STATISTICAL CONSULTING HW2

R26131125

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目錄

Variable Definition

Variable	DataType	Definition
family	character	String of the name of the family of mushroom species
name	character	String of the of the mushroom species
class	ordinal	poisonous=p, edibile=e
Cap-diameter	numerical	float number(s) in cm
cap-shape	factor	bell=b, conical=c, convex=x, flat=f, sunken=s, spherical=p, others=o
Cap-surface	factor	fibrous=i, grooves=g, scaly=y, smooth=s, shiny=h, leathery=l, silky=k, sticky=t, wrinkled=w, fleshy=e
cap-color	factor	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-or-bleed	logical	bruises-or-bleeding=t,no=f
gill-attachment	factor	adnate=a, adnexed=x, decurrent=d, free=e, sinuate=s, pores=p, none=f, unknown=?
gill-spacing	factor	close=c, distant=d, none=f
gill-color	factor	see cap-color + none=f
stem-height	numerical	float number(s) in cm
stem-width	numerical	float number(s) in mm

Variable	DataType	Definition
stem-root	factor	bulbous=b, swollen=s, club=c, cup=u, equal=e, rhizomorphs=z, rooted=r
stem-surface	factor	see cap-surface + none=f
stem-color	factor	see cap-color + none=f
veil-type	factor	partial=p, universal=u
veil-color	factor	see cap-color + none=f
has-ring	logical	ring=t, none=f
ring-type	factor	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	factor	see cap color
habitat	factor	grasses=g, leaves=l, meadows=m, paths=p, heaths=h, urban=u, waste=w, woods=d
season	factor	spring=s, summer=u, autumn=a, winter=w

```r
library(reticulate)
library(Hmisc)
data <- read.csv("C:/Users/user/Desktop/primary_data.csv", sep = ";")
data <- data %>% mutate(across(c(family, name), as.character))
data <- data %>% mutate(across(c(cap.shape, cap.color), as.factor))
data <- data %>%
  mutate(
    Cap.diameter_min = as.numeric(gsub("\\[|,.*|\\]", "", cap.diameter)),
    Cap.diameter_max = as.numeric(gsub("\\[|.* |\\]", "", cap.diameter)),
    stem.height_min = as.numeric(gsub("\\[|,.*|\\]", "", stem.height)),
    stem.height_max = as.numeric(gsub("\\[|.* |\\]", "", stem.height)),
    stem.width_min = as.numeric(gsub("\\[|,.*|\\]", "", stem.width)),
    stem.width_max = as.numeric(gsub("\\[|.* |\\]", "", stem.width))
  )

data <- data[, !(names(data) %in%
                   c("cap.diameter", "stem.height", "stem.width")
                 )]

data
```

```
          family                    name class cap.shape
```

1 Amanita Family Fly Agaric p [x, f] 2 Amanita Family Panther Cap p [p, x] 3 Amanita Family False Panther Cap p [x, f] 4 Amanita Family The Blusher e [x, f] 5 Amanita Family Death Cap p [x, f] 6 Amanita Family False Death Cap e [x] 7 Amanita Family Destroying Angel p [b] 8 Amanita Family Tawny Grisette e [c, x] 9 Lepiota Family Parasol Mushroom e [p, f] 10 Lepiota Family Shaggy Parasol e [x] 11 Lepiota Family Stinking Parasol p [b, f] 12 Tricholoma Family Saffron Parasol p [x] 13 Tricholoma Family The Deceiver e [f, s] 14 Tricholoma Family Amethyst Deceiver e [x] 15 Tricholoma Family Wood Blewit e [f, s] 16 Tricholoma Family Field Blewit e [x, f, s] 17 Tricholoma Family Clouded Agaric e [x, f, s] 18 Tricholoma Family Club-footed Funnel Cap p [x, f] 19 Tricholoma Family Common Funnel Cap e [s] 20 Tricholoma Family Aniseed Funnel Cap e [x] 21 Tricholoma Family Ivory Clitocybe p [x,

f, s] 22 Tricholoma Family Wood Woolly-foot p [f] 23 Tricholoma Family Russet Tough Shank p [f] 24 Tricholoma Family Clustered Tough Shank p [x, f] 25 Tricholoma Family Greasy Tough Shank e [x, f] 26 Tricholoma Family Spotted Tough Shank p [x, f] 27 Tricholoma Family Fairy Ring Champignon e [b] 28 Tricholoma Family Little Wheel Fungus p [x] 29 Tricholoma Family Horse-hair Fungus p [x] 30 Tricholoma Family Bonnet Bell Cap e [b, f] 31 Tricholoma Family Stump Bell Cap p [b] 32 Tricholoma Family Tufted Bell Cap p [x] 33 Tricholoma Family Milky Bell Cap e [c] 34 Tricholoma Family Small Bleeding Bell Cap e [c, x, f] 35 Tricholoma Family Lilac Bell Cap p [b, f, s] 36 Tricholoma Family Yellow-stemmed Bell Cap e [x] 37 Tricholoma Family Orange Bell Cap p [x] 38 Tricholoma Family Orange Moss Agaric p [x, f] 39 Tricholoma Family Umbrella Navel Cap p [x] 40 Tricholoma Family Rooting Shank p [x, f] 41 Tricholoma Family Porcelain Mushroom e [x] 42 Tricholoma Family Velvet Shank e [x, f] 43 Tricholoma Family Honey Fungus e [x, f] 44 Tricholoma Family Bulbous Honey Fungus e [x, f] 45 Tricholoma Family Soap-scented Tricholoma p [x] 46 Tricholoma Family Grey Tricholoma e [b, f] 47 Tricholoma Family Scaly Tricholoma e [x, f] 48 Tricholoma Family Yellow-brown Tricholoma e [f] 49 Tricholoma Family Sulphur Tricholoma p [x, f] 50 Tricholoma Family St George's Mushroom e [x, f] 51 Tricholoma Family Clustered Brown Cap e [p, x] 52 Tricholoma Family Changeable Melanoleuca e [f] 53 Tricholoma Family Plums and custard p [f] 54 Wax Gill Family Ivory Wax Cap e [x, f] 55 Wax Gill Family Yellow Wax cap p [x] 56 Wax Gill Family Orange-red Wax Cap p [x, f] 57 Wax Gill Family Blackening Wax Cap p [b, x] 58 Wax Gill Family Meadow Wax Cap e [x, f, s] 59 Wax Gill Family Scarlet Hood e [x] 60 Wax Gill Family Parrot Wax Cap p [b, f] 61 Wax Gill Family Herald of Winter e [x, f] 62 Russula Family Common Yellow Russula e [x, f, s] 63 Russula Family Yellow-gilled Russula e [x] 64 Russula Family Yellow Swamp Russula e [x] 65 Russula Family Geranium-scented Russula p [x, f, s] 66 Russula Family Stinking Russula p [x] 67 Russula Family Fragile Russula p [f, s] 68 Russula Family Birch Russula p [x, f] 69 Russula Family Bare-toothed Russula e [x, f] 70 Russula Family The Charcoal Burner e [x] 71 Russula Family Blackish Purple Russula e [x, f] 72 Russula Family Blackening Russula e [x, f, s] 73 Russula Family The Sickener p [x, f] 74 Russula Family Beechwood Sickener p [x] 75 Russula Family Crab-scented Russula e [x, f, s] 76 Russula Family Grass-green Russula p [f] 77 Russula Family Peppery Milk Cap e [s] 78 Russula Family Fleecy Milk Cap p [x, f, s] 79 Russula Family Oak Milk Cap p [x, s] 80 Russula Family Slimy Milk Cap p [s] 81 Russula Family Ugly Milk Cap p [x, f, s] 82 Russula Family Rufous Milk Cap p [f, s] 83 Russula Family Sweet Milk Cap p [s] 84 Russula Family Small Brown Milk Cap p [f, s] 85 Russula Family Coconut-scented Milk Cap e [f, s] 86 Russula Family Woolly Milk Cap p [s] 87 Russula Family Saffron Milk Cap e [s] 88 Russula Family Spruce Milk Cap p [s] 89 Pluteus Family Fawn Pluteus e [x] 90 Pluteus Family Veined Pluteus e [x] 91 Entoloma Family Silky Nolanea p [x, f] 92 Entoloma Family Striated Nolanea p [b, f] 93 Entoloma Family White Leptonia p [x, s] 94 Entoloma Family Blue Leptonia p [x, f] 95 Entoloma Family Livid Entoloma p [x] 96 Entoloma Family The Miller e [x, s] 97 Entoloma Family Apricot Fungus p [x, f] 98 Bolbitius Family Egg Yolk Fungus p [c, f] 99 Bolbitius Family Brown Bell Cap p [b] 100 Bolbitius Family Spring Agaric e [x] 101 Stropharia Family Shaggy Pholiota p [x] 102 Stropharia Family Charcoal Pholiota p [x] 103 Stropharia Family Brown Stew Fungus e [x] 104 Stropharia Family Sulphur Tuft p [b, x] 105 Stropharia Family Brick Caps p [x] 106 Stropharia Family Verdigris Toadstool p [b, x] 107 Stropharia Family Dung Roundhead p [p] 108 Stropharia Family Magic Mushroom p [b] 109 Cortinarius Family Red-banded Cortinarius p [x] 110 Cortinarius Family Purple Cortinarius p [x] 111 Cortinarius Family Blood-red Cortinarius p [x] 112 Cortinarius Family Red-staining Inocybe p [c] 113 Cortinarius Family Straw-coloured Inocybe p [c] 114 Cortinarius Family Common White Inocybe p [c, f] 115 Cortinarius Family Poison Pie p [x] 116 Cortinarius Family Dark-centred Hebeloma p [x] 117 Cortinarius Family Rusty Wood Rotter p [b, x, f] 118 Cortinarius Family Spectacular Gymnopile p [x] 119 Cortinarius Family Moss Pixy Cap p [b] 120 Mushroom Family Field Mushroom e [p, x, f] 121 Mushroom Family Cultivated Mushroom e [f, x] 122 Mushroom Family Horse Mushroom e [p, x, f] 123 Mushroom Family Yellow-staining Mushroom p [x] 124 Mushroom Family Bleeding Brown Mushroom e [p, x] 125 Ink Cap Family Shaggy Ink Cap e [p, f] 126 Ink Cap Family Common Ink Cap p [p, b] 127 Ink Cap Family Magpie Ink Cap p [p, b] 128 Ink Cap Family Rusty Carpet Ink Cap p [b] 129 Ink Cap Family Glistening Ink Cap e [b] 130 Ink Cap Family Fairies' Bonnets e [p, b] 131 Ink Cap Family Fairy Parasol e [x, f] 132 Ink Cap Family Common Crumble Cap e [x, f] 133 Ink Cap Family Two-toned Crumble Cap e [x, f] 134 Ink Cap Family Hay Cap p [x] 135 Ink Cap Family Petticoat Fungus p [b] 136 Ink Cap Family Egg-shell Toadstool p [b] 137 Ink Cap Family Weeping Widow p [x] 138 Bolete Family Cep e [x, p] 139 Bolete Family Bay Bolete e [x]

140 Bolete Family Red-cracked Bolete e [x] 141 Bolete Family Yellow-cracked Bolete e [x] 142 Bolete Family Dotted-stemmed Bolete p [x] 143 Bolete Family Lurid Bolete p [x] 144 Bolete Family Parasitic Bolete e [x] 145 Bolete Family Bitter Bolete p [x, p] 146 Bolete Family Peppery Bolete e [x] 147 Bolete Family Orange Birch Bolete e [p, x] 148 Bolete Family Brown Birch Bolete e [x] 149 Bolete Family Larch Bolete e [x] 150 Bolete Family Slippery Jack e [x] 151 Bolete Family Shallow-pored Bolete e [x] 152 Paxillus Family Brown Roll-rim p [x, f, s] 153 Paxillus Family Velvet Roll-rim p [f, s] 154 Paxillus Family False Chanterelle p [s] 155 Chanterelle Family Chanterelle e [x, f, s] 156 Chanterelle Family Tubed Chanterelle e [s] 157 Chanterelle Family Horn of Plenty e [s, o] 158 Oyster Mushroom Family Oyster Mushroom e [f] 159 Oyster Mushroom Family Branched Oyster Mushroom e [s, o] 160 Tricholoma Family Olive-brown Panellus p [o] 161 Crepidotus Family Soft Slipper Toadstool p [o] 162 Hydnum Family Hedgehog Fungus e [f] 163 Ear-Pick Family Ear-pick Fungus p [x, o] 164 Bracket Fungi Hairy Stereum p [o] 165 Bracket Fungi Silver Leaf Fungus p [o] 166 Bracket Fungi Dryad's Saddle e [o] 167 Bracket Fungi Fuzzy Polypore p [f, x] 168 Bracket Fungi Brown Goblet p [f, s] 169 Saddle-Cup Family White Saddle p [o] 170 Bracket Fungi Elfin's Saddle p [o] 171 Bracket Fungi Turban Fungus p [o] 172 Morel Family Common Morel e [p, c, o] 173 Jelly Discs Family Jelly Babies p [x, f, s] Cap.surface cap.color does.bruise.or.bleed gill.attachment 1 [g, h] [e, o] [f] [e] 2 [g] [n] [f] [e] 3 [g, n] [f] [e] 4 [n] [t]

5 [h] [r] [f]

6 [w, y] [f] [e] 7 [t] [w] [f] [e] 8 [h, t] [n] [f] [e] 9 [y] [w, n] [f]

10 [e, y] [n] [t] [e] 11 [y] [e, n, p, w] [f] [e] 12 [y] [y, n] [f] [a] 13 [y] [n] [f] [a, d] 14 [b, u] [f]

15 [l, u, g, n] [f] [s] 16 [g, n] [f] [s] 17 [e] [g, n] [f] [a, d] 18 [g, n] [f] [d] 19 [n] [f] [d] 20 [l, r, w] [f] [a, d]

21 [s] [w, g] [f] [d] 22 [l] [n, e, y] [f] [x] 23 [d] [n, b] [f] [x] 24 [n, w] [f] [x] 25 [s] [n, b] [f] [x] 26 [w, n] [f] [x] 27 [g] [n ,w] [f] [x] 28 [g] [w] [f] [a] 29 [g] [n, p, e] [f] [a] 30 [g] [n, g] [f] [a] 31 [g, n] [f] [a] 32 [g] [e, n] [f] [a] 33 [g] [n] [f] [a] 34 [g] [n, e] [t] [a] 35 [w] [u] [f] [a] 36 [g, s, t] [n, y] [f] [a, d] 37 [g] [o, y] [f] 38 [o] [f] [d] 39 [g] [n, y] [f] [d] 40 [h, t, w] [n, e] [f] [x] 41 [h, t] [g, n] [f] [a] 42 [h, t] [o, n] [f] [a] 43 [s] [e, n, y] [f] [a, d] 44 [y] [e, n, y] [f]

45 [s] [g, r, n] [t] [s] 46 [h] [g, k] [f] [s] 47 [y] [g, n] [f] [s] 48 [g, s, h, t] [n, o] [f] [s] 49 [y] [f] [s] 50 [d, s] [w] [f] [s] 51 [g, n] [f] [a] 52 [s] [n] [f] [s] 53 [y] [e, u, y] [f] [s] 54 [s] [w] [f] [d] 55 [h, s, t] [o, y] [f] [a] 56 [s, y] [o] [f] [a, d] 57 [s, i] [e, o, k] [f] [e] 58 [s, d] [o, b] [f] [d] 59 [h, s, d] [o, p, e] [f] [a] 60 [t, w, d] [r, p, y] [f] [a] 61 [t] [n] [f] [d] 62 [y] [f] [a] 63 [y] [f] [a] 64 [h, t] [y] [t] [x] 65 [t] [n, y] [f] [x] 66 [t] [n] [f] [a] 67 [u] [f] [a] 68 [b, p, e, y] [f] [x] 69 [n, p, e] [f] [x] 70 [e] [l, y] [f] [x] 71 [s] [u, k] [f] [a] 72 [s, t] [k, n, w] [f] [a] 73 [h, t] [e] [f] [x] 74 [e, p, w] [f]

75 [s] [n, r, u, y] [f] [x] 76 [r, y] [f] [x] 77 [w] [t] [d] 78 [k] [w] [t] [d] 79 [d] [n, e] [t] [d] 80 [h, t] [g, r, n] [t] [d] 81 [t] [g, r, k, n] [t] [d] 82 [d] [n, e] [t] [d] 83 [e, n] [t] [d] 84 [w] [n, o] [t] [d] 85 [d] [g, u, n, p] [t] [d] 86 [t] [p] [t] [d] 87 [t] [w, p, o] [t] [d] 88 [o, y, r] [t] [d] 89 [s] [n] [f] [e] 90 [y] [n] [f] [e] 91 [k] [n, w] [f] [s] 92 [t] [n] [f] [x] 93 [d] [w] [f] [a, d] 94 [i] [l, k] [f] [a] 95 [s, h] [w, y, g, n] [f] [s] 96 [l] [w] [f] [d] 97 [w] [p] [f] [s] 98 [h, t] [y, n] [f]

99 [g] [n, o, y, w] [f]

100 [n, w] [f] [x] 101 [y] [y, n] [f] [a] 102 [h, t] [n, o] [f] [a] 103 [h] [n] [f] [x] 104 [s] [y] [f]

105 [e] [e] [f] [a] 106 [h, t, y] [r, l] [f] [s] 107 [t] [n] [f] [a] 108 [t] [n, y] [f]

109 [i, e] [n] [f] [a] 110 [g, u, n] [t] [x] 111 [i] [e] [f]

112 [k, e] [w, y] [t] [x] 113 [i] [y] [f]

114 [w, u] [f] [a] 115 [s, t] [n] [f] [s] 116 [t] [n] [f] [s] 117 [d, k] [n] [f] [a, d] 118 [d, e, y, i] [y, o] [f] [a]

119 [h] [n] [f] [a] 120 [s, y] [w] [f] [e] 121 [i, y] [n] [f] [e] 122 [s] [w, n] [t] [e] 123 [y] [w] [t]

124 [i, y] [n] [t] [e] 125 [y, s] [w] [f] [e] 126 [s, y] [g, n] [f]

127 [y] [w, n] [f]

128 [y] [n] [f]

129 [y] [n] [f]

130 [g] [w, g] [f]

131 [w] [n, g] [f]

132 [n, y, w] [f] [x] 133 [h] [n] [f]

134 [n] [f]

135 [g, n, k] [f] [a] 136 [t, h] [n] [f]

137 [i] [n, y] [f] [a] 138 [w, t] [n] [f] [p] 139 [h, t] [n] [t] [p] 140 [d] [n, y, e] [t] [p] 141 [d] [n, y] [t] [p]

142 [e, k, s, h] [n] [t] [p] 143 [e] [n, y] [t] [p] 144 [d, k] [n] [f] [p] 145 [n] [f] [p] 146 [s, t] [n, o] [f] [p] 147 [d] [n, o, e] [f] [p] 148 [g, n] [t] [p] 149 [t, h] [y] [f] [p] 150 [t, h, s] [n] [t] [p] 151 [h, t] [n] [f] [p] 152 [t] [r, n] [t] [d] 153 [d, k, s] [n] [f] [d] 154 [d] [o, y] [f] [d] 155 [w] [y] [f] [f] 156 [n, y] [f] [f] 157 [l] [n] [f] [f] 158 [l, g, b, w] [f] [d] 159 [n] [f]

160 [e, t, k] [y, o, r, n] [f]

161 [s, t] [n, w] [f]

162 [e] [b] [f]

163 [k] [n] [f]

164 [s] [y, o, g, n, r] [f] [f] 165 [l] [g] [f] [f] 166 [y] [y] [f] [p] 167 [g, s, d] [o, e, n, k] [f] [p] 168 [k] [n, y] [f] [p] 169 [w] [f] [f] 170 [g, k] [f] [f] 171 [n, e] [f] [f] 172 [n, g] [f] [f] 173 [s] [y] [f] [f] gill.spacing gill.color stem.root stem.surface stem.color veil.type 1 [w] [s] [y] [w] [u] 2 [w] [y] [w] [u] 3 [w] [w] [u] 4 [w] [b] [w] [u] 5 [c] [w] [w] [u] 6 [w] [b] [w, y] [u] 7 [c] [w] [y] [w] [u] 8 [w] [s] [w, n] [u] 9 [w] [s] [n]

10 [w] [w]

11 [c] [n, w] [k] [w]

12 [w] [y] [y, n]

13 [d] [p] [i] [n]

14 [d] [u, w] [w]

15 [c] [b, u] [b, u]

16 [c] [g, p] [b] [u]

17 [c] [w] [s] [w]

18 [c] [w, y] [b] [n]

19 [c] [w] [s] [w]

20 [r] [l, r, w]

21 [c] [w] [w]

22 [d] [n, e, y] [n, y]

23 [c] [w, y] [b] [i, s] [n]

24 [c] [p] [n, p]

25 [c] [w] [s] [n]

26 [c] [w] [r] [i] [w]

27 [d] [w] [y]

28 [d] [w] [n, e]

29 [n, p] [s, h] [k]

30 [d] [g] [s] [n, g]

31 [g] [s] [g, n]

32 [w, p] [n, w]

33 [g, w] [g]

34 [p, w] [n]

35 [c] [g, u] [s] [u]

36 [w] [t] [y]

37 [y] [w, y]

38 [o] [o, y]

39 [d] [n] [s] [n]

40 [w] [r] [g] [n]

41 [d] [n] [t] [g, w]

42 [d] [w, y] [k, s] [o, n]

43 [d] [w] [i] [n]

44 [w] [b] [n]

45 [d] [w, r] [r] [i, y] [w, n]

46 [d] [g, w] [s] [g]

47 [g, w, y] [w]

48 [n, y] [i, t] [n, o]

49 [d] [y] [i] [y]

50 [c] [w] [w]

51 [w] [g, w]

52 [c] [w] [b] [i] [n, w]
53 [c] [y] [y] [e, u, y]
54 [d] [w] [w]
55 [c] [y] [g] [o]
56 [o, y] [o, y]
57 [y, g, k] [y, o, k]
58 [d] [o, b] [w]
59 [c] [o, e] [o, e]
60 [r, y] [t] [r, y]
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83 [c] [b, p, w] [e, n]
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86 [c] [p] [p]
87 [c] [o] [w]
88 [o] [w]
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91 [p] [n]
92 [c] [p] [i] [n, g]
93 [d] [p, w] [h] [w]
94 [p, w] [w]
95 [p, y] [i] [n]
96 [p, w] [w]
97 [c] [p] [p]
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99 [c] [n] [n]
100 [c] [w, n] [b] [n, w]
101 [c] [y, n] [y] [y, n]
102 [c] [n] [y] [n, o]
103 [c] [w, n] [y, s] [n]
104 [c] [y, r, k] [y] [u] 105 [w, y, g, n] [y, e, n]
106 [c] [g, n, u] [y] [w, l, n]

107 [c] [g, n] [t] [y]
108 [c] [g, k] [n]
109 [n] [s] [n]
110 [n, u] [s] [g, u, n]
111 [e] [e]
112 [c] [p, y, r] [w]
113 [c] [n, r] [w]
114 [c] [w, n] [i] [w, u]
115 [g, n] [y] [n]
116 [c] [n, p] [w]
117 [c] [y, n] [i] [y, n]
118 [o, y] [r] [o, y]
119 [n] [t] [n]
120 [c] [p, n, k] [w]
121 [c] [p, n] [w]
122 [g, n] [s] [w]
123 [w, g, p, n] [s] [w]
124 [p] [y] [w]
125 [c] [k, p, w] [s] [w]
126 [w, g, k] [s] [w]
127 [k, p] [w]
128 [c] [w, g, u] [s] [s] [w]
129 [c] [k, n] [w]
130 [g] [w]
131 [d] [g, k] [w]
132 [c] [w, u, g, n] [w]
133 [c] [k, n] [s] [w]
134 [k, n] [s] [n]
135 [k, n] [g, n]
136 [k, n] [w]
137 [c] [k, n] [i] [n]
138 [w, y] [n]
139 [y] [n]
140 [y, r] [e, y]
141 [y] [y]
142 [y, o, e] [c] [y]
143 [o, e] [u, e]
144 [y, e, n] [n, y]
145 [w, p] [c] [n]
146 [n] [e, n]
147 [w, n] [s] [y] [w]
148 [g] [y] [w]
149 [y] [y]
150 [y, n] [n]
151 [d] [y] [s] [n]
152 [c] [n] [n]
153 [c] [y] [k] [k, n]
154 [c] [o, y] [o, y]
155 [f] [f] [y]
156 [f] [f] [o, y]
157 [f] [f] [n]
158 [c] [w, y] [w]
159 [w] [n]
160 [c] [o, y] [y, n]

161 [c] [w] [f] [f] [f]
162 [c] [b] [w]
163 [n] [n]
164 [f] [f] [f] [f] [f]
165 [f] [f] [f] [f] [f]
166 [y] [k] [k, n]
167 [y] [n]
168 [n] [k] [n]
169 [f] [f] [g] [w]
170 [f] [f] [g] [g, n]
171 [f] [f] [g] [n]
172 [f] [f] [n]
173 [f] [f] [y]

veil.color has.ring ring.type Spore.print.color habitat season 1 [w] [t] [g, p] [d] [u, a, w] 2 [w] [t] [p] [d] [u, a] 3 [w] [t] [e, g] [d] [u, a] 4 [w] [t] [g] [d] [u, a] 5 [w] [t] [g, p] [d] [u, a] 6 [y, w] [t] [g] [d] [u, a] 7 [w] [t] [l, e] [d] [u, a] 8 [w] [f] [f] [d] [u, a] 9 [t] [m] [m, d] [u, a] 10 [t] [g, d] [u, a] 11 [t] [e] [m, d] [u, a] 12 [t] [r] [g, h, d] [u, a] 13 [f] [f] [l, h] [u, a] 14 [f] [f] [d] [u, a, w] 15 [f] [f] [l, d] [a, w] 16 [f] [f] [g, d] [a, w] 17 [f] [f] [l, d] [a, w] 18 [f] [f] [l, d] [a, w] 19 [f] [f] [l, d, h] [u, a] 20 [f] [f] [l, d] [u, a] 21 [f] [f] [g] [u, a] 22 [f] [f] [l, d] [u, a] 23 [f] [f] [l, d] [u, a] 24 [f] [f] [l, d] [u, a] 25 [f] [f] [l] [a, w] 26 [f] [f] [d, h] [u, a] 27 [f] [f] [g] [u, a] 28 [f] [f] [l, d] [u, a] 29 [f] [f] [d] [s, u, a, w] 30 [f] [f] [d] [s, u, a, w] 31 [f] [f] [d] [u, a] 32 [f] [f] [d] [u, a] 33 [f] [f] [l, d] [u, a] 34 [f] [f] [d, h] [u, a] 35 [f] [f] [l, d] [u, a] 36 [f] [g, d, h] [u, a] 37 [f] [f] [d] [u, a] 38 [f] [f] [w] [g] [u, a] 39 [f] [f] [d, h] [u, a] 40 [f] [f] [d] [u, a] 41 [t] [l] [d] [u, a, w] 42 [f] [f] [d] [s, a, w] 43 [t] [w] [d] [u, a, w] 44 [w] [t] [e] [d] [a, w] 45 [f] [f] [d] [u, a] 46 [f] [f] [d] [u, a] 47 [f] [f] [d] [u, a] 48 [f] [f] [d] [a] 49 [f] [f] [d] [a] 50 [f] [f] [m, d] [s, u] 51 [f] [f] [g, d] [u, a] 52 [f] [f] [g, l, m, d] [u, a] 53 [f] [f] [d] [a] 54 [f] [f] [g, m] [a, w] 55 [f] [f] [g] [u, a] 56 [f] [f] [m, h] [a] 57 [f] [f] [g, m] [u, a] 58 [f] [f] [g, m, d] [a, w] 59 [f] [f] [g, m] [u, a, w] 60 [f] [f] [g, m, d] [u, a] 61 [f] [f] [d] [a, w] 62 [f] [f] [d] [u, a, w] 63 [f] [f] [d] [u, a] 64 [f] [f] [d] [u, a] 65 [f] [f] [d] [a] 66 [f] [f] [d] [u, a] 67 [f] [f] [d] [u, a] 68 [f] [f] [d] [u, a] 69 [f] [f] [d] [u, a] 70 [f] [f] [d] [u, a] 71 [f] [f] [d] [u, a] 72 [f] [f] [w] [d] [u, a, w] 73 [f] [f] [d] [u, a] 74 [f] [f] [d] [a] 75 [f] [f] [d] [u, a, w] 76 [f] [f] [d] [u, a] 77 [f] [f] [d] [u, a] 78 [f] [f] [d] [u, a, w] 79 [f] [f] [d] [a] 80 [f] [f] [d] [u, a] 81 [f] [f] [g, l, d] [u, a] 82 [f] [f] [d] [u, a] 83 [f] [f] [d] [u, a] 84 [f] [f] [d] [u, a] 85 [f] [f] [d] [u, a] 86 [t] [f] [d] [u, a] 87 [f] [f] [d] [u, a] 88 [t] [f] [d] [u, a] 89 [f] [f] [p] [d] [s, u, a, w] 90 [f] [f] [d] [u, a] 91 [f] [f] [p] [g] [u, a] 92 [f] [f] [g, m, d] [u, a] 93 [f] [f] [g] [u, a] 94 [f] [f] [p] [g] [u, a] 95 [f] [f] [d] [u, a] 96 [f] [f] [g, d] [u, a] 97 [f] [f] [d] [a, w] 98 [f] [f] [g] [u, a] 99 [f] [f] [g, m, d] [s, u, a] 100 [w] [t] [g, d] [s, u, a] 101 [t] [d] [u, a] 102 [t] [z] [d] [a, w] 103 [t] [r] [d] [s, u, a, w] 104 [w] [t] [z] [k, r] [d] [s, u, a, w] 105 [w] [t] [z] [d] [a] 106 [t] [e] [k, u] [g, m, d] [u, a] 107 [t] [e] [m] [s, u, a] 108 [t] [f] [g, m] [u, a] 109 [e, n] [f] [f] [d, h] [a] 110 [u] [f] [f] [d] [a] 111 [f] [f] [n] [d] [a] 112 [f] [f] [g, d] [s, u, a] 113 [f] [f] [d] [u, a] 114 [f] [f] [p, d] [u, a] 115 [f] [f] [d] [a, w] 116 [n] [t] [z] [d] [u, a] 117 [t] [d] [u, a] 118 [t] [r] [n] [d] [u, a, w] 119 [f] [f] [g, h, d] [s, u, a] 120 [w] [t] [e] [g, m] [u, a] 121 [t] [l, r] [w] [u, a] 122 [t] [l, r] [m] [u, a] 123 [t] [l] [g, d] [u, a] 124 [t] [l, p] [l, d] [a] 125 [t] [e] [g, u, d] [s, u, a, w] 126 [t] [z] [g, d] [s, u, a, w] 127 [f] [f] [d] [a] 128 [f] [f] [d] [u, a] 129 [f] [f] [d] [s, u, a, w] 130 [f] [f] [d] [s, u, a, w] 131 [f] [f] [g, d] [s, u, a, w] 132 [f] [f] [d] [u, a] 133 [w] [f] [f] [k] [d] [u, a] 134 [f] [f] [k] [g] [u, a] 135 [w] [f] [f] [k] [g] [u, a] 136 [t] [k] [g] [u, a, w] 137 [k] [t] [z] [k] [g, d] [u, a] 138 [f] [f] [d] [u, a] 139 [f] [f] [d] [u, a] 140 [f] [f] [d] [u, a] 141 [f] [f] [d] [u, a] 142 [f] [f] [d] [u, a] 143 [f] [f] [d] [u, a] 144 [f] [f] [d] [a] 145 [f] [f] [p, w] [d] [u, a] 146 [f] [f] [d] [u, a] 147 [f] [f] [d] [u, a] 148 [f] [f] [d] [u, a] 149 [y] [t] [d] [u, a] 150 [w] [t] [p] [d] [u, a] 151 [f] [f] [g, h, d] [u, a] 152 [f] [f] [h, d] [u, a] 153 [f] [f] [d] [u, a] 154 [f] [f] [h, d] [u, a] 155 [f] [f] [d] [u, a] 156 [f] [f] [d] [a] 157 [f] [f] [g] [l, d] [u, a, w] 158 [f] [f] [d] [a, w] 159 [f] [f] [d] [u, a] 160 [f] [f] [d] [a, w] 161 [f] [f] [n] [d] [u, a] 162 [t] [f] [d] [a] 163 [f] [f] [d] [s, u, a, w] 164 [t] [f] [d] [s, u, a, w] 165 [f] [f] [d] [s, u, a, w] 166 [f] [f] [d] [s, u] 167 [f] [f] [d] [a, w] 168 [t] [f] [d] [u] 169 [t] [f] [p, d] [u, a] 170 [f] [f] [d] [u, a] 171 [f] [f] [d] [s, u] 172 [f] [f] [l, d] [s] 173 [f] [f] [d] [u, a] Cap.diameter_min Cap.diameter_max stem.height_min stem.height_max 1 10.0 20.0 15 20 2 5.0 10.0 6 10 3 10.0 15.0 10 12 4 5.0 15.0 7 15 5 5.0 12.0 10 12 6 4.0 9.0 5 7 7 5.0 10.0 10 15 8 4.0 8.0 10 15 9 10.0 25.0 15 35 10 12.0 18.0 8 12 11 2.0 5.0 3 6 12 2.0 5.0 4 7 13 1.0 4.0 3 10 14 1.0 4.0 4 8 15 5.0 15.0 5 10 16 5.0 12.0 4 10 17 8.0 20.0 5 12 18 4.0 8.0 4 7 19 4.0 8.0 3 7 20 3.0 6.0 4 8 21 2.0 4.0 2 4 22 3.0 6.0 4 8 23 2.0 5.0 3 6 24 2.0 5.0 6 10 25 4.0 8.0 5 9 26 6.0 12.0 8 12 27 2.0 5.0 3 6 28 0.7 1.3 2 4 29 0.5 1.0 3 5 30 2.0 6.0 3 8 31 1.0 3.0 4 6

32 2.0 3.0 4 10 33 1.0 2.0 4 6 34 0.5 1.5 4 7 35 2.0 5.0 3 8 36 1.0 2.0 4 8 37 0.4 1.0 3 4 38 0.4 1.0 3 6 39 1.0 2.0 1 3 40 4.0 10.0 8 20 41 4.0 8.0 4 8 42 2.0 7.0 3 10 43 5.0 15.0 6 12 44 5.0 15.0 4 10 45 3.0 10.0 3 8 46 4.0 8.0 3 7 47 3.0 7.0 3 6 48 5.0 10.0 7 11 49 3.0 8.0 3 8 50 5.0 12.0 4 10 51 6.0 10.0 5 10 52 4.0 10.0 4 8 53 4.0 12.0 4 10 54 2.0 5.0 2 5 55 3.0 6.0 5 7 56 1.0 4.0 2 4 57 4.0 7.0 4 10 58 3.0 10.0 4 8 59 2.0 5.0 3 6 60 2.0 4.0 4 6 61 3.0 5.0 5 7 62 4.0 10.0 4 8 63 2.0 6.0 2 6 64 4.0 10.0 5 10 65 4.0 10.0 3 8 66 6.0 15.0 6 15 67 2.0 6.0 3 6 68 2.0 6.0 3 7 69 5.0 10.0 4 10 70 5.0 15.0 5 10 71 4.0 12.0 3 6 72 8.0 25.0 4 10 73 5.0 10.0 4 8 74 3.0 7.0 2 5 75 7.0 15.0 4 10 76 5.0 10.0 5 8 77 8.0 15.0 4 8 78 10.0 25.0 4 10 79 4.0 9.0 4 10 80 5.0 10.0 4 5 81 7.0 20.0 4 6 82 4.0 10.0 4 8 83 3.0 8.0 4 8 84 2.0 4.0 2 5 85 2.0 5.0 3 6 86 6.0 12.0 6 10 87 5.0 15.0 4 8 88 5.0 12.0 3 7 89 6.0 12.0 4 10 90 4.0 9.0 3 8 91 2.0 5.0 3 5 92 3.0 5.0 4 8 93 2.0 4.0 2 5 94 1.0 3.0 2 6 95 6.0 18.0 5 10 96 4.0 10.0 3 4 97 5.0 10.0 3 6 98 1.0 3.0 5 10 99 1.0 3.0 4 8 100 3.0 6.0 7 9 101 4.0 12.0 6 15 102 2.0 6.0 3 6 103 3.0 8.0 3 8 104 2.0 6.0 5 12 105 4.0 8.0 6 10 106 2.0 6.0 4 8 107 1.0 3.0 4 10 108 0.5 1.5 2 5 109 6.0 12.0 6 15 110 5.0 12.0 6 12 111 2.0 5.0 3 6 112 3.0 8.0 3 10 113 3.0 7.0 5 8 114 1.0 4.0 2 5 115 4.0 10.0 4 7 116 2.0 5.0 4 7 117 4.0 8.0 4 7 118 6.0 15.0 6 18 119 1.0 2.0 3 6 120 3.0 10.0 3 7 121 3.0 10.0 3 6 122 5.0 20.0 5 15 123 5.0 10.0 6 10 124 8.0 12.0 8 10 125 5.0 15.0 8 30 126 4.0 8.0 5 15 127 6.0 10.0 10 20 128 2.0 5.0 4 8 129 2.0 4.0 5 8 130 0.5 1.5 2 4 131 1.0 2.0 4 6 132 3.0 6.0 5 8 133 2.0 5.0 4 8 134 1.0 2.0 4 6 135 2.0 4.0 6 12 136 2.0 6.0 5 15 137 5.0 10.0 6 10 138 8.0 30.0 8 25 139 7.0 15.0 5 12 140 5.0 10.0 4 8 141 3.0 10.0 4 10 142 8.0 20.0 6 12 143 8.0 14.0 5 12 144 2.0 5.0 3 6 145 5.0 14.0 6 14 146 3.0 6.0 3 8 147 12.0 25.0 12 20 148 5.0 10.0 8 15 149 4.0 12.0 5 10 150 6.0 12.0 5 10 151 4.0 12.0 4 10 152 7.0 15.0 4 8 153 8.0 25.0 4 8 154 3.0 8.0 2 5 155 2.0 10.0 2 8 156 2.0 5.0 5 8 157 2.0 8.0 4 10 158 5.0 18.0 2 3 159 5.0 12.0 2 7 160 3.0 12.0 1 2 161 2.0 7.0 0 0 162 6.0 14.0 4 6 163 1.0 2.0 2 6 164 2.0 6.0 0 0 165 2.0 4.0 0 0 166 50.0 50.0 3 10 167 8.0 30.0 3 8 168 3.0 7.0 2 5 169 2.0 6.0 4 7 170 2.0 4.0 2 5 171 5.0 15.0 2 5 172 3.0 8.0 3 8 173 1.0 1.5 2 5 stem.width_min stem.width_max 1 15.0 20 2 10.0 20 3 10.0 20 4 10.0 25 5 10.0 20 6 10.0 15 7 10.0 15 8 10.0 15 9 15.0 25 10 15.0 20 11 3.0 4 12 3.0 4 13 2.0 5 14 3.0 6 15 15.0 25 16 15.0 25 17 20.0 30 18 10.0 10 19 6.0 10 20 5.0 10 21 5.0 10 22 4.0 6 23 2.0 4 24 3.0 5 25 10.0 10 26 8.0 15 27 2.0 4 28 1.0 2 29 1.0 1 30 2.0 5 31 2.0 2 32 2.0 3 33 1.0 2 34 1.0 1 35 3.0 8 36 1.0 3 37 0.5 1 38 1.0 1 39 2.0 3 40 5.0 10 41 3.0 7 42 3.0 8 43 10.0 20 44 20.0 30 45 10.0 20 46 10.0 10 47 5.0 10 48 10.0 15 49 8.0 18 50 20.0 40 51 10.0 18 52 10.0 10 53 10.0 25 54 4.0 8 55 5.0 10 56 4.0 7 57 5.0 10 58 10.0 15 59 5.0 8 60 4.0 8 61 5.0 10 62 10.0 20 63 6.0 12 64 10.0 20 65 10.0 20 66 20.0 40 67 5.0 10 68 5.0 8 69 10.0 25 70 10.0 30 71 10.0 20 72 15.0 30 73 15.0 20 74 10.0 15 75 15.0 30 76 8.0 15 77 20.0 30 78 20.0 40 79 6.0 12 80 10.0 15 81 20.0 30 82 6.0 12 83 4.0 8 84 4.0 8 85 4.0 8 86 10.0 20 87 15.0 20 88 10.0 15 89 8.0 12 90 8.0 12 91 2.0 4 92 3.0 6 93 2.0 3 94 2.0 3 95 15.0 20 96 6.0 12 97 8.0 12 98 2.0 4 99 2.0 4 100 6.0 12 101 7.0 15 102 4.0 8 103 4.0 8 104 5.0 10 105 8.0 12 106 5.0 10 107 2.0 3 108 2.0 3 109 10.0 20 110 15.0 25 111 3.0 8 112 10.0 15 113 5.0 10 114 3.0 4 115 5.0 10 116 5.0 12 117 5.0 8 118 15.0 30 119 1.0 2 120 10.0 15 121 10.0 15 122 15.0 20 123 10.0 18 124 15.0 20 125 10.0 15 126 10.0 15 127 15.0 20 128 4.0 5 129 2.0 4 130 1.0 2 131 2.0 3 132 3.0 5 133 5.0 8 134 2.0 3 135 2.0 3 136 4.0 8 137 6.0 10 138 40.0 100 139 20.0 25 140 10.0 15 141 10.0 20 142 20.0 40 143 15.0 40 144 8.0 12 145 20.0 40 146 8.0 15 147 30.0 40 148 20.0 30 149 12.0 18 150 15.0 20 151 10.0 15 152 10.0 20 153 20.0 50 154 5.0 8 155 8.0 20 156 5.0 10 157 20.0 80 158 10.0 20 159 15.0 30 160 10.0 20 161 0.0 0 162 15.0 25 163 1.0 2 164 0.0 0 165 0.0 0 166 10.0 60 167 20.0 60 168 3.0 8 169 20.0 40 170 10.0 20 171 20.0 30 172 15.0 25 173 4.0 7

```
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
173	0	14	0.976	4.043	3.5	3.038	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	50.0
Frequency	2	4	1	17	39	24	26	29	11	4	9	4	2	1
Proportion	0.012	0.023	0.006	0.098	0.225	0.139	0.150	0.168	0.064	0.023	0.052	0.023	0.012	0.006

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
173	0	20	0.991	9.435	8.5	6.548	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	0.040	0.035	0.069	0.104	0.092	0.040	0.092	0.017	0.162	0.104	0.017

Value	15.0	18.0	20.0	25.0	30.0	50.0
Frequency	15	3	5	5	2	1
Proportion	0.087	0.017	0.029	0.029	0.012	0.006

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
173	0	12	0.957	4.306	4	2.233	2.0	2.0	3.0	4.0	5.0	6.8	8.0

Value	0	1	2	3	4	5	6	7	8	10	12	15
Frequency	3	2	21	38	52	24	15	3	7	5	1	2
Proportion	0.017	0.012	0.121	0.220	0.301	0.139	0.087	0.017	0.040	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
173	0	19	0.977	8.873	8	4.37	4.0	5.0	6.0	8.0	10.0	14.8	15.0

Value	0	2	3	4	5	6	7	8	9	10	11	12	14	15
Frequency	3	1	2	6	14	25	16	37	2	35	1	12	1	10
Proportion	0.017	0.006	0.012	0.035	0.081	0.145	0.092	0.214	0.012	0.202	0.006	0.069	0.006	0.058

Value	18	20	25	30	35
Frequency	1	4	1	1	1
Proportion	0.006	0.023	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
173	0	16	0.98	8.529	8	6.804	1	2	4	8	10	19	20

Value	0.0	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
Frequency	3	1	9	18	12	12	19	7	1	10	42	1	20	16
Proportion	0.017	0.006	0.052	0.104	0.069	0.069	0.110	0.040	0.006	0.058	0.243	0.006	0.116	0.092

Value	30.0	40.0
Frequency	1	1
Proportion	0.006	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
173	0	21	0.992	15.79	14	13.49	2	3	8	12	20	30	40

lowest :   0   1   2   3   4, highest: 40 50 60 80 100

```
str(data)
```

```
'data.frame':    173 obs. of  26 variables:
 $ family             : chr  "Amanita Family" "Amanita Family" "Amanita Family" "Amanita Family" ...
 $ name               : chr  "Fly Agaric" "Panther Cap" "False Panther Cap" "The Blusher" ...
 $ class              : chr  "p" "p" "p" "e" ...
 $ cap.shape          : Factor w/ 27 levels "[b, f, s]","[b, f]",..: 23 18 23 23 23 27 5 8 16 27 ...
 $ Cap.surface        : chr  "[g, h]" "[g]" "" "" ...
 $ cap.color          : Factor w/ 67 levels "[b, p, e, y]",..: 8 40 14 40 53 61 62 40 57 40 ...
 $ does.bruise.or.bleed: chr  "[f]" "[f]" "[f]" "[t]" ...
 $ gill.attachment    : chr  "[e]" "[e]" "[e]" "" ...
 $ gill.spacing       : chr  "" "" "" "" ...
 $ gill.color         : chr  "[w]" "[w]" "[w]" "[w]" ...
 $ stem.root          : chr  "[s]" "" "" "[b]" ...
 $ stem.surface       : chr  "[y]" "[y]" "" "" ...
 $ stem.color         : chr  "[w]" "[w]" "[w]" "[w]" ...
 $ veil.type          : chr  "[u]" "[u]" "[u]" "[u]" ...
 $ veil.color         : chr  "[w]" "[w]" "[w]" "[w]" ...
```

```
$ has.ring           : chr  "[t]" "[t]" "[t]" "[t]" ...
$ ring.type          : chr  "[g, p]" "[p]" "[e, g]" "[g]" ...
$ Spore.print.color  : chr  "" "" "" "" ...
$ habitat            : chr  "[d]" "[d]" "[d]" "[d]" ...
$ season             : chr  "[u, a, w]" "[u, a]" "[u, a]" "[u, a]" ...
$ Cap.diameter_min   : num  10 5 10 5 5 4 5 4 10 12 ...
$ Cap.diameter_max   : num  20 10 15 15 12 9 10 8 25 18 ...
$ stem.height_min    : num  15 6 10 7 10 5 10 10 15 8 ...
$ stem.height_max    : num  20 10 12 15 12 7 15 15 35 12 ...
$ stem.width_min     : num  15 10 10 10 10 10 10 10 15 15 ...
$ stem.width_max     : num  20 20 20 25 20 15 15 15 25 20 ...
```

Table1

```
library(table1)
library(knitr)

kable(table1(~.|class, data))
```

	e	p	Overall
	(N=77)	(N=96)	(N=173)
family			
Amanita Family	3 (3.9%)	5 (5.2%)	8 (4.6%)
Bolbitius Family	1 (1.3%)	2 (2.1%)	3 (1.7%)
Bolete Family	11 (14.3%)	3 (3.1%)	14 (8.1%)
Bracket Fungi	1 (1.3%)	6 (6.3%)	7 (4.0%)
Chanterelle Family	3 (3.9%)	0 (0%)	3 (1.7%)
Entoloma Family	1 (1.3%)	6 (6.3%)	7 (4.0%)
Hydnum Family	1 (1.3%)	0 (0%)	1 (0.6%)
Ink Cap Family	6 (7.8%)	7 (7.3%)	13 (7.5%)
Lepiota Family	2 (2.6%)	1 (1.0%)	3 (1.7%)
Morel Family	1 (1.3%)	0 (0%)	1 (0.6%)
Mushroom Family	4 (5.2%)	1 (1.0%)	5 (2.9%)
Oyster Mushroom Family	2 (2.6%)	0 (0%)	2 (1.2%)
Pluteus Family	2 (2.6%)	0 (0%)	2 (1.2%)
Russula Family	11 (14.3%)	16 (16.7%)	27 (15.6%)
Stropharia Family	1 (1.3%)	7 (7.3%)	8 (4.6%)
Tricholoma Family	23 (29.9%)	20 (20.8%)	43 (24.9%)
Wax Gill Family	4 (5.2%)	4 (4.2%)	8 (4.6%)
Cortinarius Family	0 (0%)	11 (11.5%)	11 (6.4%)
Crepidotus Family	0 (0%)	1 (1.0%)	1 (0.6%)
Ear-Pick Family	0 (0%)	1 (1.0%)	1 (0.6%)
Jelly Discs Family	0 (0%)	1 (1.0%)	1 (0.6%)
Paxillus Family	0 (0%)	3 (3.1%)	3 (1.7%)
Saddle-Cup Family	0 (0%)	1 (1.0%)	1 (0.6%)
name			
Amethyst Deceiver	1 (1.3%)	0 (0%)	1 (0.6%)
Aniseed Funnel Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Bare-toothed Russula	1 (1.3%)	0 (0%)	1 (0.6%)

	e	p	Overall
Bay Bolete	1 (1.3%)	0 (0%)	1 (0.6%)
Blackening Russula	1 (1.3%)	0 (0%)	1 (0.6%)
Blackish Purple Russula	1 (1.3%)	0 (0%)	1 (0.6%)
Bleeding Brown Mushroom	1 (1.3%)	0 (0%)	1 (0.6%)
Bonnet Bell Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Branched Oyster Mushroom	1 (1.3%)	0 (0%)	1 (0.6%)
Brown Birch Bolete	1 (1.3%)	0 (0%)	1 (0.6%)
Brown Stew Fungus	1 (1.3%)	0 (0%)	1 (0.6%)
Bulbous Honey Fungus	1 (1.3%)	0 (0%)	1 (0.6%)
Cep	1 (1.3%)	0 (0%)	1 (0.6%)
Changeable Melanoleuca	1 (1.3%)	0 (0%)	1 (0.6%)
Chanterelle	1 (1.3%)	0 (0%)	1 (0.6%)
Clouded Agaric	1 (1.3%)	0 (0%)	1 (0.6%)
Clustered Brown Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Coconut-scented Milk Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Common Crumble Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Common Funnel Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Common Morel	1 (1.3%)	0 (0%)	1 (0.6%)
Common Yellow Russula	1 (1.3%)	0 (0%)	1 (0.6%)
Crab-scented Russula	1 (1.3%)	0 (0%)	1 (0.6%)
Cultivated Mushroom	1 (1.3%)	0 (0%)	1 (0.6%)
Dryad's Saddle	1 (1.3%)	0 (0%)	1 (0.6%)
Fairies' Bonnets	1 (1.3%)	0 (0%)	1 (0.6%)
Fairy Parasol	1 (1.3%)	0 (0%)	1 (0.6%)
Fairy Ring Champignon	1 (1.3%)	0 (0%)	1 (0.6%)
False Death Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Fawn Pluteus	1 (1.3%)	0 (0%)	1 (0.6%)
Field Blewit	1 (1.3%)	0 (0%)	1 (0.6%)
Field Mushroom	1 (1.3%)	0 (0%)	1 (0.6%)
Glistening Ink Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Greasy Tough Shank	1 (1.3%)	0 (0%)	1 (0.6%)
Grey Tricholoma	1 (1.3%)	0 (0%)	1 (0.6%)
Hedgehog Fungus	1 (1.3%)	0 (0%)	1 (0.6%)
Herald of Winter	1 (1.3%)	0 (0%)	1 (0.6%)
Honey Fungus	1 (1.3%)	0 (0%)	1 (0.6%)
Horn of Plenty	1 (1.3%)	0 (0%)	1 (0.6%)
Horse Mushroom	1 (1.3%)	0 (0%)	1 (0.6%)
Ivory Wax Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Larch Bolete	1 (1.3%)	0 (0%)	1 (0.6%)
Meadow Wax Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Milky Bell Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Orange Birch Bolete	1 (1.3%)	0 (0%)	1 (0.6%)
Oyster Mushroom	1 (1.3%)	0 (0%)	1 (0.6%)
Parasitic Bolete	1 (1.3%)	0 (0%)	1 (0.6%)
Parasol Mushroom	1 (1.3%)	0 (0%)	1 (0.6%)
Peppery Bolete	1 (1.3%)	0 (0%)	1 (0.6%)
Peppery Milk Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Porcelain Mushroom	1 (1.3%)	0 (0%)	1 (0.6%)
Red-cracked Bolete	1 (1.3%)	0 (0%)	1 (0.6%)
Saffron Milk Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Scaly Tricholoma	1 (1.3%)	0 (0%)	1 (0.6%)

	e	p	Overall
Scarlet Hood	1 (1.3%)	0 (0%)	1 (0.6%)
Shaggy Ink Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Shaggy Parasol	1 (1.3%)	0 (0%)	1 (0.6%)
Shallow-pored Bolete	1 (1.3%)	0 (0%)	1 (0.6%)
Slippery Jack	1 (1.3%)	0 (0%)	1 (0.6%)
Small Bleeding Bell Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Spring Agaric	1 (1.3%)	0 (0%)	1 (0.6%)
St George's Mushroom	1 (1.3%)	0 (0%)	1 (0.6%)
Tawny Grisette	1 (1.3%)	0 (0%)	1 (0.6%)
The Blusher	1 (1.3%)	0 (0%)	1 (0.6%)
The Charcoal Burner	1 (1.3%)	0 (0%)	1 (0.6%)
The Deceiver	1 (1.3%)	0 (0%)	1 (0.6%)
The Miller	1 (1.3%)	0 (0%)	1 (0.6%)
Tubed Chanterelle	1 (1.3%)	0 (0%)	1 (0.6%)
Two-toned Crumble Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Veined Pluteus	1 (1.3%)	0 (0%)	1 (0.6%)
Velvet Shank	1 (1.3%)	0 (0%)	1 (0.6%)
Wood Blewit	1 (1.3%)	0 (0%)	1 (0.6%)
Yellow-brown Tricholoma	1 (1.3%)	0 (0%)	1 (0.6%)
Yellow-cracked Bolete	1 (1.3%)	0 (0%)	1 (0.6%)
Yellow-gilled Russula	1 (1.3%)	0 (0%)	1 (0.6%)
Yellow-stemmed Bell Cap	1 (1.3%)	0 (0%)	1 (0.6%)
Yellow Swamp Russula	1 (1.3%)	0 (0%)	1 (0.6%)
Apricot Fungus	0 (0%)	1 (1.0%)	1 (0.6%)
Beechwood Sickener	0 (0%)	1 (1.0%)	1 (0.6%)
Birch Russula	0 (0%)	1 (1.0%)	1 (0.6%)
Bitter Bolete	0 (0%)	1 (1.0%)	1 (0.6%)
Blackening Wax Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Blood-red Cortinarius	0 (0%)	1 (1.0%)	1 (0.6%)
Blue Leptonia	0 (0%)	1 (1.0%)	1 (0.6%)
Brick Caps	0 (0%)	1 (1.0%)	1 (0.6%)
Brown Bell Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Brown Goblet	0 (0%)	1 (1.0%)	1 (0.6%)
Brown Roll-rim	0 (0%)	1 (1.0%)	1 (0.6%)
Charcoal Pholiota	0 (0%)	1 (1.0%)	1 (0.6%)
Club-footed Funnel Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Clustered Tough Shank	0 (0%)	1 (1.0%)	1 (0.6%)
Common Ink Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Common White Inocybe	0 (0%)	1 (1.0%)	1 (0.6%)
Dark-centred Hebeloma	0 (0%)	1 (1.0%)	1 (0.6%)
Death Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Destroying Angel	0 (0%)	1 (1.0%)	1 (0.6%)
Dotted-stemmed Bolete	0 (0%)	1 (1.0%)	1 (0.6%)
Dung Roundhead	0 (0%)	1 (1.0%)	1 (0.6%)
Ear-pick Fungus	0 (0%)	1 (1.0%)	1 (0.6%)
Egg-shell Toadstool	0 (0%)	1 (1.0%)	1 (0.6%)
Egg Yolk Fungus	0 (0%)	1 (1.0%)	1 (0.6%)
Elfin's Saddle	0 (0%)	1 (1.0%)	1 (0.6%)
False Chanterelle	0 (0%)	1 (1.0%)	1 (0.6%)
False Panther Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Fleecy Milk Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Fly Agaric	0 (0%)	1 (1.0%)	1 (0.6%)

	e	p	Overall
Fragile Russula	0 (0%)	1 (1.0%)	1 (0.6%)
Fuzzy Polypore	0 (0%)	1 (1.0%)	1 (0.6%)
Geranium-scented Russula	0 (0%)	1 (1.0%)	1 (0.6%)
Grass-green Russula	0 (0%)	1 (1.0%)	1 (0.6%)
Hairy Stereum	0 (0%)	1 (1.0%)	1 (0.6%)
Hay Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Horse-hair Fungus	0 (0%)	1 (1.0%)	1 (0.6%)
Ivory Clitocybe	0 (0%)	1 (1.0%)	1 (0.6%)
Jelly Babies	0 (0%)	1 (1.0%)	1 (0.6%)
Lilac Bell Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Little Wheel Fungus	0 (0%)	1 (1.0%)	1 (0.6%)
Livid Entoloma	0 (0%)	1 (1.0%)	1 (0.6%)
Lurid Bolete	0 (0%)	1 (1.0%)	1 (0.6%)
Magic Mushroom	0 (0%)	1 (1.0%)	1 (0.6%)
Magpie Ink Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Moss Pixy Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Oak Milk Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Olive-brown Panellus	0 (0%)	1 (1.0%)	1 (0.6%)
Orange-red Wax Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Orange Bell Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Orange Moss Agaric	0 (0%)	1 (1.0%)	1 (0.6%)
Panther Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Parrot Wax Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Petticoat Fungus	0 (0%)	1 (1.0%)	1 (0.6%)
Plums and custard	0 (0%)	1 (1.0%)	1 (0.6%)
Poison Pie	0 (0%)	1 (1.0%)	1 (0.6%)
Purple Cortinarius	0 (0%)	1 (1.0%)	1 (0.6%)
Red-banded Cortinarius	0 (0%)	1 (1.0%)	1 (0.6%)
Red-staining Inocybe	0 (0%)	1 (1.0%)	1 (0.6%)
Rooting Shank	0 (0%)	1 (1.0%)	1 (0.6%)
Rufous Milk Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Russet Tough Shank	0 (0%)	1 (1.0%)	1 (0.6%)
Rusty Carpet Ink Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Rusty Wood Rotter	0 (0%)	1 (1.0%)	1 (0.6%)
Saffron Parasol	0 (0%)	1 (1.0%)	1 (0.6%)
Shaggy Pholiota	0 (0%)	1 (1.0%)	1 (0.6%)
Silky Nolanea	0 (0%)	1 (1.0%)	1 (0.6%)
Silver Leaf Fungus	0 (0%)	1 (1.0%)	1 (0.6%)
Slimy Milk Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Small Brown Milk Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Soap-scented Tricholoma	0 (0%)	1 (1.0%)	1 (0.6%)
Soft Slipper Toadstool	0 (0%)	1 (1.0%)	1 (0.6%)
Spectacular Gymnopile	0 (0%)	1 (1.0%)	1 (0.6%)
Spotted Tough Shank	0 (0%)	1 (1.0%)	1 (0.6%)
Spruce Milk Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Stinking Parasol	0 (0%)	1 (1.0%)	1 (0.6%)
Stinking Russula	0 (0%)	1 (1.0%)	1 (0.6%)
Straw-coloured Inocybe	0 (0%)	1 (1.0%)	1 (0.6%)
Striated Nolanea	0 (0%)	1 (1.0%)	1 (0.6%)
Stump Bell Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Sulphur Tricholoma	0 (0%)	1 (1.0%)	1 (0.6%)
Sulphur Tuft	0 (0%)	1 (1.0%)	1 (0.6%)

	e	p	Overall
Sweet Milk Cap	0 (0%)	1 (1.0%)	1 (0.6%)
The Sickener	0 (0%)	1 (1.0%)	1 (0.6%)
Tufted Bell Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Turban Fungus	0 (0%)	1 (1.0%)	1 (0.6%)
Ugly Milk Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Umbrella Navel Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Velvet Roll-rim	0 (0%)	1 (1.0%)	1 (0.6%)
Verdigris Toadstool	0 (0%)	1 (1.0%)	1 (0.6%)
Weeping Widow	0 (0%)	1 (1.0%)	1 (0.6%)
White Leptonia	0 (0%)	1 (1.0%)	1 (0.6%)
White Saddle	0 (0%)	1 (1.0%)	1 (0.6%)
Wood Woolly-foot	0 (0%)	1 (1.0%)	1 (0.6%)
Woolly Milk Cap	0 (0%)	1 (1.0%)	1 (0.6%)
Yellow-staining Mushroom	0 (0%)	1 (1.0%)	1 (0.6%)
Yellow Wax cap	0 (0%)	1 (1.0%)	1 (0.6%)
cap.shape			
[b, f, s]	0 (0%)	1 (1.0%)	1 (0.6%)
[b, f]	2 (2.6%)	3 (3.1%)	5 (2.9%)
[b, x, f]	0 (0%)	1 (1.0%)	1 (0.6%)
[b, x]	0 (0%)	3 (3.1%)	3 (1.7%)
[b]	2 (2.6%)	8 (8.3%)	10 (5.8%)
[c, f]	0 (0%)	2 (2.1%)	2 (1.2%)
[c, x, f]	1 (1.3%)	0 (0%)	1 (0.6%)
[c, x]	1 (1.3%)	0 (0%)	1 (0.6%)
[c]	1 (1.3%)	2 (2.1%)	3 (1.7%)
[f, s]	3 (3.9%)	5 (5.2%)	8 (4.6%)
[f, x]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[f]	4 (5.2%)	4 (4.2%)	8 (4.6%)
[o]	1 (1.3%)	7 (7.3%)	8 (4.6%)
[p, b]	1 (1.3%)	2 (2.1%)	3 (1.7%)
[p, c, o]	1 (1.3%)	0 (0%)	1 (0.6%)
[p, f]	2 (2.6%)	0 (0%)	2 (1.2%)
[p, x, f]	2 (2.6%)	0 (0%)	2 (1.2%)
[p, x]	3 (3.9%)	1 (1.0%)	4 (2.3%)
[p]	0 (0%)	1 (1.0%)	1 (0.6%)
[s, o]	2 (2.6%)	0 (0%)	2 (1.2%)
[s]	4 (5.2%)	5 (5.2%)	9 (5.2%)
[x, f, s]	7 (9.1%)	6 (6.3%)	13 (7.5%)
[x, f]	14 (18.2%)	15 (15.6%)	29 (16.8%)
[x, o]	0 (0%)	1 (1.0%)	1 (0.6%)
[x, p]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[x, s]	1 (1.3%)	2 (2.1%)	3 (1.7%)
[x]	23 (29.9%)	25 (26.0%)	48 (27.7%)
Cap.surface			
	19 (24.7%)	21 (21.9%)	40 (23.1%)
[d, k]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[d, s]	1 (1.3%)	0 (0%)	1 (0.6%)
[d]	4 (5.2%)	5 (5.2%)	9 (5.2%)
[e, y]	1 (1.3%)	0 (0%)	1 (0.6%)
[e]	3 (3.9%)	2 (2.1%)	5 (2.9%)
[g, s, h, t]	1 (1.3%)	0 (0%)	1 (0.6%)
[g, s, t]	1 (1.3%)	0 (0%)	1 (0.6%)

	e	p	Overall
[g]	5 (6.5%)	7 (7.3%)	12 (6.9%)
[h, s, d]	1 (1.3%)	0 (0%)	1 (0.6%)
[h, t]	6 (7.8%)	4 (4.2%)	10 (5.8%)
[h]	3 (3.9%)	2 (2.1%)	5 (2.9%)
[i, y]	2 (2.6%)	0 (0%)	2 (1.2%)
[l]	2 (2.6%)	2 (2.1%)	4 (2.3%)
[s, d]	1 (1.3%)	0 (0%)	1 (0.6%)
[s, t]	2 (2.6%)	2 (2.1%)	4 (2.3%)
[s, y]	1 (1.3%)	2 (2.1%)	3 (1.7%)
[s]	8 (10.4%)	5 (5.2%)	13 (7.5%)
[t, h, s]	1 (1.3%)	0 (0%)	1 (0.6%)
[t, h]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[t]	2 (2.6%)	10 (10.4%)	12 (6.9%)
[w, t]	1 (1.3%)	0 (0%)	1 (0.6%)
[w]	2 (2.6%)	3 (3.1%)	5 (2.9%)
[y, s]	1 (1.3%)	0 (0%)	1 (0.6%)
[y]	7 (9.1%)	7 (7.3%)	14 (8.1%)
[d, e, y, i]	0 (0%)	1 (1.0%)	1 (0.6%)
[d, k, s]	0 (0%)	1 (1.0%)	1 (0.6%)
[e, k, s, h]	0 (0%)	1 (1.0%)	1 (0.6%)
[e, t, k]	0 (0%)	1 (1.0%)	1 (0.6%)
[g, h]	0 (0%)	1 (1.0%)	1 (0.6%)
[g, s, d]	0 (0%)	1 (1.0%)	1 (0.6%)
[h, s, t]	0 (0%)	1 (1.0%)	1 (0.6%)
[h, t, w]	0 (0%)	1 (1.0%)	1 (0.6%)
[h, t, y]	0 (0%)	1 (1.0%)	1 (0.6%)
[i, e]	0 (0%)	1 (1.0%)	1 (0.6%)
[i]	0 (0%)	4 (4.2%)	4 (2.3%)
[k, e]	0 (0%)	1 (1.0%)	1 (0.6%)
[k]	0 (0%)	4 (4.2%)	4 (2.3%)
[s, h]	0 (0%)	1 (1.0%)	1 (0.6%)
[s, i]	0 (0%)	1 (1.0%)	1 (0.6%)
[t, w, d]	0 (0%)	1 (1.0%)	1 (0.6%)
cap.color			
[b, p, e, y]	0 (0%)	1 (1.0%)	1 (0.6%)
[b, u]	1 (1.3%)	0 (0%)	1 (0.6%)
[b]	1 (1.3%)	0 (0%)	1 (0.6%)
[e, n, p, w]	0 (0%)	1 (1.0%)	1 (0.6%)
[e, n, y]	2 (2.6%)	0 (0%)	2 (1.2%)
[e, n]	0 (0%)	2 (2.1%)	2 (1.2%)
[e, o, k]	0 (0%)	1 (1.0%)	1 (0.6%)
[e, o]	0 (0%)	1 (1.0%)	1 (0.6%)
[e, p, w]	0 (0%)	1 (1.0%)	1 (0.6%)
[e, u, y]	0 (0%)	1 (1.0%)	1 (0.6%)
[e]	0 (0%)	3 (3.1%)	3 (1.7%)
[g, k]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[g, n, k]	0 (0%)	1 (1.0%)	1 (0.6%)
[g, n]	6 (7.8%)	4 (4.2%)	10 (5.8%)
[g, r, k, n]	0 (0%)	1 (1.0%)	1 (0.6%)
[g, r, n]	0 (0%)	2 (2.1%)	2 (1.2%)
[g, u, n, p]	1 (1.3%)	0 (0%)	1 (0.6%)
[g, u, n]	0 (0%)	1 (1.0%)	1 (0.6%)

	e	p	Overall
[g]	0 (0%)	1 (1.0%)	1 (0.6%)
[k, n, w]	1 (1.3%)	0 (0%)	1 (0.6%)
[l, g, b, w]	1 (1.3%)	0 (0%)	1 (0.6%)
[l, k]	0 (0%)	1 (1.0%)	1 (0.6%)
[l, r, w]	1 (1.3%)	0 (0%)	1 (0.6%)
[l, u, g, n]	1 (1.3%)	0 (0%)	1 (0.6%)
[l, y]	1 (1.3%)	0 (0%)	1 (0.6%)
[n ,w]	1 (1.3%)	0 (0%)	1 (0.6%)
[n, b]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[n, e, y]	0 (0%)	1 (1.0%)	1 (0.6%)
[n, e]	1 (1.3%)	4 (4.2%)	5 (2.9%)
[n, g]	3 (3.9%)	0 (0%)	3 (1.7%)
[n, o, e]	1 (1.3%)	0 (0%)	1 (0.6%)
[n, o, y, w]	0 (0%)	1 (1.0%)	1 (0.6%)
[n, o]	2 (2.6%)	2 (2.1%)	4 (2.3%)
[n, p, e]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[n, r, u, y]	1 (1.3%)	0 (0%)	1 (0.6%)
[n, w]	1 (1.3%)	3 (3.1%)	4 (2.3%)
[n, y, e]	1 (1.3%)	0 (0%)	1 (0.6%)
[n, y, w]	1 (1.3%)	0 (0%)	1 (0.6%)
[n, y]	3 (3.9%)	6 (6.3%)	9 (5.2%)
[n]	22 (28.6%)	16 (16.7%)	38 (22.0%)
[o, b]	1 (1.3%)	0 (0%)	1 (0.6%)
[o, e, n, k]	0 (0%)	1 (1.0%)	1 (0.6%)
[o, n]	1 (1.3%)	0 (0%)	1 (0.6%)
[o, p, e]	1 (1.3%)	0 (0%)	1 (0.6%)
[o, y, r]	0 (0%)	1 (1.0%)	1 (0.6%)
[o, y]	0 (0%)	3 (3.1%)	3 (1.7%)
[o]	0 (0%)	2 (2.1%)	2 (1.2%)
[p]	0 (0%)	2 (2.1%)	2 (1.2%)
[r, l]	0 (0%)	1 (1.0%)	1 (0.6%)
[r, n]	0 (0%)	1 (1.0%)	1 (0.6%)
[r, p, y]	0 (0%)	1 (1.0%)	1 (0.6%)
[r, y]	0 (0%)	1 (1.0%)	1 (0.6%)
[r]	0 (0%)	1 (1.0%)	1 (0.6%)
[u, k]	1 (1.3%)	0 (0%)	1 (0.6%)
[u]	0 (0%)	2 (2.1%)	2 (1.2%)
[w, g]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[w, n]	2 (2.6%)	2 (2.1%)	4 (2.3%)
[w, p, o]	1 (1.3%)	0 (0%)	1 (0.6%)
[w, u]	0 (0%)	1 (1.0%)	1 (0.6%)
[w, y, g, n]	0 (0%)	1 (1.0%)	1 (0.6%)
[w, y]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[w]	6 (7.8%)	6 (6.3%)	12 (6.9%)
[y, n]	0 (0%)	3 (3.1%)	3 (1.7%)
[y, o, g, n, r]	0 (0%)	1 (1.0%)	1 (0.6%)
[y, o, r, n]	0 (0%)	1 (1.0%)	1 (0.6%)
[y, o]	0 (0%)	1 (1.0%)	1 (0.6%)
[y]	6 (7.8%)	4 (4.2%)	10 (5.8%)
does.bruise.or.bleed			
[f]	63 (81.8%)	80 (83.3%)	143 (82.7%)
[t]	14 (18.2%)	16 (16.7%)	30 (17.3%)

	e	p	Overall
gill.attachment			
	10 (13.0%)	18 (18.8%)	28 (16.2%)
[a, d]	5 (6.5%)	3 (3.1%)	8 (4.6%)
[a]	11 (14.3%)	21 (21.9%)	32 (18.5%)
[d]	9 (11.7%)	16 (16.7%)	25 (14.5%)
[e]	10 (13.0%)	6 (6.3%)	16 (9.2%)
[f]	4 (5.2%)	6 (6.3%)	10 (5.8%)
[p]	12 (15.6%)	5 (5.2%)	17 (9.8%)
[s]	7 (9.1%)	9 (9.4%)	16 (9.2%)
[x]	9 (11.7%)	12 (12.5%)	21 (12.1%)
gill.spacing			
	31 (40.3%)	40 (41.7%)	71 (41.0%)
[c]	29 (37.7%)	41 (42.7%)	70 (40.5%)
[d]	13 (16.9%)	9 (9.4%)	22 (12.7%)
[f]	4 (5.2%)	6 (6.3%)	10 (5.8%)
gill.color			
[b, u]	1 (1.3%)	0 (0%)	1 (0.6%)
[b]	1 (1.3%)	0 (0%)	1 (0.6%)
[f]	4 (5.2%)	6 (6.3%)	10 (5.8%)
[g, k]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[g, n]	1 (1.3%)	2 (2.1%)	3 (1.7%)
[g, p]	1 (1.3%)	0 (0%)	1 (0.6%)
[g, w, y]	1 (1.3%)	0 (0%)	1 (0.6%)
[g, w]	2 (2.6%)	0 (0%)	2 (1.2%)
[g]	3 (3.9%)	1 (1.0%)	4 (2.3%)
[k, n]	2 (2.6%)	4 (4.2%)	6 (3.5%)
[k, p, w]	1 (1.3%)	0 (0%)	1 (0.6%)
[n, y]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[n]	3 (3.9%)	8 (8.3%)	11 (6.4%)
[o, b]	1 (1.3%)	0 (0%)	1 (0.6%)
[o, e]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[o, y]	1 (1.3%)	4 (4.2%)	5 (2.9%)
[o]	2 (2.6%)	2 (2.1%)	4 (2.3%)
[p, n, k]	1 (1.3%)	0 (0%)	1 (0.6%)
[p, n]	1 (1.3%)	0 (0%)	1 (0.6%)
[p, w]	3 (3.9%)	2 (2.1%)	5 (2.9%)
[p]	3 (3.9%)	5 (5.2%)	8 (4.6%)
[r]	1 (1.3%)	0 (0%)	1 (0.6%)
[u, w]	1 (1.3%)	0 (0%)	1 (0.6%)
[w, n]	3 (3.9%)	2 (2.1%)	5 (2.9%)
[w, p, y]	1 (1.3%)	0 (0%)	1 (0.6%)
[w, p]	1 (1.3%)	2 (2.1%)	3 (1.7%)
[w, u, g, n]	1 (1.3%)	0 (0%)	1 (0.6%)
[w, y]	3 (3.9%)	2 (2.1%)	5 (2.9%)
[w]	21 (27.3%)	15 (15.6%)	36 (20.8%)
[y, e, n]	1 (1.3%)	0 (0%)	1 (0.6%)
[y, k]	1 (1.3%)	0 (0%)	1 (0.6%)
[y, n]	1 (1.3%)	4 (4.2%)	5 (2.9%)
[y, r]	1 (1.3%)	0 (0%)	1 (0.6%)
[y]	6 (7.8%)	7 (7.3%)	13 (7.5%)
[b, p, w]	0 (0%)	1 (1.0%)	1 (0.6%)
[e]	0 (0%)	1 (1.0%)	1 (0.6%)

	e	p	Overall
[g, n, u]	0 (0%)	1 (1.0%)	1 (0.6%)
[g, r, w]	0 (0%)	1 (1.0%)	1 (0.6%)
[g, u]	0 (0%)	1 (1.0%)	1 (0.6%)
[k, p]	0 (0%)	1 (1.0%)	1 (0.6%)
[n, e, y]	0 (0%)	1 (1.0%)	1 (0.6%)
[n, p]	0 (0%)	2 (2.1%)	2 (1.2%)
[n, r]	0 (0%)	1 (1.0%)	1 (0.6%)
[n, u]	0 (0%)	1 (1.0%)	1 (0.6%)
[n, w]	0 (0%)	2 (2.1%)	2 (1.2%)
[p, y, r]	0 (0%)	1 (1.0%)	1 (0.6%)
[p, y]	0 (0%)	1 (1.0%)	1 (0.6%)
[r, y]	0 (0%)	1 (1.0%)	1 (0.6%)
[w, b, n]	0 (0%)	1 (1.0%)	1 (0.6%)
[w, g, k]	0 (0%)	1 (1.0%)	1 (0.6%)
[w, g, p, n]	0 (0%)	1 (1.0%)	1 (0.6%)
[w, g, u]	0 (0%)	1 (1.0%)	1 (0.6%)
[w, g]	0 (0%)	1 (1.0%)	1 (0.6%)
[w, r]	0 (0%)	1 (1.0%)	1 (0.6%)
[w, y, g, n]	0 (0%)	1 (1.0%)	1 (0.6%)
[y, g, k]	0 (0%)	1 (1.0%)	1 (0.6%)
[y, o, e]	0 (0%)	1 (1.0%)	1 (0.6%)
[y, r, k]	0 (0%)	1 (1.0%)	1 (0.6%)
[y, w]	0 (0%)	1 (1.0%)	1 (0.6%)
stem.root			
	67 (87.0%)	79 (82.3%)	146 (84.4%)
[b]	6 (7.8%)	3 (3.1%)	9 (5.2%)
[s]	4 (5.2%)	5 (5.2%)	9 (5.2%)
[c]	0 (0%)	2 (2.1%)	2 (1.2%)
[f]	0 (0%)	3 (3.1%)	3 (1.7%)
[r]	0 (0%)	4 (4.2%)	4 (2.3%)
stem.surface			
	53 (68.8%)	55 (57.3%)	108 (62.4%)
[i, t]	1 (1.3%)	0 (0%)	1 (0.6%)
[i]	4 (5.2%)	7 (7.3%)	11 (6.4%)
[k, s]	1 (1.3%)	0 (0%)	1 (0.6%)
[k]	1 (1.3%)	3 (3.1%)	4 (2.3%)
[s]	9 (11.7%)	6 (6.3%)	15 (8.7%)
[t]	3 (3.9%)	4 (4.2%)	7 (4.0%)
[y, s]	1 (1.3%)	0 (0%)	1 (0.6%)
[y]	4 (5.2%)	9 (9.4%)	13 (7.5%)
[f]	0 (0%)	3 (3.1%)	3 (1.7%)
[g]	0 (0%)	5 (5.2%)	5 (2.9%)
[h]	0 (0%)	1 (1.0%)	1 (0.6%)
[i, s]	0 (0%)	1 (1.0%)	1 (0.6%)
[i, y]	0 (0%)	1 (1.0%)	1 (0.6%)
[s, h]	0 (0%)	1 (1.0%)	1 (0.6%)
stem.color			
[b, u]	1 (1.3%)	0 (0%)	1 (0.6%)
[e, n]	1 (1.3%)	2 (2.1%)	3 (1.7%)
[e, y]	1 (1.3%)	0 (0%)	1 (0.6%)
[g, w]	1 (1.3%)	0 (0%)	1 (0.6%)
[g, n]	1 (1.3%)	3 (3.1%)	4 (2.3%)

	e	p	Overall
[g, w]	2 (2.6%)	0 (0%)	2 (1.2%)
[g]	2 (2.6%)	0 (0%)	2 (1.2%)
[k, n]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[l, r, w]	1 (1.3%)	0 (0%)	1 (0.6%)
[n, g]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[n, o]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[n, p, w]	1 (1.3%)	0 (0%)	1 (0.6%)
[n, w]	2 (2.6%)	1 (1.0%)	3 (1.7%)
[n, y]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[n]	15 (19.5%)	20 (20.8%)	35 (20.2%)
[o, e]	1 (1.3%)	0 (0%)	1 (0.6%)
[o, n]	1 (1.3%)	0 (0%)	1 (0.6%)
[o, y]	1 (1.3%)	4 (4.2%)	5 (2.9%)
[u]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[w, n]	2 (2.6%)	1 (1.0%)	3 (1.7%)
[w, o]	1 (1.3%)	0 (0%)	1 (0.6%)
[w, y]	1 (1.3%)	2 (2.1%)	3 (1.7%)
[w]	32 (41.6%)	25 (26.0%)	57 (32.9%)
[y]	5 (6.5%)	8 (8.3%)	13 (7.5%)
[e, u, y]	0 (0%)	1 (1.0%)	1 (0.6%)
[e]	0 (0%)	1 (1.0%)	1 (0.6%)
[f]	0 (0%)	3 (3.1%)	3 (1.7%)
[g, r, n]	0 (0%)	2 (2.1%)	2 (1.2%)
[g, u, n]	0 (0%)	1 (1.0%)	1 (0.6%)
[k]	0 (0%)	1 (1.0%)	1 (0.6%)
[n, e]	0 (0%)	2 (2.1%)	2 (1.2%)
[n, p]	0 (0%)	1 (1.0%)	1 (0.6%)
[o]	0 (0%)	1 (1.0%)	1 (0.6%)
[p]	0 (0%)	2 (2.1%)	2 (1.2%)
[r, y]	0 (0%)	1 (1.0%)	1 (0.6%)
[u, e]	0 (0%)	1 (1.0%)	1 (0.6%)
[w, l, n]	0 (0%)	1 (1.0%)	1 (0.6%)
[w, u]	0 (0%)	1 (1.0%)	1 (0.6%)
[y, e, n]	0 (0%)	1 (1.0%)	1 (0.6%)
[y, n]	0 (0%)	4 (4.2%)	4 (2.3%)
[y, o, k]	0 (0%)	1 (1.0%)	1 (0.6%)
veil.type			
	74 (96.1%)	90 (93.8%)	164 (94.8%)
[u]	3 (3.9%)	6 (6.3%)	9 (5.2%)
veil.color			
	68 (88.3%)	84 (87.5%)	152 (87.9%)
[w]	7 (9.1%)	8 (8.3%)	15 (8.7%)
[y, w]	1 (1.3%)	0 (0%)	1 (0.6%)
[y]	1 (1.3%)	0 (0%)	1 (0.6%)
[e, n]	0 (0%)	1 (1.0%)	1 (0.6%)
[k]	0 (0%)	1 (1.0%)	1 (0.6%)
[n]	0 (0%)	1 (1.0%)	1 (0.6%)
[u]	0 (0%)	1 (1.0%)	1 (0.6%)
has.ring			
[f]	60 (77.9%)	70 (72.9%)	130 (75.1%)
[t]	17 (22.1%)	26 (27.1%)	43 (24.9%)
ring.type			

	e	p	Overall
	4 (5.2%)	3 (3.1%)	7 (4.0%)
[e]	3 (3.9%)	3 (3.1%)	6 (3.5%)
[f]	61 (79.2%)	76 (79.2%)	137 (79.2%)
[g]	2 (2.6%)	0 (0%)	2 (1.2%)
[l, p]	1 (1.3%)	0 (0%)	1 (0.6%)
[l, r]	2 (2.6%)	0 (0%)	2 (1.2%)
[l]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[m]	1 (1.3%)	0 (0%)	1 (0.6%)
[p]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[r]	1 (1.3%)	2 (2.1%)	3 (1.7%)
[e, g]	0 (0%)	1 (1.0%)	1 (0.6%)
[g, p]	0 (0%)	2 (2.1%)	2 (1.2%)
[l, e]	0 (0%)	1 (1.0%)	1 (0.6%)
[z]	0 (0%)	6 (6.3%)	6 (3.5%)
Spore.print.color			
	72 (93.5%)	83 (86.5%)	155 (89.6%)
[g]	1 (1.3%)	0 (0%)	1 (0.6%)
[k]	1 (1.3%)	4 (4.2%)	5 (2.9%)
[p]	1 (1.3%)	2 (2.1%)	3 (1.7%)
[w]	2 (2.6%)	1 (1.0%)	3 (1.7%)
[k, r]	0 (0%)	1 (1.0%)	1 (0.6%)
[k, u]	0 (0%)	1 (1.0%)	1 (0.6%)
[n]	0 (0%)	3 (3.1%)	3 (1.7%)
[p, w]	0 (0%)	1 (1.0%)	1 (0.6%)
habitat			
[d, h]	1 (1.3%)	3 (3.1%)	4 (2.3%)
[d]	47 (61.0%)	57 (59.4%)	104 (60.1%)
[g, d, h]	1 (1.3%)	0 (0%)	1 (0.6%)
[g, d]	6 (7.8%)	4 (4.2%)	10 (5.8%)
[g, h, d]	1 (1.3%)	2 (2.1%)	3 (1.7%)
[g, l, m, d]	1 (1.3%)	0 (0%)	1 (0.6%)
[g, m, d]	1 (1.3%)	4 (4.2%)	5 (2.9%)
[g, m]	3 (3.9%)	2 (2.1%)	5 (2.9%)
[g, u, d]	1 (1.3%)	0 (0%)	1 (0.6%)
[g]	1 (1.3%)	10 (10.4%)	11 (6.4%)
[l, d, h]	1 (1.3%)	0 (0%)	1 (0.6%)
[l, d]	7 (9.1%)	6 (6.3%)	13 (7.5%)
[l, h]	1 (1.3%)	0 (0%)	1 (0.6%)
[l]	1 (1.3%)	0 (0%)	1 (0.6%)
[m, d]	2 (2.6%)	1 (1.0%)	3 (1.7%)
[m]	1 (1.3%)	1 (1.0%)	2 (1.2%)
[w]	1 (1.3%)	0 (0%)	1 (0.6%)
[g, l, d]	0 (0%)	1 (1.0%)	1 (0.6%)
[h, d]	0 (0%)	2 (2.1%)	2 (1.2%)
[m, h]	0 (0%)	1 (1.0%)	1 (0.6%)
[p, d]	0 (0%)	2 (2.1%)	2 (1.2%)
season			
[a, w]	9 (11.7%)	6 (6.3%)	15 (8.7%)
[a]	5 (6.5%)	11 (11.5%)	16 (9.2%)
[s, a, w]	1 (1.3%)	0 (0%)	1 (0.6%)
[s, u, a, w]	7 (9.1%)	6 (6.3%)	13 (7.5%)
[s, u, a]	1 (1.3%)	4 (4.2%)	5 (2.9%)

	e	p	Overall
[s, u]	2 (2.6%)	1 (1.0%)	3 (1.7%)
[s]	1 (1.3%)	0 (0%)	1 (0.6%)
[u, a, w]	8 (10.4%)	4 (4.2%)	12 (6.9%)
[u, a]	43 (55.8%)	63 (65.6%)	106 (61.3%)
[u]	0 (0%)	1 (1.0%)	1 (0.6%)
Cap.diameter_min			
Mean (SD)	4.75 (5.74)	3.47 (2.27)	4.04 (4.22)
Median [Min, Max]	4.00 [0.500, 50.0]	3.00 [0.400, 10.0]	3.00 [0.400, 50.0]
Cap.diameter_max			
Mean (SD)	10.9 (7.29)	8.29 (5.58)	9.44 (6.50)
Median [Min, Max]	10.0 [1.50, 50.0]	7.00 [1.00, 30.0]	8.00 [1.00, 50.0]
stem.height_min			
Mean (SD)	4.52 (2.20)	4.14 (2.31)	4.31 (2.26)
Median [Min, Max]	4.00 [2.00, 15.0]	4.00 [0, 15.0]	4.00 [0, 15.0]
stem.height_max			
Mean (SD)	9.58 (5.03)	8.30 (4.03)	8.87 (4.53)
Median [Min, Max]	8.00 [3.00, 35.0]	8.00 [0, 20.0]	8.00 [0, 35.0]
stem.width_min			
Mean (SD)	10.1 (6.80)	7.26 (5.71)	8.53 (6.36)
Median [Min, Max]	10.0 [1.00, 40.0]	5.00 [0, 20.0]	8.00 [0, 40.0]
stem.width_max			
Mean (SD)	18.6 (15.7)	13.5 (11.8)	15.8 (13.9)
Median [Min, Max]	15.0 [1.00, 100]	10.0 [0, 60.0]	12.0 [0, 100]