Package ‘ProfessR’

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Programs to determine student grades and create examinations from Question banks. Programs will create numerous multiple choice exams, randomly shuffled, for different versions of same question list.

Details

Package: ProfessR
Type: Package
Version: 2.0
Date: 2012-11-26
License: GPL
autoemail

**Description**

Automatically email a file to an address using the perl program.

**Usage**

```r
autoemail(eadd, sfile, hnote = "Exam Results")
```

**Arguments**

- `eadd` Email address
- `sfile` file to be sent
- `hnote` subject line

**Examples**

```r
# making tests:
data(QBANK)
make.exam(QBANK, ofile="exam1.tex")

# setting grades:
g = rnorm(n=130, m=82, sd=10)
g[g>100] = 100
g[g<1] = 1
B = boxplot(g)
divs = c(min(g), B$stats[1:4] + diff(B$stats)/2, max(g))
D1 = do.grades(g, divs=divs, tit="GEOL 105 Exam 1")
```
Details

This program will work well in Linux and Mac where Perl is installed - I am not sure about Win-
dows. Creates a unix executable file, if perl is present.

Value

Side Effects.

Note

Need to change the from designation.

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

See Also

IDandEM

CHECKbank

Check a set of Question banks

Description

Sequentially check a set of Question banks. Makes sure there is a QUESTION: and ANSWER for
each question.

Usage

CHECKbank(QB)

Arguments

QB list of question banks

Value

Printed Side Effects

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

See Also

seebank
checkgrades

Examples

data(QBANK1)
CHECKbank(QBANK1)

# modify by inserting an error:
QBANK1[[4]]$numANS=NULL

### recheck:
CHECKbank(QBANK1)

---

checkgrades | Check Grade Distribution

Description

View grades sorted and listed with raw score, letter and scaled score, with optional ID and name

Usage

checkgrades(D1, id = NULL, names = NULL)

Arguments

D1 output of do.grades
id character vector, ID for students
names character vector, names of students

Value

Side effects

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

See Also

do.grades, DUMPgrades
Examples

g = rnorm(n=130, m=82, sd=10)
g[g>100] = 100
g[g<1] = 1

B = boxplot(g)

divs = c(min(g), B$stats[1:4] + diff(B$stats)/2, max(g) )

### to run interactively, remove the divs
### D1 = do.grades(g, tit="GEOL 105 Exam 1")

### otherwise use previously calculated divs:
D1 = do.grades(g, divs=divs, tit="GEOL 105 Exam 1")
checkgrades(D1 )

---

**COMPbank**

*Compare Question Banks*

**Description**

Compare two question banks to find non-duplicated questions

**Usage**

COMPbank(Qbank1, Qbank2)

**Arguments**

- **Qbank1** Question Bank 1
- **Qbank2** Question Bank 2

**Details**

Uses match to find matching questions in the two question banks.

**Value**

Vector index of questions in Qbank2 that are not found in Qbank1.
Note

Only the questions are compared, the answers are ignored. The return vector will be a set of questions that are not duplicated, i.e. unique to question bank 2.

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

See Also

SELbank

Examples

```r
## Not run:
LF = list.files(path="/home/lees/Class/GEOL_105/TESTBANK/EXAM_1", pattern="txt", full.names=TRUE )

kbank = vector(mode='list')
########## read in the question banks, each in one file
for(i in 1:length(LF))
{
  h = Get.testbank(LF[i])
  kbank[[i]] = Get.testbank(LF[i])
}

names(kbank) = LF
Kbank = vector(mode='list')

for(i in 1:length(kbank))
{
  Kbank = c(Kbank, kbank[[i]])
}

q2 = COMPbank(Kbank, kbank[[3]] )

########## to extract these:
subq2 = subsetbank(kbank[[3]], q2)
########## to get the overlapping questions:
olap = 1:length(kbank[[3]])
olap[-q2]
```

## End(Not run)
do.grades  

**Description**

Calculate the grades of a class of students, given raw scores on exam

**Usage**

do.grades(ggrades, divs = NULL, cut = 0, tit = "Exam Grades", breaks=length(ggrades)/3, ...)

**Arguments**

- **ggrades** Raw grades
- **divs** divisions for grades (optional)
- **cut** low end Cut off to remove 0 from statistics
- **tit** Title for Figure
- **breaks** breaks for the histogram, default=length(ggrades)/3
- **...** other parameters for hist

**Details**

To remove students who do not take the test a low end cut off is used to excise any grades below that level. Both mean, and standard deviations are shown as well as median and quartiles.

**Value**

ggrades, lett, scor, divs, LETS, SCRS, hist

- **grades** raw scores
- **lett** letter grades
- **scor** scaled grades
- **divs** divisions, estimated by user or provided as input
- **LETS** letter grades assigned
- **SCRS** Scores related to LETS
- **hist** histogram structure

**Note**

Grades are determined linearly within a division

**Author(s)**

Jonathan M. Lees<jonathan.lees@unc.edu>
do.grades

See Also

jist, DUMPgrades, getlet

Examples

g = rnorm(n=130, m=82, sd=10)
g[g>100] = 100
g[g<1] = 1

B = boxplot(g)

############ set divisions automatically:
divs = c(min(g), B$stats[1:4] + diff(B$stats)/2, max(g) )

### to run interactively, remove the divs
### D1 = do.grades(g, tit="GEOL 105 Exam 1")

### otherwise use previously calculated divs:
D1 = do.grades(g, divs=divs, tit="GEOL 105 Exam 1")

## Not run:

##### this is interactive
D1 = do.grades(g, tit="GEOL 105 Exam 1")

##### list the grades:
cbind(D1$grades, D1$lett, D1$scor)

##### if you have names or ID's try:
##### cbind(IDs, D1$grades, D1$lett, D1$scor)
\dontrun{

  DUMPgrades(D1, file="TEST1grades", id=IDS )
}

## End(Not run)
**droplowest**

**Drop lowest grade**

**Description**

Drop the lowest grade from a matrix of grades. Matrix is assumed to be N by m where m is the number of exams (columns), N the number of students (rows).

**Usage**

```r
droplowest(z)
```

**Arguments**

- `z` Matrix of scores, rows are students, columns are exam scores

**Details**

Best matrix output is sorted, so the grades do not reflect the original order of exam scores. To drop the two lowest scores, apply this program twice, running it a second time on the best output.

**Value**

- `minind` Index of minimum score
- `best` matrix of scores with the lowest dropped
- `midgrade` mean value of best scores

**Author(s)**

Jonathan M. Lees<br>jonathan.lees@unc.edu

**See Also**

- do.grades

**Examples**

```r
### generate fake exam scores, 10 students, 3 exams
z = matrix(runif(3*10, 50, 100), ncol=3)
A = droplowest(z)
cbind(A$best, A$minind, z, A$midgrade)
```
**DUMPbank**

*Dump a Question Bank*

**Description**

Save an ASCII version of a selected Question Bank

**Usage**

```
DUMPbank(ofile, QB, sep = "\n", append=TRUE)
```

**Arguments**

- `ofile` character, output file
- `QB` QuestionBank Structure
- `sep` separator between questions
- `append` logical, if FALSE a new file is created

**Value**

Side effects

**Author(s)**

Jonathan M. Lees <jonathan.lees@unc.edu>

**See Also**

Get.testbank

**Examples**

```r
data(QBANK1)
DUMPbank("my.questions", QBANK1, sep = "\n")
QB1=Get.testbank("my.questions")
```
DUMPgrades
Dump grades to a file

Description
Dump grades to a file

Usage
DUMPgrades(D1, file = NULL, id = NULL, names = NULL)

Arguments

- `D1`: list output from do.grades
- `file`: file name, a csv will be added as a suffix
- `id`: vector of student IDs
- `names`: character vector of student names

Value
Side effects

Author(s)
Jonathan M. Lees<jonathan.lees@unc.edu>

See Also
do.grades

Examples

```r
g = rnorm(n=130, m=82, sd=10)
g[g>100] = 100
g[g<1] = 1
B = boxplot(g)
divs = c(min(g), B$stats[1:4] + diff(B$stats)/2, max(g) )
```

```r
### to run interactively, remove the divs
### D1 = do.grades(g, tit="GEOL 105 Exam 1")

### otherwise use previously calculated divs:
D1 = do.grades(g, divs=divs, tit="GEOL 105 Exam 1")
```
DUPbank

Find Duplicate Questions

Description

Finds duplicated questions in a set of Question Banks

Usage

DUPbank(qbank)

Arguments

qbank a list of Question Banks

Details

The program only checks the questions, not the answers. One could thus have several questions with the same wording, but different answers. I might change this in the future. Given the list of duplicated questions one should edit the original question bank files to remove them.

Value

A vector of duplicated questions
F vector of duplicated files where the questions were extracted
I vector of duplicated indexes where the questions were extracted
N vector of duplicated indexes where the questions were extracted

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>
Examples

data(QBANK1)

### force some questions to be duplicates:
QBANK1[[51]]=QBANK1[[25]]
QBANK1[[52]]=QBANK1[[12]]
QBANK1[[14]]=QBANK1[[4]]

DQ = DUPlbank(QBANK1)

DQ

---

**E2grades**

*Examination grades from Test 2 in 2007*

---

**Description**

Real exam raw scores from test in Geology 105, University of North Carolina. Zeros are assigned to students who did not take the test.

**Usage**

`data(E2grades)`

**Format**

numeric vector

**Examples**

```r
data(E2grades)

g = E2grades

B = boxplot(g[g>1], plot=FALSE)
divs = c(min(g), B$stats[1:4] + diff(B$stats)/2, max(g))
### get(getOption("device"))(width = 12, height = 7)

D1 = do_grades(g, divs=divs, cut = 15, tit="GEOL 105 Exam 1")
jist(D1$hist, D1$grades, D1$lett, col='purple')
```
**Exam Statistics**

**Description**
Statistical Analysis of Examination where the results are either correct or incorrect.

**Usage**

```r
EXAMstats(j, key)
```

**Arguments**

- `j`: matrix of student responses
- `key`: key of correct answers

**Details**
At this stage no partial credit is given.

**Value**
List

- `h`: Matrix: question, correct response, student responses, difficulty, Desc, BiSer
- `kr20`: Kruder-Richardson reliability statistic

**Note**
There is a slightly different implementation if partial credit is employed. See

**Author(s)**
Jonathan M. Lees<jonathan.lees@unc.edu>

**References**


**See Also**
readSCANTRON
Examples

```r
## Not run:
B2 = readSCANTRON(rawfn2)

Estat = EXAMstats(B2$studans, B2$key)
Estat$kr20

## End(Not run)
```

---

**fix.names**  
*Fix Down Loaded Names*

**Description**

Fix names to remove problematic alphanumeric characters like spaces, quotes

**Usage**

```r
fix.names(nam, upper=FALSE, lower=FALSE)
```

**Arguments**

- `nam`  
  - `string`
- `upper`  
  - `logical`, `TRUE=` convert to upper case
- `lower`  
  - `logical`, `TRUE=` convert to lower case

**Details**

Currently only space, single and double quotes.

**Value**

- `string`, with quote replaced with underscore

**Author(s)**

Jonathan M. Lees<jonathan.lees@unc.edu>
Examples

```r
#### examples with embedded quotes are not available
#### because they interfere with R documentation

LAM = "SILENCED LAMB"
fix.names(LAM, lower=TRUE)

LAM = "Silence my Lamb"
fix.names(LAM, upper=TRUE)

LAM = "SILENCED LAMB"
fix.names(LAM)

#### try with single quote
LAM = "O'brian LAMB"
fix.names(LAM)
```

Description

Get Test Bank From Ascii Text Files

Usage

`Get.testbank(fn)`

Arguments

- `fn` File Name

Details

Structure of input file is strict: see the vignette for an example. Each questions starts with the tag QUESTION: (there is a space following the colon on all tags) followed by answers with the correct answer indicated by the tag ANSWER: . The tag FIG: allows the examiner to include a figure with a latex tag for reference. For example: ‘ QUESTION: What was the world like during the Late Paleocene Torrid Age?
ANSWER: a. Most of the world was wetter and warmer. b. Most of the world was drier and warmer. c. Most of the world was wetter, but a little cooler. d. Most of the world was a desert. e. It is impossible to estimate conditions at that time. ’

Value

List: list of Questions
Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

Examples

```r
## Not run:
fn = "MY.questions"
Qbank = Get.testbank(fn)

########## use existing database:
data(QBANK1)
#### dump out question bank in correct format:
DUMPbank("my.questions", QBANK1, sep = "\n")
### read it in:
QB1=Get.testbank("my.questions")
```

## End(Not run)

---

**getKEY**  
*Read Key output*

**Description**
Read Key output

**Usage**

`getKEY(fn)`

**Arguments**

- `fn`  
  character string file name

**Details**
Reads in the file output of ProfessR and returns a vector of answers

**Value**

vector of correct answers

**Author(s)**

Jonathan M. Lees<jonathan.lees@unc.edu>
See Also

version.exam, prep.solutions

glet 
Get Letter Grades

Description
Get letter grades from list of numeric scores

Usage

glet(ggrades, divs)

Arguments

ggrades vector of grades
divs numerical vector of divisions

Details
Returns letter grades scaled linearly between divisions.

Value
LIST:
ggrades Input grades
lett letter values
scor scores after scaling
divs divisions used in setting scores
LETS Letters for grades
SCRS numeric divisions used for LETS
olett letter values, older version
oscor scores after scaling, older version binned

Author(s)
Jonathan M. Lees<jonathan.lees@unc.edu>

See Also
do.grades
Examples

```r
g = rnorm(130, m=82, sd=10)
g[g>100] = 100
g[g<1] = 1

B = boxplot(g)

divs = c(min(g), B$stats[1:4] + diff(B$stats)/2, max(g))

G = getlet(g, divs)
cbind(G$LETS, G$SCRS)
```

data.frame(G$grades, G$lett, G$scor)

---

**gradeSCAN**  
*Grade a SCANTRON*

**Description**

Grade each row of a matrix which is a record of the scanned answers from a test.

**Usage**

`gradeSCAN(j, key)`

**Arguments**

- `j`  
  matrix, scanned answers from the grading center

- `key`  
  vector, key for grading

**Details**

Program sums correct answers and returns the score for each row.

**Value**

vector of scores
IDandEM

Author(s)
Jonathan M. Lees<jonathan.lees@unc.edu>

IDandEM Match ID and Email file

Description
Match ID and Email file

Usage
IDandEM(scrfn, sisroster, sel = 1:2, hnote = "Exam Results", SEND = TRUE)

Arguments
<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>scrfn</td>
<td>list(ID=number, nam=&quot;name on scantron&quot;)</td>
</tr>
<tr>
<td>sisroster</td>
<td>list(ID=number, lastname='last name of student', fullname='full name of student')</td>
</tr>
<tr>
<td>sel</td>
<td>numeric, index= specify for a specific student</td>
</tr>
<tr>
<td>hnote</td>
<td>text, subject line on E-mail</td>
</tr>
<tr>
<td>SEND</td>
<td>logical, if FALSE, do not send</td>
</tr>
</tbody>
</table>

Details
A set of files has been separated and stored. Each file is to sent to a different student with the exam results.

Value
Side Effects

Note
The IDs of the reference data base (the roster) must match the IDs in the list of files. If not, use repair.id to fix the scantron IDs

Author(s)
Jonathan M. Lees<jonathan.lees@unc.edu>

See Also
repair.id
jist

Add letter grades to histogram

Description

Given a vector of grades, add the letters to an existing histogram.

Usage

`jist(h, Z, L, col)`

Arguments

- `h`: histogram list
- `Z`: grades from original data
- `L`: letters associated with grades
- `col`: color for plotting letters

Details

This will add information on an existing histogram plot. If `h` is the output of `do.grades()` then `Z` and `L` are ignored.

Examples

```r
## Not run:
## read in the names of the files
zfile = scan(file=“ALLIDS”, list(name=“”, ID=0, tfile=“”), sep=“,”)
## read in a roster. The roster has
##   email addresses that are attached to the files
## by matching the ID in the zfile with the IDs in the database
load(file=“/home/lees/Class/GEOL_105/Grades_2008/EXAM1/BB1.RDATA”)

jroster = BB1

IDandEM(zfile, jroster, sel=1:10, hnote=“GEOL105 EXAM3 Results”, SEND=FALSE )

IDandEM(zfile, jroster, hnote=“GEOL105 EXAM3 Results”, SEND=FALSE )

####### actual sending
IDandEM(zfile, jroster, hnote=“GEOL105 EXAM3 Results”, SEND=TRUE )

## End(Not run)
```
LETGRADE

Value

Graphical Side effects

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

See Also

do.grades

Examples

```r
g = rnorm(130, m=82, sd=10)
g[g>100] = 100
g[g<1] = 1
B = boxplot(g)

divs = c(min(g), B$stats[1:4] + diff(B$stats)/2, max(g) )

###G1 = do.grades(g, cut=20, tit="GEOL 105 Exam 1")

############ replot with existing divisions:
D1 = do.grades(g, divs=divs, tit="GEOL 105 Exam 1")

jist(D1$hist, D1$grades, D1$lett)

############ or simply:
D1 = do.grades(g, divs=divs, tit="GEOL 105 Exam 1")

jist(D1)
```

---

LETGRADE

<table>
<thead>
<tr>
<th>Letter Grade</th>
</tr>
</thead>
</table>

Description

given a numeric grade return a letter grade

Usage

LETGRADE(g)
Arguments


g
numeric grade between 1-100

Details

returns a grade based on a 4 point spread

Value

character vector of grades

Note

Failing grade is "E" by default. There is no "A+" in this program (UNC policy)

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

Examples

g = rnorm(25, m=82, sd=10)
g[g>100] = 100
g[g<1] = 1

L = LETGRADE(g)
cbind(g, L)

make.exam

Make Exam

Description

Given a question bank, create a test.

Usage

make.exam(Qbank, ofile = "examq.tex", ncol=2)

Arguments

Qbank Question bank list
ofile Output file
ncol number of columns on page, default=2
make.solution

Details

Dumps out a tex file with the questions

Value

Side Effects - output to a TEX file.

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

See Also

prep.exam

Examples

data(QBANK1)

## Not run:
make.exam(QBANK1, ofile="exam1.tex")

## End(Not run)

make.solution  Create Solution File

Description

Create Solution File in Latex

Usage

make.solution(Qbank, ofile = "answers.tex")

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qbank</td>
<td>Question Bank</td>
</tr>
<tr>
<td>ofile</td>
<td>Output File</td>
</tr>
</tbody>
</table>

Details

Creates a latex file suitable for printing solution to the exam.
phist

Plot Histogram with Grades labeled

Description
Plot Histogram with Grades labeled

Usage
phist(G, Z = 1, L = 1, col = 2, add = FALSE, tit = "GEOG 105 Exam 1")

Arguments
G   Histogram list from do.grades
Z   numerical grades
L   text, vector, Letter Grades
col  color for text
add  logical, add=TRUE, add to existing plot
tit  title for plot

Value
List:
x   x location on plot
y   y location on plot
L   Label printed
prep.exam

Author(s)
Jonathan M. Lees <jonathan.lees@unc.edu>

See Also
do.grades

Examples

```r
## Not run:
newID3 = repair.id(DBB, raw3)
raw3$id=newID3
raw3$ID=newID3

## End(Not run)
```

---

**prep.exam**

Prepare Exam for Latex (simple style)

**Description**
Prepare Exam for Latex - use simple styles

**Usage**

```r
prep.exam(OF, incfile, instructor="", examdate="", course="", examname="", instructions="", ncol=2)
```

**Arguments**

- `OF` Character string output files
- `incfile` Character, include file name for questions
- `instructor` name of instructor
- `examdate` Date of the examination
- `course` Name of the course, character
- `examname` title of exam
- `instructions` character vector of instructions
- `ncol` number of columns on page, default=2

**Value**
Side Effects
Author(s)
Jonathan M. Lees<jonathan.lees@unc.edu>

See Also
version.exam

Examples

## Not run:
### since the program produces a file on the local system, do not run this example

```r
examdate="THURS Sep 20 2007"

seqnum="1"
exnumber="Exam 1"
V = "exam1A"
outtex = paste(sep=".",V, "tex"
outMAST = paste(sep="", V, "MAST"

MASTtext = paste(sep=".", outMAST, "tex"
outsolut = paste(sep="", V, "solutions.tex"
Me = "Jonathan M. Lees"
course="GEOL 105"
examiname=paste(sep=" ", exnumber, "Seq", seqnum)

instructions=c("There are 50 questions.", "Answer all questions.", "Mark clearly.")
\dontrun{
prep.exam(outMAST, outtex, instructor=Me, examdate=examdate, course=course, examname=examname, instructions=instructions)
}

## End(Not run)
prep.solver

Prepare Solution Files

Description
Prepare Latex Solution Files

Usage
prep.solver(ofile)

Arguments
ofile output file name

Details
Prepares the Latex header for the solution files

Value
Side Effects

Author(s)
Jonathan M. Lees<jonathan.lees@unc.edu>

See Also
prep.exam

Examples
prep.solver("solfile")

printSCANTRON
Print Scantron

Description
Print results from scantron center

Usage
printSCANTRON(B1)
Arguments

B1 list, output of readSCANTRON: must have elements studans, Nams, ids

Value

side effects

Note

Prints the matrix returned from the scantron center.

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

See Also

readSCANTRON

Examples

```r
## Not run:

datadir = "./DATA"
rawfn1 = paste(datadir,'t6200a.raw.csv', sep="/"

B1 = readSCANTRON(rawfn1)
printSCANTRON(B1)

## End(Not run)
```

---

**Q BANK1**

**Example Question Bank**

**Description**

Example Question Bank, 50 question, multiple Choice

**Usage**

data(Q BANK1)
ran.exam

Format

List:

Q  Question in latex format (character string)
A  Possible Answers in latex format (vector of character strings)
a  Correct Answer in latex format (character string)
numANS index number corresponding to correct answer
FIG  character: full path to figure, tag for figure

Details

An example input question in ascii format is constructed using three tag identifiers: "QUESTION:“, "ANSWER:“ and (optionally) "FIG:“. The format is shown here:

Examples

data(QBANK1)
## maybe str(QBANK1) ; plot(QBANK1) ... 
print(QBANK1[[1]])

Description

Randomly re-order the questions in a Question Bank

Usage

ran.exam(Qbank)

Arguments

Qbank Question Bank List

Details

randomly re-order the questions in a Question Bank

Value

Question bank

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>
See Also

Get.testbank

Examples

data(QBANK1)
NEWQB = ran.exam(QBANK1)

readSCANTRON Read Scantron

Description

Read UNC scantron

Usage

readSCANTRON(fn = "t9543b.raw.csv", nq = 50, istart = 6)

Arguments

fn character, name of digital file with raw scores
nq integer, Number of questions to read
istart integer, start of column for first question

Details

The data is scanned by machine. If a student marks on the exam past the correct number of ques-
tions, the machine assumes there are legitimate repsonses beyond the key.

Value

list:

Nstudents number of students
Nquestions number of questions
Nams names of students
ids Ids of students
studans matrix, student answers
key key for grading

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>
rename.answers

Examples

```r
## Not run:

datadir = "/DATA"
rawfn1 = paste(datadir,'t6200a.raw.csv', sep="/")

B1 = readSCANTRON(rawfn1)
```

## End(Not run)

rename.answers  Rename Answers

Description

Rename the answers on a Question Bank

Usage

```r
rename.answers(Qbank, newnames = letters[1:26], sep = "")
```

Arguments

- `Qbank`: Question Bank
- `newnames`: vector of new names
- `sep`: separator between name of Answer and Answer String

Details

Takes the given list of questions, and returns same list with answers rephrases by a different set of itemizers

Value

Question Bank List

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

See Also

Get.testbank
Examples

data(QBANK1)

newnames=letters[1:26]
NEWQB = rename.answers(QBANK1, newnames=newnames )
NEWQB[[35]]

newnames=1:26
NEWQB = rename.answers(QBANK1, newnames=newnames )
NEWQB[[35]]

newnames=LETTERS[1:26]
NEWQB = rename.answers(QBANK1, newnames=newnames )
NEWQB[[35]]

repair.id  Repair Poorly Bubbled Student ID

Description

Repair Poorly Bubbled Student IDs by matching to a reliable data base of names and IDs. Routine offers a set of possible matches if several may be appropriate.

Usage

repair.id(sisroster, scrfn)

Arguments

sisroster  Reference Data set
scrfn  Scantron Output

Details

Program searchers for missing ID’s by attempting to match up names.

Value

newid  New vector of IDs that correspond to the scantron input

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>
ridNA

Replace NA with something else

### Description
Replace NA with something else

### Usage
```
ridNA(z, temp)
```

### Arguments
- `z` vector
- `temp` replacement

### Value
vector with NA's replaces

### Author(s)
Jonathan M. Lees<jonathan.lees@unc.edu>

### Examples
```
z = 1:10
z[z>8] = NA

ridNA(z, 0)
```

---

scramble.answers

Scramble Answers

### Description
Randomly rearrange answers within a question of a test bank

### Usage
```
scramble.answers(Qbank)
```

---
Arguments

qbank  Question Bank (list of Questions)

Details

Takes the given list of questions, and returns same list with answers scrambled.

Value

Question Bank List

Note

Since some question require that the answers be ordered in a certain way, these are not Randomized in this scrambling process. These include:

c("all of the above", "none of the above", "None of these are correct", "all of the choices are correct"

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

See Also

Get.testbank

Examples

data(QBANK1)

QBANK1[[35]]

NEWQ8 = scramble.answers(QBANK1)
NEWQ8[[35]]

SEARCHbank

Search Question Bank for Keyword

Description

Search a question bank for key words.

Usage

SEARCHbank(gw, y = "humidity")
**Arguments**

- `gw` Question Bank
- `y` key word

**Details**

Dumps to the screen the questions that match the key.

**Value**

Side effects - dumps to the screen. returns a vector of questions that match.

**Author(s)**

Jonathan M. Lees<jonathan.lees@unc.edu>

**See Also**

seebank, Get.testbank, SELbank, COMPbank

**Examples**

```r
## Not run:
#### seebank program is interactive -
data(QBANK1)
SEARCHbank(QBANK1, "humidity")
## End(Not run)
```

---

**seebank**

*Print out a bank of questions*

---

**Description**

Prints out a bank of questions, one at a time

**Usage**

`seebank(QB)`

**Arguments**

- `QB` QuestionBank Structure
Value
Side effects

Author(s)
Jonathan M. Lees<jonathan.lees@unc.edu>

Examples

```r
# Not run:
#### seebank program is interactive -
data(QBANK1)
seebank(QBANK1)

# End(Not run)
```

---

**seequestions**

*See Questions Sequentially*

Description
Print questions to the screen

Usage
```
seequestions(QB)
```

Arguments
QB

Details
Prints just the questions to the screen.

Value
Prints to screen

Author(s)
Jonathan M. Lees<jonathan.lees@unc.edu>
SELbank

See Also

seebank

Examples

```r
## Not run:
LF = list.files(path="/home/lees/Class/GEOL_105/TESTBANK/EXAM_1", pattern="txt", full.names=TRUE )

kbank = vector(mode='list')
###### read in the question banks, each in one file
for(i in 1:length(LF))
{
   h = Get.testbank(LF[i])
   kbank[[i]] = Get.testbank(LF[i])
}

names(kbank) = LF

cbind( seequestions(kbank[[1]]))

## End(Not run)
```

Description

Select, random set of questions from a test bank.

Usage

```r
SELbank(QB, N, xclude=NULL)
```

Arguments

- `QB` Question bank
- `N` integer, number of questions to select
- `xclude` integer vector, index of questions to exclude, default=NULL
Details

Program uses sample to get a random perturbation, and then pulls out the first N questions.

Value

Question bank

Author(s)

Jonathan M. Lees <jonathan.lees@unc.edu>

See Also

Get.testbank

Examples

```r
### Not run:
LF = list.files(path="/home/lees/Class/GEOL_105/TESTBANK/EXAM_1", pattern="txt", full.names=TRUE)

kbank = vector(mode='list')
#### read in the question banks, each in one file
for(i in 1:length(LF))
{
    h = Get.testbank(LF[i])
    kbank[[i]] = Get.testbank(LF[i])
}

names(kbank) = LF
Kbank = vector(mode='list')

for(i in 1:length(kbank))
{
    Kbank = c(Kbank, kbank[[i]])
}

########### get 50 sample questions
NEWQB = SELbank(Kbank, 50)

# End(Not run)
```
**show.dist**

*Show Distribution of Grades*

**Description**

Show Distribution of Grades

**Usage**

```r
show.dist(W)
```

**Arguments**

- `W` list output of `do.grades`

**Details**

Print out the distribution of letter grades

**Value**

Side Effects

**Author(s)**

Jonathan M. Lees

 jonathan.lees@unc.edu

**See Also**

- `do.grades`

**Examples**

```r
set.seed(1)
g <- rnorm(n=130, m=82, sd=10)
g[g>100] <- 100
B <- boxplot(g)

divs = c(min(g), B$stats[1:4] + diff(B$stats)/2, max(g))
D1 = do.grades(g, divs=divs, tit="GEOL 105 Exam 1")
show.dist(D1)
```
subsetbank

**Description**

Extract a subset from a question bank

**Usage**

```r
subsetbank(QBANK, sel)
```

**Arguments**

- `QBANK` Question Bank List
- `sel` integer vector of index to specific questions

**Details**

for selecting specific questions

**Value**

Question Bank with selections

**Author(s)**

Jonathan M. Lees<jonathan.lees@unc.edu>

**See Also**

SELbank, COMPbank

**Examples**

```r
# Not run:
LF = list.files(path="/home/lees/Class/GEOL_105/TESTBANK/EXAM_1", pattern="txt", full.names=TRUE )

kbank = vector(mode='list')
#### read in the question banks, each in one file
for(i in 1:length(LF))
{
    h = Get.testbank(LF[i])
    kbank[[i]] = Get.testbank(LF[i])
}

names(kbank) = LF
Kbank = vector(mode='list')
```
for(i in 1:length(kbank))
{

  Kbank = c(Kbank, kbank[[i]])
}

##########  get 50 odd numbered sample questions
isel = seq(from=1, to=100, by=2)
oddset1 = subsetbank(Kbank, isel)

## End(Not run)

---

**UNCkeytron**  
*Create a KEY for the scantron*

**Description**

Create a KEY for the scantron

**Usage**

`UNCkeytron(g, fout, LAB = "KEY")`

**Arguments**

- `g` : vector of correct answers
- `fout` : output file name
- `LAB` : Label to print on key

**Details**

Given a vector of correct answers the program will create a postscript file with a facsimile of the scantron used for examinations at UNC Chapel Hill. The Bubbles will be filled and can be used to prepare a number 2 pencil version.

**Value**

Side effects
Note

Currently only eps outputs - future versions may be different. At this time, the code creates postscript code, which can be converted to png, pdf or other formats with software outside of R. In linux I use a perlscript,

```
/home/lees/Progs/Perl/ps2png.prl files.eps
```

which, in turn, calls, epstopdf and

```
gs -dBATCH -sDEVICE=png16m -dNOPAUSE -r200 -sOutputFile=$outpf $inpf
```

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

See Also

getKEY

Examples

```
## Not run:

fkeyA = "/Users/lees/SCANTRON/A.FINAL.key"
fkeyB = "/Users/lees/SCANTRON/B.FINAL.key"
FKEY1 = getKEY(fkeyA)
FKEY2 = getKEY(fkeyB)

UNCkeytron(FKEY1, "AKEYfinal.eps", "A KEY final")
UNCkeytron(FKEY2, "BKEYfinal.eps", "B KEY final")

## End(Not run)
```

---

version.exam  Create 1 instance of a specific Exam

Description

Create 1 instance of a specific Exam

Usage

```
version.exam(Qbank, V, exnumber = "Exam 1", seqnum = "2", examdate = '',
instructor="", course="", instructions="", SAMP=TRUE, ncol=2)
```
version.exam

Arguments

- **Qbank**: question bank
- **V**: Character string output files
- **exnumber**: Exam number
- **seqnum**: Version Number
- **examedate**: Date of the examination
- **instructor**: character, name of teacher
- **course**: character, name of course
- **instructions**: vector of character strings
- **SAMP**: logical, if TRUE a random ordering to the questions is produced
- **ncol**: number of columns on page, default=2

Value

Side Effects

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

See Also

ran.exam, make.exam, prep.exam

Examples

```r
## the example creates files on the local system - thus not run
## Not run:
data(QBANK1)

examdate="THURS Sep 20 2007"

version.exam(QBANK1, "exam1A", exnumber="Exam 1", seqnum="1", examdate=examdate)

#........................................
examdate=date()

seqnum="1"
exnumber="Exam 1"
V = "exam1A"
outtex = paste(sep=".",V, "tex" )
outMAST = paste(sep="", V, "MAST" )

MASTtex = paste(sep=".", outMAST , "tex" )
outsolut = paste(sep="", V, "solutions.tex" )
```
wrist = "Jonathan M. Lees"

course="GEOL 105"

examiname=paste(sep=" ", exnumber, "Seq", seqnum)

K = length(QBANK1)

instructions=c(
  paste(sep=" ", "There are",K," number of questions.") ,
  "Answer all questions.","Use number 2 pencil",
  "Mark each box clearly."
)

version.exam(QBANK1, "exam1B", exnumber="Exam 1", seqnum="B",
  examdate=examdate, instructor=Me, course=course , instructions=instructions)

## End(Not run)

---

wrist  Write Histogram

Description

Write grades on Histogram

Usage

wrist(DB)

Arguments

<table>
<thead>
<tr>
<th>DB</th>
<th>Output of do.grades</th>
</tr>
</thead>
</table>

Details

Used internally in plotting programs

Value

Side Effects

Author(s)

Jonathan M. Lees<jonathan.lees@unc.edu>

See Also

do.grades
Examples

```r
wrist

g = rnorm(n=130, m=82, sd=10)
g[g>100] = 100
g[g<1] = 1

B = boxplot(g)

divs = c(min(g), B$stats[1:4] + diff(B$stats)/2, max(g))
D1 = do.grades(g, divs=divs, tit="GEOL 105 Exam 1")

hist(g)
wrist(D1)
```
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