REDCAP
DATA DICTIONARY CLASS (201)

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REDCap
Research Electronic Data Capture

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- Promotes translation of scientific discovery by:

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Learning Objectives

Learn how to leverage the data dictionary
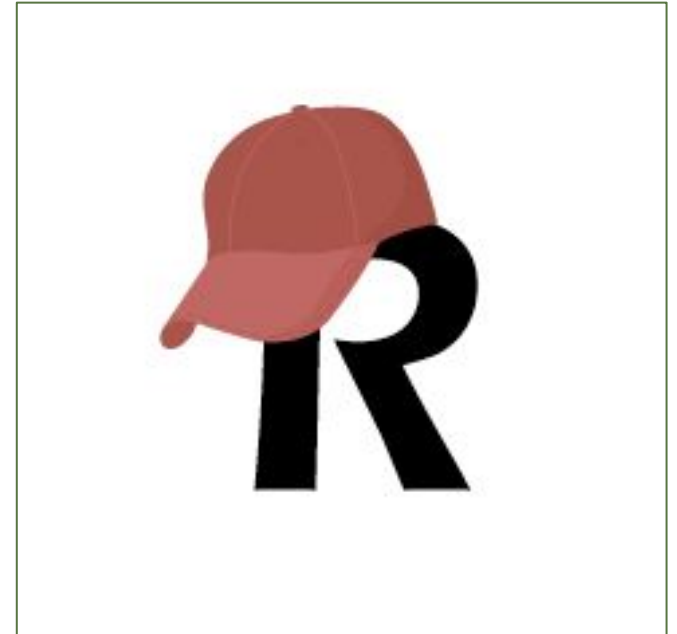

Data dictionary basics
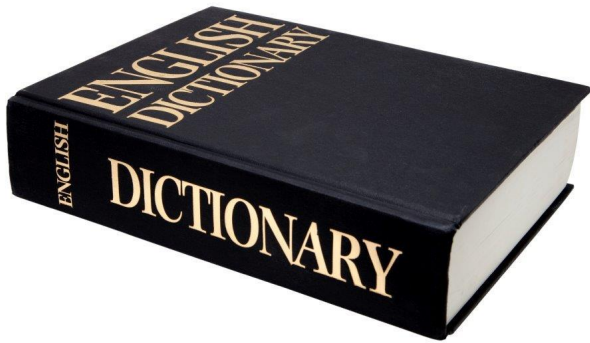

Column descriptions

General Excel Wizardry

Best practices

What's the data dictionary?

Higher learning threshold, larger risk for errors, but quicker form development.

► CSV spreadsheet that defines all:

- ❑ Forms
- ❑ Variables

► Does NOT define:

- ❑ Events
- ❑ Surveys, survey queues & settings
- ❑ Project settings
- ❑ User rights & data access groups
- ❑ Schedules
- ❑ Randomization
- ❑ Data quality rules
- ❑ Reports

Data dictionary workflow

Download the current data dictionary and backup

Data dictionaries can be downloaded in the data dictionary upload page located on the project setup page. Store a local backup of the data dictionary or use the snapshot feature.

Modify the data dictionary

Add or edit fields/forms/logic as needed.
Only use one mode of design at a time to prevent overwrites.

Upload your new data dictionary

REDCap will provide you with an overview of any errors it detected in your data dictionary. Correct those and re-upload.
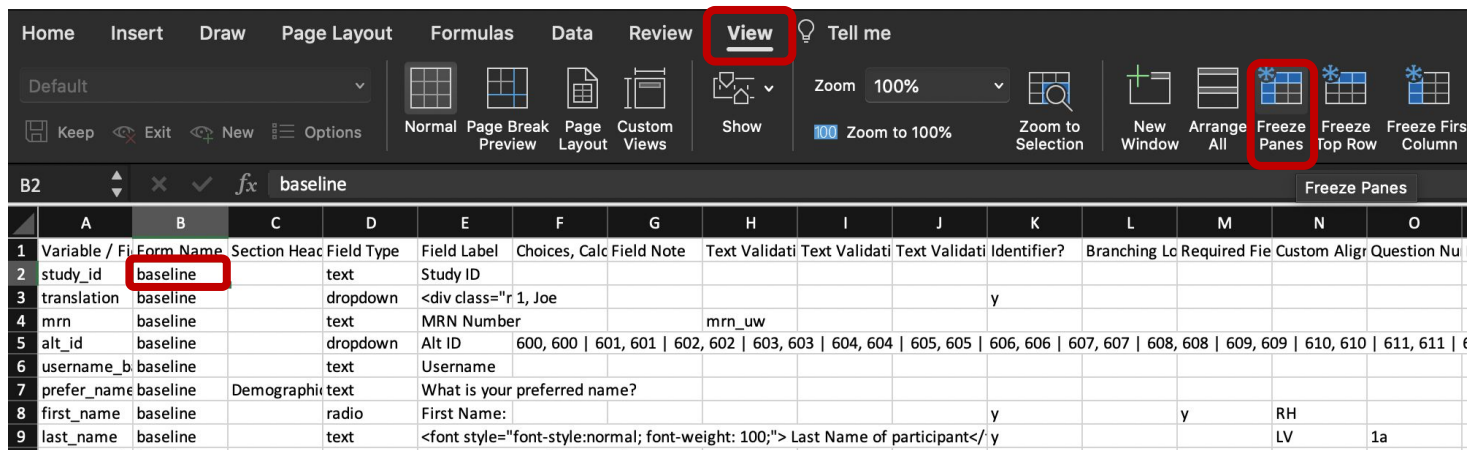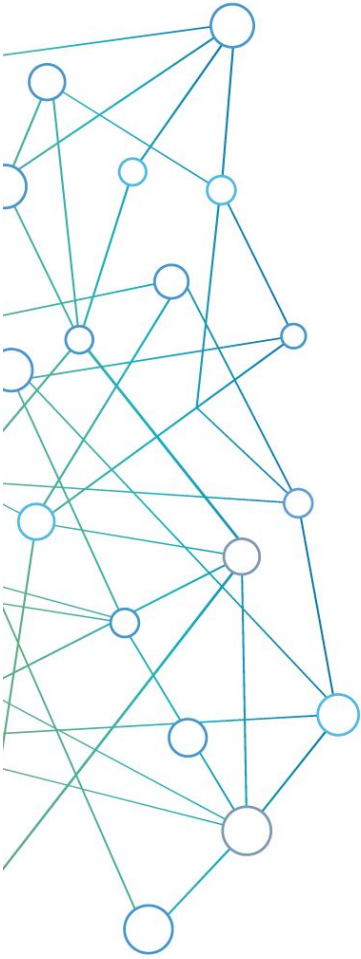
Commit your data dictionary

When no critical errors are detected, you can commit your data dictionary to your project.

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General Excel Wizardry

Freeze Panes

Allows you to keep the header row and variable names visible

1. *Navigate to the View tab*
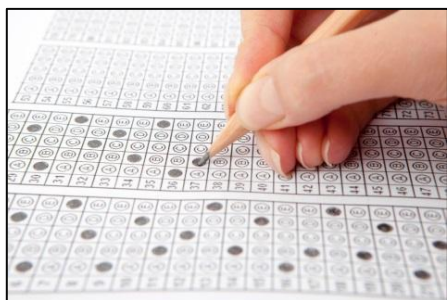2. *Select cell B2*
3. *Click "freeze panes"*

Data dictionary basic overview

- ► Columns list aspects of variables
- ► Each row defines 1 variable:
  - ❑ Exception:
    First row defines the aspect headers
  - ❑ Do not mess with row 1
- ► Row 2 defines the REDCap record ID:
  - ❑ Mandatory row, but modifiable

General

- ► Four types of aspects:
  - ❑ Mandatory (A, B, D)
  - ❑ Conditionally Mandatory (F)
  - ❑ Non-mandatory
    (E, C, G, H, I, J, K, L, M, N, O, R)
  - ❑ Matrix fields (P, Q)

Aspects

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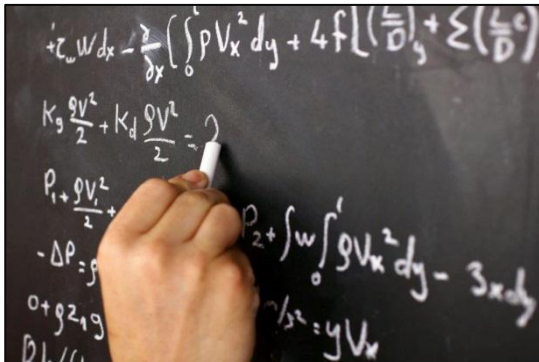
Aspects - Variable name
Column A

Mandatory

Variable name

Conditionally mandatory

Non-mandatory

Matrix fields

Defines:

► The unique variable name of the variable. Used to store and reference that variable throughout the project

Do's:

► Only use lower case, numbers, underscores

► Has to have at least 2 characters

► Has to be unique within the project

► Keep the variable name as short as possible

Don'ts:

► Start with a number

► Make the name longer than 26 characters

► Use special characters (#,$,%,!,? etcetera)

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Aspects - Form name
Column B
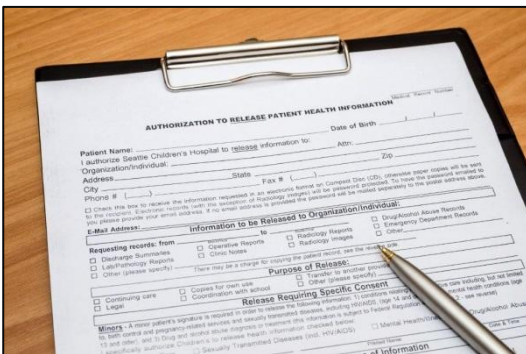
Mandatory

Form name

Conditionally mandatory

Non-mandatory

Matrix fields

Defines:

► The name of the form that variable lives in.

Do's:

► Use lower case, numbers, underscores.

  ❑ Can be changed later to include capitalizations or special characters.

► Needs to have at least 2 characters.

► All variables in one form are grouped together in sequence.

Don'ts:

► Use special characters (#,$,%,!,? etcetera)

Aspects - Section Header
Column C

Mandatory

Conditionally mandatory

Non-mandatory

Section Header

Matrix fields

Defines:

► This column creates a bar with the provided text in it. It can be used to define page breaks in surveys. Section headers are linked to other variables.

Do's:

► Use any type of text you want.

► Feel free to use HTML to format the text to your liking.

► Assign it to the row of which you want the section header to appear above of.

Don'ts:

► Create a unique row for the section header.

► Be careful when combining with fields that contain branching logic.

► Test special characters (#,$,%,!,?, etcetera) to make sure they translate well to your online form.

Aspects - Field Type
Column D

Mandatory

Conditionally mandatory

Non-mandatory

Field Type

Matrix fields

Defines:

► Defines what kind of variable this variable will be. You can only use REDCap-supported field types.

Do's:

► Only use the allowed shorthand codes
(text, notes, dropdown, radio, checkbox, file, calc, descriptive, slider, yesno, truefalse).

► Lookup the field type table in the FAQ for more info.

Don'ts:

► Don't use the sql field type. That one is reserved for REDCap administrators.

► Don't edit any existing rows with the sql field type.

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Aspects - Field label
Column E

Mandatory

Field Label

Conditionally mandatory

Non-mandatory

Matrix fields

Defines:

► The question text that will be displayed to the survey participant or data entry user.

Do's:

► Use any type of text you want.

► Feel free to use HTML to format the text to your liking.

► Make the question understandable and to the point.

Don'ts:

► Double barrel the question.

► Create a leading question.

► Leave it totally empty.
(technically allowed, but considered bad form design)

Aspects - Choices, Calculations, or Slider labels
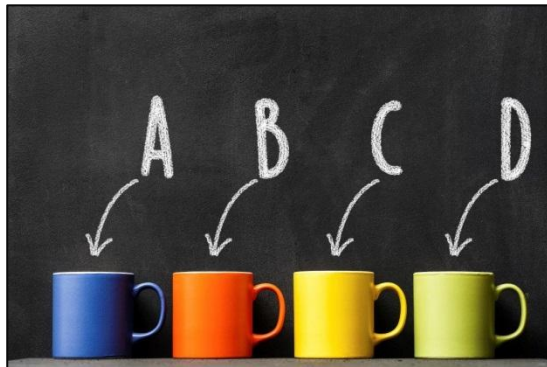## Column F

Mandatory

Conditionally mandatory

Choices, Calc's or sliders

Non-mandatory

Matrix fields

Defines:

► Defines question choices, calculations or slider labels depending on the chosen field type.

Do's:

► Use the following syntax for choices:

  ❑ *raw value, label | raw value, label|*

► Use the following syntax for slider labels:

  ❑ *label | label* **or** *label | label | label*

► For calculations, use the same syntax as for branching logic. Main difference is that the calculation has to end in a number instead of a true or false statement.

► Use special functions for calculations.

► Add shortcuts for enabling a Bioportal lookup (see FAQ).

Don'ts:

► Add a comma to a raw value.

► Make overly complex calculations.

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Aspects - Field Note
Column G

Mandatory

Conditionally mandatory

Non-mandatory

Field Note

Matrix fields

Defines:

► The field note will allow you to add a short instruction to variable (e.g., adding a date format to a date validated field).

Do's:

► Use any type of text you want.

► Feel free to use HTML to format the text to your liking.

► Make the note short and to the point.

Don'ts:

► Put a lot of text in the field note.

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Aspects - Text validation type or show slider number
Column H

Mandatory

Conditionally mandatory

Non-mandatory

Text validation type or slider #

Matrix fields

Defines:

► The type of validation a text field might have or if you want to display the numeric value behind a slider field.

Do's:

► Fill in the text "number" to enable the number counter behind a slider.

► Only use the allowed shorthand codes for text validation.

► Lookup the text validation shortcuts table in the FAQ for more info.

Don'ts:

► Put in a text validation shortcut or the slider shortcut in this column for other field types. REDCap will not accept this and won't allow you to import the data dictionary.

Aspects - Minimum and maximum for Text validation and Slider scales
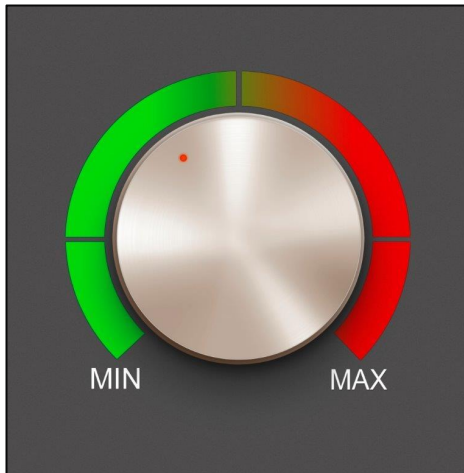## Column I & J

Mandatory

Conditionally mandatory

Non-mandatory

Min/Max

Matrix fields

Defines:

► These two columns define a minimum and/or maximum value for a validated text variable or the minimum and maximum for a slider scale.

Do's:

► Use a minimum, maximum, or both when appropriate.

► Always build in a bit of extra space to allow for outliers.

► Match the entered value to the field type (e.g., date for a date field).

Don'ts:

► Put in a minimum or maximum in this column for other field types. REDCap will not accept this and will not allow you to import the data dictionary.

Aspects - Identifiers
Column K

Mandatory

Conditionally mandatory

Non-mandatory

ID's

Matrix fields

Defines:

► Flags the variable as an identifier or not. This does not have any effect on the data entry process but does impact the data export process.

Do's:

► Use a single "y" to flag a variable as an identifier.

► Leave the field blank to flag the variable as a non-identifier.

Don'ts:

► Make everything an identifier.

► Put in anything other than the allowed "y" code. REDCap will not accept the data dictionary.

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Aspects - Required
Column M

Mandatory

Conditionally mandatory

Non-mandatory

   Required

Matrix fields

Defines:

► Makes a variable required. This will be a soft requirement during the data entry process or a hard requirement when completed as a survey.

Do's:

► Use a single "y" to flag a variable as required.

► Leave the field blank to flag the variable as optional.

► Add a field note to unstructured required fields to explain what to do when no answer can be given.

Don'ts:

► Make a checkbox required.

► Make a variable required without "exit" options.

► Put in anything other than the allowed "y" code. REDCap will not accept the data dictionary.

Aspects - Branching Logic
Column L

Mandatory

Conditionally mandatory

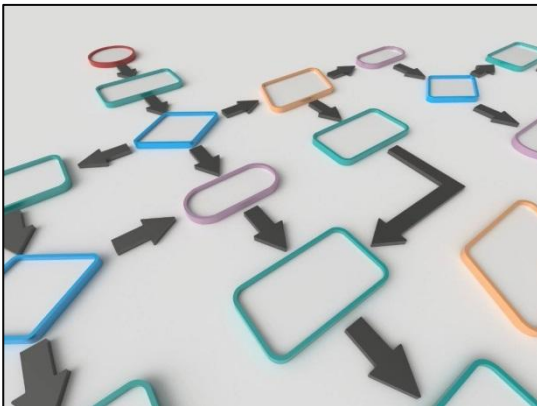**Non-mandatory**

  Branching logic

Matrix fields

Defines:

►   The branching logic attached to this specific variable.

Do's:

►   Make use of the copy and paste features to quickly add logic to a lot of variables.

►   Use excel function to craft custom branching logic quickly.

►   Test your logic to work out the bugs.

Don'ts:

►   Craft logic that never can be true.

►   Use double quotes instead of single quotes.

Aspects - Custom alignment
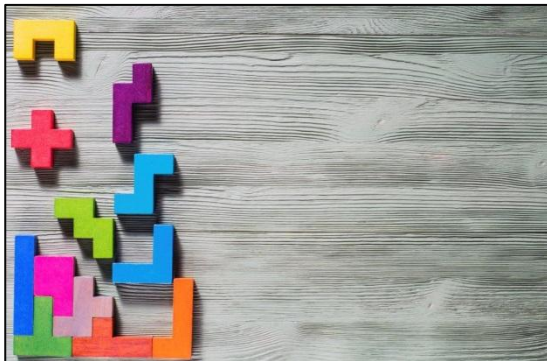## Column N

Mandatory

Conditionally mandatory

Non-mandatory

   Custom alignment

Matrix fields

Defines:

► Allows you to slightly modify the way REDCap displays variables.

Do's:

► Use the shortcuts codes for the four options:

   ❑   LV: Left Vertical

   ❑   LH: Left Horizontal

   ❑   RH: Right Horizontal

   ❑   RV: Right Vertical (the default option when left blank)

Don'ts:

► Put in anything other than the allowed shortcut codes. REDCap will not accept the data dictionary.

Aspects - Question numbering
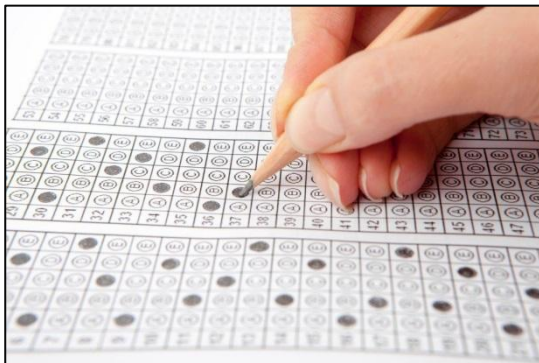## Column O

Mandatory

Conditionally mandatory

Non-mandatory

  Question numbering

Matrix fields

Defines:

► Allows you to add a custom number per variable in survey mode.

Do's:

► Use logical ordering.

► Take branching logic into account.

   ❑ Create sub-numbers (1a, 1b, etcetera).

► Leave blank if you don't want any numbers for questions.

Don'ts:

► Add question number for non-surveys.

Aspects – Matrix group
Column P

Mandatory

Conditionally mandatory

Non-mandatory

Matrix fields

Matrix group

Defines:

► Groups variables into a matrix.

Do's:

► Only use lower case, numbers, underscores.

► Has to have at least 2 characters.

► Has to be unique within the project.

► Matrices have to be sequential and need to have the same options for all variables.

► Use a section header in the top variable of a matrix to create a matrix header.

Don'ts:

► Add a matrix name for field types that are not radio buttons or checkboxes.

► Create matrices with a lot of options.

Aspects – Matrix ranking
Column Q

Mandatory

Conditionally mandatory

Non-mandatory

Matrix fields

  Matrix ranking

Defines:

► Flags whether or not a matrix is a ranking matrix or not.

Do's:

► Use a single "y" to flag a variable as required.

► Leave the field blank to flag the variable as optional.

► Ranking matrices are only allowed for radio button matrices.

Don'ts:

► Create a checkbox ranking matrix.

► Put in anything other than the allowed "y" code. REDCap will not accept the data dictionary.

Aspects - Field annotation & Action tags
Column R

Mandatory

Conditionally mandatory

Non-mandatory

 Field annotation & Action tags

Matrix fields

Defines:

► Ability to add a note about the field for the designer. Or enable 1 or more action tags for this field.

Do's:

► Use any text you want for an annotation

► Use the following shorthand codes for action tags: *@HIDDEN, @HIDDEN-FORM, @HIDDEN-SURVEY, @HIDDEN-APP, @READONLY, @READONLY-FORM, @READONLY-SURVEY, @READONLY-APP, @LATITUDE, @LONGITUDE, @PASSWORDMASK, @NOW, @TODAY, @BARCODE, @DEFAULT*

► Use piping in combination with the default tag to prefill a variable with a previously entered value.

Don'ts:

► Start typing the @ sign into the cell. Format the cell first as a text field. Excel will register an error if you do not.

Finding and Fixing Issues

General Excel Wizardry

Sorting & Filter

Sorting on a form name or field type will allow you to modify specific things quickly without having to hunt for them.

Find and Replace

Update variable names, logic, calculations, etc quickly.

Crafting dynamic branching logic

When repeating the same variable over and over, you can have excel craft the logic for your with cell references.

Auto fill variable names

Excel can automatically increment numbers when using "Fill series". Only works when the text ends in a number.

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Best Practices
Format Optimization and Longitudinal

Splitting up / merging forms

► Change the form name in Column B

   ► Not possible in the online designer

Record ID / First form

► REDCap needs a record ID to store data

   ► Always in the very first form as a text box

   ► Needs to be assigned to the first event

Branching Logic / Calculations

► Add event identifiers if necessary

   ► e.g. [baseline_arm_1][dob]

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Questions?

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