35 (36.5%)	73 (42.2%)
gill_color_n			
0	62 (80.5%)	64 (66.7%)	126 (72.8%)
1	15 (19.5%)	32 (33.3%)	47 (27.2%)
gill_color_p			
0	65 (84.4%)	80 (83.3%)	145 (83.8%)
1	12 (15.6%)	16 (16.7%)	28 (16.2%)
gill_color_u			
0	74 (96.1%)	92 (95.8%)	166 (96.0%)
1	3 (3.9%)	4 (4.2%)	7 (4.0%)
gill_color_b			
0	74 (96.1%)	94 (97.9%)	168 (97.1%)
1	3 (3.9%)	2 (2.1%)	5 (2.9%)
gill_color_g			
0	67 (87.0%)	83 (86.5%)	150 (86.7%)
1	10 (13.0%)	13 (13.5%)	23 (13.3%)
gill_color_y			
0	60 (77.9%)	69 (71.9%)	129 (74.6%)
1	17 (22.1%)	27 (28.1%)	44 (25.4%)
gill_color_r			
0	75 (97.4%)	90 (93.8%)	165 (95.4%)
1	2 (2.6%)	6 (6.3%)	8 (4.6%)
gill_color_e			
0	75 (97.4%)	92 (95.8%)	167 (96.5%)
1	2 (2.6%)	4 (4.2%)	6 (3.5%)
gill_color_o			
0	72 (93.5%)	88 (91.7%)	160 (92.5%)
1	5 (6.5%)	8 (8.3%)	13 (7.5%)
gill_color_k			
0	71 (92.2%)	87 (90.6%)	158 (91.3%)
1	6 (7.8%)	9 (9.4%)	15 (8.7%)
gill_color_f			
0	73 (94.8%)	90 (93.8%)	163 (94.2%)
1	4 (5.2%)	6 (6.3%)	10 (5.8%)
stem_height_mean			
Mean (SD)	NA (NA)	0 (0)	0 (0)
Median [Min, Max]	NA [NA, NA]	0 [0, 0]	0 [0, 0]
Missing	77 (100%)	93 (96.9%)	170 (98.3%)
stem_height_min			
Mean (SD)	4.52 (2.20)	4.27 (2.22)	4.38 (2.21)
Median [Min, Max]	4.00 [2.00, 15.0]	4.00 [1.00, 15.0]	4.00 [1.00, 15.0]
Missing	0 (0%)	3 (3.1%)	3 (1.7%)
stem_height_max			
Mean (SD)	9.58 (5.03)	8.57 (3.80)	9.03 (4.41)
Median [Min, Max]	8.00 [3.00, 35.0]	8.00 [2.00, 20.0]	8.00 [2.00, 35.0]
Missing	0 (0%)	3 (3.1%)	3 (1.7%)
stem_width_mean			
Mean (SD)	7.75 (4.50)	2.00 (3.61)	4.09 (4.72)
Median [Min, Max]	10.0 [1.00, 10.0]	1.00 [0, 10.0]	1.00 [0, 10.0]
Missing	73 (94.8%)	89 (92.7%)	162 (93.6%)
stem_width_min			
Mean (SD)	10.2 (6.90)	7.67 (5.65)	8.83 (6.36)

	e	p	Overall
Median [Min, Max]	10.0 [1.00, 40.0]	5.00 [0.500, 20.0]	8.00 [0.500, 40.0]
Missing	4 (5.2%)	7 (7.3%)	11 (6.4%)
stem_width_max			
Mean (SD)	19.2 (15.9)	14.4 (11.8)	16.6 (13.9)
Median [Min, Max]	15.0 [2.00, 100]	10.0 [1.00, 60.0]	15.0 [1.00, 100]
Missing	4 (5.2%)	7 (7.3%)	11 (6.4%)
stem_root_s			
0	6 (7.8%)	12 (12.5%)	18 (10.4%)
1	4 (5.2%)	5 (5.2%)	9 (5.2%)
Missing	67 (87.0%)	79 (82.3%)	146 (84.4%)
stem_root_b			
0	4 (5.2%)	14 (14.6%)	18 (10.4%)
1	6 (7.8%)	3 (3.1%)	9 (5.2%)
Missing	67 (87.0%)	79 (82.3%)	146 (84.4%)
stem_root_r			
0	10 (13.0%)	13 (13.5%)	23 (13.3%)
1	0 (0%)	4 (4.2%)	4 (2.3%)
Missing	67 (87.0%)	79 (82.3%)	146 (84.4%)
stem_root_c			
0	10 (13.0%)	15 (15.6%)	25 (14.5%)
1	0 (0%)	2 (2.1%)	2 (1.2%)
Missing	67 (87.0%)	79 (82.3%)	146 (84.4%)
stem_root_f			
0	10 (13.0%)	14 (14.6%)	24 (13.9%)
1	0 (0%)	3 (3.1%)	3 (1.7%)
Missing	67 (87.0%)	79 (82.3%)	146 (84.4%)
stem_surface_y			
0	19 (24.7%)	31 (32.3%)	50 (28.9%)
1	5 (6.5%)	10 (10.4%)	15 (8.7%)
Missing	53 (68.8%)	55 (57.3%)	108 (62.4%)
stem_surface_s			
0	13 (16.9%)	33 (34.4%)	46 (26.6%)
1	11 (14.3%)	8 (8.3%)	19 (11.0%)
Missing	53 (68.8%)	55 (57.3%)	108 (62.4%)
stem_surface_k			
0	22 (28.6%)	38 (39.6%)	60 (34.7%)
1	2 (2.6%)	3 (3.1%)	5 (2.9%)
Missing	53 (68.8%)	55 (57.3%)	108 (62.4%)
stem_surface_i			
0	19 (24.7%)	32 (33.3%)	51 (29.5%)
1	5 (6.5%)	9 (9.4%)	14 (8.1%)
Missing	53 (68.8%)	55 (57.3%)	108 (62.4%)
stem_surface_h			
0	24 (31.2%)	39 (40.6%)	63 (36.4%)
1	0 (0%)	2 (2.1%)	2 (1.2%)
Missing	53 (68.8%)	55 (57.3%)	108 (62.4%)
stem_surface_t			
0	20 (26.0%)	37 (38.5%)	57 (32.9%)
1	4 (5.2%)	4 (4.2%)	8 (4.6%)
Missing	53 (68.8%)	55 (57.3%)	108 (62.4%)
stem_surface_g			
0	24 (31.2%)	36 (37.5%)	60 (34.7%)

	e	p	Overall
1	0 (0%)	5 (5.2%)	5 (2.9%)
Missing	53 (68.8%)	55 (57.3%)	108 (62.4%)
stem_surface_f			
0	24 (31.2%)	38 (39.6%)	62 (35.8%)
1	0 (0%)	3 (3.1%)	3 (1.7%)
Missing	53 (68.8%)	55 (57.3%)	108 (62.4%)
stem_color_w			
0	34 (44.2%)	65 (67.7%)	99 (57.2%)
1	43 (55.8%)	31 (32.3%)	74 (42.8%)
stem_color_y			
0	68 (88.3%)	73 (76.0%)	141 (81.5%)
1	9 (11.7%)	23 (24.0%)	32 (18.5%)
stem_color_n			
0	50 (64.9%)	53 (55.2%)	103 (59.5%)
1	27 (35.1%)	43 (44.8%)	70 (40.5%)
stem_color_b			
0	76 (98.7%)	96 (100%)	172 (99.4%)
1	1 (1.3%)	0 (0%)	1 (0.6%)
stem_color_u			
0	75 (97.4%)	91 (94.8%)	166 (96.0%)
1	2 (2.6%)	5 (5.2%)	7 (4.0%)
stem_color_l			
0	76 (98.7%)	95 (99.0%)	171 (98.8%)
1	1 (1.3%)	1 (1.0%)	2 (1.2%)
stem_color_r			
0	76 (98.7%)	93 (96.9%)	169 (97.7%)
1	1 (1.3%)	3 (3.1%)	4 (2.3%)
stem_color_p			
0	76 (98.7%)	93 (96.9%)	169 (97.7%)
1	1 (1.3%)	3 (3.1%)	4 (2.3%)
stem_color_e			
0	74 (96.1%)	88 (91.7%)	162 (93.6%)
1	3 (3.9%)	8 (8.3%)	11 (6.4%)
stem_color_k			
0	76 (98.7%)	93 (96.9%)	169 (97.7%)
1	1 (1.3%)	3 (3.1%)	4 (2.3%)
stem_color_g			
0	70 (90.9%)	89 (92.7%)	159 (91.9%)
1	7 (9.1%)	7 (7.3%)	14 (8.1%)
stem_color_o			
0	72 (93.5%)	89 (92.7%)	161 (93.1%)
1	5 (6.5%)	7 (7.3%)	12 (6.9%)
stem_color_f			
0	77 (100%)	93 (96.9%)	170 (98.3%)
1	0 (0%)	3 (3.1%)	3 (1.7%)
veil_type_u			
1	3 (3.9%)	6 (6.3%)	9 (5.2%)
Missing	74 (96.1%)	90 (93.8%)	164 (94.8%)
veil_color_w			
0	1 (1.3%)	4 (4.2%)	5 (2.9%)
1	8 (10.4%)	8 (8.3%)	16 (9.2%)
Missing	68 (88.3%)	84 (87.5%)	152 (87.9%)

	e	p	Overall
veil_color_y			
0	7 (9.1%)	12 (12.5%)	19 (11.0%)
1	2 (2.6%)	0 (0%)	2 (1.2%)
Missing	68 (88.3%)	84 (87.5%)	152 (87.9%)
veil_color_e			
0	9 (11.7%)	11 (11.5%)	20 (11.6%)
1	0 (0%)	1 (1.0%)	1 (0.6%)
Missing	68 (88.3%)	84 (87.5%)	152 (87.9%)
veil_color_n			
0	9 (11.7%)	10 (10.4%)	19 (11.0%)
1	0 (0%)	2 (2.1%)	2 (1.2%)
Missing	68 (88.3%)	84 (87.5%)	152 (87.9%)
veil_color_u			
0	9 (11.7%)	11 (11.5%)	20 (11.6%)
1	0 (0%)	1 (1.0%)	1 (0.6%)
Missing	68 (88.3%)	84 (87.5%)	152 (87.9%)
veil_color_k			
0	9 (11.7%)	11 (11.5%)	20 (11.6%)
1	0 (0%)	1 (1.0%)	1 (0.6%)
Missing	68 (88.3%)	84 (87.5%)	152 (87.9%)
has_ring_t			
0	60 (77.9%)	70 (72.9%)	130 (75.1%)
1	17 (22.1%)	26 (27.1%)	43 (24.9%)
has_ring_f			
0	17 (22.1%)	26 (27.1%)	43 (24.9%)
1	60 (77.9%)	70 (72.9%)	130 (75.1%)
ring_type_ring_type_g			
0	71 (92.2%)	90 (93.8%)	161 (93.1%)
1	2 (2.6%)	3 (3.1%)	5 (2.9%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_ring_type_p			
0	71 (92.2%)	90 (93.8%)	161 (93.1%)
1	2 (2.6%)	3 (3.1%)	5 (2.9%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_ring_type_e			
0	70 (90.9%)	88 (91.7%)	158 (91.3%)
1	3 (3.9%)	5 (5.2%)	8 (4.6%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_ring_type_l			
0	69 (89.6%)	91 (94.8%)	160 (92.5%)
1	4 (5.2%)	2 (2.1%)	6 (3.5%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_ring_type_f			
0	12 (15.6%)	17 (17.7%)	29 (16.8%)
1	61 (79.2%)	76 (79.2%)	137 (79.2%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_ring_type_m			
0	72 (93.5%)	93 (96.9%)	165 (95.4%)
1	1 (1.3%)	0 (0%)	1 (0.6%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_ring_type_r			
0	70 (90.9%)	91 (94.8%)	161 (93.1%)

	e	p	Overall
1	3 (3.9%)	2 (2.1%)	5 (2.9%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_.ring_type_.z			
0	73 (94.8%)	87 (90.6%)	160 (92.5%)
1	0 (0%)	6 (6.3%)	6 (3.5%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
Spore_print_color_.w			
0	3 (3.9%)	11 (11.5%)	14 (8.1%)
1	2 (2.6%)	2 (2.1%)	4 (2.3%)
Missing	72 (93.5%)	83 (86.5%)	155 (89.6%)
Spore_print_color_.p			
0	4 (5.2%)	10 (10.4%)	14 (8.1%)
1	1 (1.3%)	3 (3.1%)	4 (2.3%)
Missing	72 (93.5%)	83 (86.5%)	155 (89.6%)
Spore_print_color_.k			
0	4 (5.2%)	7 (7.3%)	11 (6.4%)
1	1 (1.3%)	6 (6.3%)	7 (4.0%)
Missing	72 (93.5%)	83 (86.5%)	155 (89.6%)
Spore_print_color_.r			
0	5 (6.5%)	12 (12.5%)	17 (9.8%)
1	0 (0%)	1 (1.0%)	1 (0.6%)
Missing	72 (93.5%)	83 (86.5%)	155 (89.6%)
Spore_print_color_.u			
0	5 (6.5%)	12 (12.5%)	17 (9.8%)
1	0 (0%)	1 (1.0%)	1 (0.6%)
Missing	72 (93.5%)	83 (86.5%)	155 (89.6%)
Spore_print_color_.n			
0	5 (6.5%)	10 (10.4%)	15 (8.7%)
1	0 (0%)	3 (3.1%)	3 (1.7%)
Missing	72 (93.5%)	83 (86.5%)	155 (89.6%)
Spore_print_color_.g			
0	4 (5.2%)	13 (13.5%)	17 (9.8%)
1	1 (1.3%)	0 (0%)	1 (0.6%)
Missing	72 (93.5%)	83 (86.5%)	155 (89.6%)
habitat_.d			
0	8 (10.4%)	14 (14.6%)	22 (12.7%)
1	69 (89.6%)	82 (85.4%)	151 (87.3%)
habitat_.m			
0	69 (89.6%)	87 (90.6%)	156 (90.2%)
1	8 (10.4%)	9 (9.4%)	17 (9.8%)
habitat_.g			
0	62 (80.5%)	73 (76.0%)	135 (78.0%)
1	15 (19.5%)	23 (24.0%)	38 (22.0%)
habitat_.h			
0	72 (93.5%)	88 (91.7%)	160 (92.5%)
1	5 (6.5%)	8 (8.3%)	13 (7.5%)
habitat_.l			
0	66 (85.7%)	89 (92.7%)	155 (89.6%)
1	11 (14.3%)	7 (7.3%)	18 (10.4%)
habitat_.p			
0	77 (100%)	94 (97.9%)	171 (98.8%)
1	0 (0%)	2 (2.1%)	2 (1.2%)

	e	p	Overall
habitat_w			
0	76 (98.7%)	96 (100%)	172 (99.4%)
1	1 (1.3%)	0 (0%)	1 (0.6%)
habitat_u			
0	76 (98.7%)	96 (100%)	172 (99.4%)
1	1 (1.3%)	0 (0%)	1 (0.6%)
ring_type_ring_type_g.1			
0	71 (92.2%)	90 (93.8%)	161 (93.1%)
1	2 (2.6%)	3 (3.1%)	5 (2.9%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_ring_type_p.1			
0	71 (92.2%)	90 (93.8%)	161 (93.1%)
1	2 (2.6%)	3 (3.1%)	5 (2.9%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_ring_type_e.1			
0	70 (90.9%)	88 (91.7%)	158 (91.3%)
1	3 (3.9%)	5 (5.2%)	8 (4.6%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_ring_type_l.1			
0	69 (89.6%)	91 (94.8%)	160 (92.5%)
1	4 (5.2%)	2 (2.1%)	6 (3.5%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_ring_type_f.1			
0	12 (15.6%)	17 (17.7%)	29 (16.8%)
1	61 (79.2%)	76 (79.2%)	137 (79.2%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_ring_type_m.1			
0	72 (93.5%)	93 (96.9%)	165 (95.4%)
1	1 (1.3%)	0 (0%)	1 (0.6%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_ring_type_r.1			
0	70 (90.9%)	91 (94.8%)	161 (93.1%)
1	3 (3.9%)	2 (2.1%)	5 (2.9%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)
ring_type_ring_type_z.1			
0	73 (94.8%)	87 (90.6%)	160 (92.5%)
1	0 (0%)	6 (6.3%)	6 (3.5%)
Missing	4 (5.2%)	3 (3.1%)	7 (4.0%)