Package 'SurveyDefense'

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Type Package

Title Survey Defense Tool

Version 0.2.0

Description
This tool is designed to analyze up to 5 Fraud Detection Questions integrated into a survey, focusing on potential fraudulent participants to clean the survey dataset from potential fraud. Fraud Detection Questions and further information available at <https://surveydefense.org>.

License GPL-3

Encoding UTF-8

Depends R (>= 3.5.0)

Imports dplyr, flextable, utils

Suggests officer

RoxygenNote 7.3.2

NeedsCompilation no

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Repository CRAN

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Contents

FraudDetec1   *Fraud Detection Analysis Tool 1*

Description

This function analyzes survey data based on up to 5 Fraud Detection Questions and generates results in Word and HTML formats.

Usage

```
FraudDetec1(
  output_dir,
  data,
  FraudList,
  correct_answers = c(0, 0, 0, 0, 0),
  ...
)
```

Arguments

output_dir	Path specifying where the Word and HTML files will be saved.
data	The data frame containing all the survey data.
FraudList	A character vector of up to 5 Fraud Detection Questions.
correct_answers	
	A numeric vector representing correct answers for each question. Default is c(0, 0, 0, 0, 0).
...	Survey questions to be analyzed.

Value

A flextable object with the fraud detection analysis results. The results include summary statistics and metrics comparing responses from reliable and fraudulent participants.

Examples

```
if (requireNamespace("flextable", quietly = TRUE) && requireNamespace("officer", quietly = TRUE)) {
  library(flextable)
  library(officer)

  # Example data for fraud detection analysis
  Q1 <- c(4, 5, 3, 2, 5, 2)
  Q2 <- c(3, 4, 2, 5, 4, 3)
  Q3 <- c(5, 4, 3, 5, 4, 5)
  Q4 <- c(1, 2, 3, 4, 5, 2)
  Q5 <- c(5, 2, 2, 1, 4, 1)
  Q6 <- c(5, 2, 3, 5, 1, 2)
  Q7 <- c(5, 2, 4, 5, 3, 4)
```

```
  Fraud1 <- c(0, 1, 0, 0, 0, 0)
  Fraud2 <- c(0, 0, 0, 0, 0, 0)
  Fraud3 <- c(0, 1, 0, 0, 0, 0)
  Fraud4 <- c(0, 0, 1, 0, 0, 1)
  Fraud5 <- c(0, 0, 0, 1, 1, 1)

 Test_Data_Fraud <- data.frame(Q1, Q2, Q3, Q4, Q5, Q6, Q7, Fraud1, Fraud2, Fraud3, Fraud4, Fraud5)

  temp_dir <- tempdir()

  FraudDetec1(
    output_dir = temp_dir,
    data = Test_Data_Fraud,
    FraudList = c("Fraud1", "Fraud2", "Fraud3", "Fraud4", "Fraud5"),
    correct_answers = c(0, 0, 0, 0, 0),
    Q1, Q2, Q3, Q4, Q5, Q6, Q7
  )
}
```

FraudDetec2 *Fraud Detection Analysis Tool 2*

Description

This function analyzes survey data using up to 5 Fraud Detection Questions and generates a report in Word and HTML formats.

Usage

```
FraudDetec2(
  output_dir,
  data,
  FraudList,
  correct_answers = c(0, 0, 0, 0, 0),
  ...
)
```

Arguments

output_dir	Path specifying where the Word and HTML files will be saved.
data	The data frame containing all the survey data.
FraudList	A character vector of up to 5 Fraud Detection Questions.
correct_answers	
	A numeric vector representing correct answers for each question. Default is c(0, 0, 0, 0, 0).
...	Survey questions to be analyzed.

Value

A flextable object with the fraud detection analysis results, including summary statistics for the overall sample and identified fraudulent responses.

Examples

```
if (requireNamespace("flextable", quietly = TRUE) && requireNamespace("officer", quietly = TRUE)) {
  library(flextable)
  library(officer)

  # Example data for fraud detection analysis
  Q1 <- c(4, 5, 3, 2, 5, 2)
  Q2 <- c(3, 4, 2, 5, 4, 3)
  Q3 <- c(5, 4, 3, 5, 4, 5)
  Q4 <- c(1, 2, 3, 4, 5, 2)
  Q5 <- c(5, 2, 2, 1, 4, 1)
  Q6 <- c(5, 2, 3, 5, 1, 2)
  Q7 <- c(5, 2, 4, 5, 3, 4)

  Fraud1 <- c(0, 1, 0, 0, 0, 0)
  Fraud2 <- c(0, 0, 0, 0, 0, 0)
  Fraud3 <- c(0, 1, 0, 0, 0, 0)
  Fraud4 <- c(0, 0, 1, 0, 0, 1)
  Fraud5 <- c(0, 0, 0, 1, 1, 1)

  Test_Data_Fraud <- data.frame(Q1, Q2, Q3, Q4, Q5, Q6, Q7, Fraud1, Fraud2, Fraud3, Fraud4, Fraud5)

  temp_dir <- tempdir()

  FraudDetec2(
    output_dir = temp_dir,
    data = Test_Data_Fraud,
    FraudList = c("Fraud1", "Fraud2", "Fraud3", "Fraud4", "Fraud5"),
    correct_answers = c(0, 0, 0, 0, 0),
    Q1, Q2, Q3, Q4, Q5, Q6, Q7
  )
}
```

FraudDetec3	*Fraud Detection Analysis Tool 3*

Description

Fraud Detection Analysis Tool 3

Usage

```
FraudDetec3(
  output_dir,
```

```
  data,
  FraudList,
  correct_answers = c(0, 0, 0, 0, 0),
  ...
)
```

Arguments

`output_dir`	Path specifying where the Word and HTML files will be saved.
`data`	The data frame containing all the survey data.
`FraudList`	A character vector of up to 5 Fraud Detection Questions.
`correct_answers`	
	A numeric vector representing correct answers for each question. Default is `c(0, 0, 0, 0, 0)`.
`...`	Survey questions to be analyzed.

Value

A flextable object with the results.

Examples

```
if (requireNamespace("flextable", quietly = TRUE) && requireNamespace("officer", quietly = TRUE)) {
  library(flextable)
  library(officer)

  # Example data for fraud detection analysis
  Q1 <- c(4, 5, 3, 2, 5, 2)
  Q2 <- c(3, 4, 2, 5, 4, 3)
  Q3 <- c(5, 4, 3, 5, 4, 5)
  Q4 <- c(1, 2, 3, 4, 5, 2)
  Q5 <- c(5, 2, 2, 1, 4, 1)
  Q6 <- c(5, 2, 3, 5, 1, 2)
  Q7 <- c(5, 2, 4, 5, 3, 4)

  Fraud1 <- c(0, 1, 0, 0, 0, 0)
  Fraud2 <- c(0, 0, 0, 0, 0, 0)
  Fraud3 <- c(0, 1, 0, 0, 0, 0)
  Fraud4 <- c(0, 0, 1, 0, 0, 1)
  Fraud5 <- c(0, 0, 0, 1, 1, 1)

  Test_Data_Fraud <- data.frame(Q1, Q2, Q3, Q4, Q5, Q6, Q7, Fraud1, Fraud2, Fraud3, Fraud4, Fraud5)

  temp_dir <- tempdir()

  FraudDetec3(
    output_dir = temp_dir,
    data = Test_Data_Fraud,
    FraudList = c("Fraud1", "Fraud2", "Fraud3", "Fraud4", "Fraud5"),
    correct_answers = c(0, 0, 0, 0, 0),
    Q1, Q2, Q3, Q4, Q5, Q6, Q7
```

```
  )
}
```

FraudDetec4   *Fraud Detection Analysis Tool 4*

Description

Fraud Detection Analysis Tool 4

Usage

```
FraudDetec4(
  output_dir,
  data,
  FraudList,
  correct_answers = c(0, 0, 0, 0, 0),
  ...
)
```

Arguments

output_dir   Path specifying where the Word and HTML files will be saved.

data   The data frame containing all the survey data.

FraudList   A character vector of up to 5 Fraud Detection Questions.

correct_answers
                 A numeric vector representing correct answers for each question. Default is
                 c(0, 0, 0, 0, 0).

...   Survey questions to be analyzed.

Value

A flextable object with the results.

Examples

```
if (requireNamespace("flextable", quietly = TRUE) && requireNamespace("officer", quietly = TRUE)) {
  library(flextable)
  library(officer)

  # Example data for fraud detection analysis
  Q1 <- c(4, 5, 3, 2, 5, 2)
  Q2 <- c(3, 4, 2, 5, 4, 3)
  Q3 <- c(5, 4, 3, 5, 4, 5)
  Q4 <- c(1, 2, 3, 4, 5, 2)
  Q5 <- c(5, 2, 2, 1, 4, 1)
  Q6 <- c(5, 2, 3, 5, 1, 2)
  Q7 <- c(5, 2, 4, 5, 3, 4)
```

```
   Fraud1 <- c(0, 1, 0, 0, 0, 0)
   Fraud2 <- c(0, 0, 0, 0, 0, 0)
   Fraud3 <- c(0, 1, 0, 0, 0, 0)
   Fraud4 <- c(0, 0, 1, 0, 0, 1)
   Fraud5 <- c(0, 0, 0, 1, 1, 1)

  Test_Data_Fraud <- data.frame(Q1, Q2, Q3, Q4, Q5, Q6, Q7, Fraud1, Fraud2, Fraud3, Fraud4, Fraud5)

   temp_dir <- tempdir()

   FraudDetec4(
     output_dir = temp_dir,
     data = Test_Data_Fraud,
     FraudList = c("Fraud1", "Fraud2", "Fraud3", "Fraud4", "Fraud5"),
     correct_answers = c(0, 0, 0, 0, 0),
     Q1, Q2, Q3, Q4, Q5, Q6, Q7
   )
}
```

FraudDetec5 *Fraud Detection Analysis Tool 5*

Description

Fraud Detection Analysis Tool 5

Usage

```
FraudDetec5(
  output_dir,
  data,
  FraudList,
  correct_answers = c(0, 0, 0, 0, 0),
  ...
)
```

Arguments

output_dir	Path specifying where the Word and HTML files will be saved.
data	The data frame containing all the survey data.
FraudList	A character vector of up to 5 Fraud Detection Questions.
correct_answers	
	A numeric vector representing correct answers for each question. Default is c(0, 0, 0, 0, 0).
...	Survey questions to be analyzed.

Value

A flextable object with the results.

Examples

```
if (requireNamespace("flextable", quietly = TRUE) && requireNamespace("officer", quietly = TRUE)) {
  library(flextable)
  library(officer)

  # Example data for fraud detection analysis
  Q1 <- c(4, 5, 3, 2, 5, 2)
  Q2 <- c(3, 4, 2, 5, 4, 3)
  Q3 <- c(5, 4, 3, 5, 4, 5)
  Q4 <- c(1, 2, 3, 4, 5, 2)
  Q5 <- c(5, 2, 2, 1, 4, 1)
  Q6 <- c(5, 2, 3, 5, 1, 2)
  Q7 <- c(5, 2, 4, 5, 3, 4)

  Fraud1 <- c(0, 1, 0, 0, 0, 0)
  Fraud2 <- c(0, 0, 0, 0, 0, 0)
  Fraud3 <- c(0, 1, 0, 0, 0, 0)
  Fraud4 <- c(0, 0, 1, 0, 0, 1)
  Fraud5 <- c(0, 0, 0, 1, 1, 1)

  Test_Data_Fraud <- data.frame(Q1, Q2, Q3, Q4, Q5, Q6, Q7, Fraud1, Fraud2, Fraud3, Fraud4, Fraud5)

  temp_dir <- tempdir()

  FraudDetec5(
    output_dir = temp_dir,
    data = Test_Data_Fraud,
    FraudList = c("Fraud1", "Fraud2", "Fraud3", "Fraud4", "Fraud5"),
    correct_answers = c(0, 0, 0, 0, 0),
    Q1, Q2, Q3, Q4, Q5, Q6, Q7
  )
}
```

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