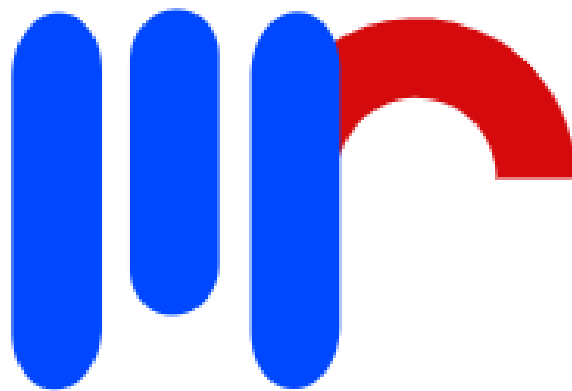

MinimRED User Manual



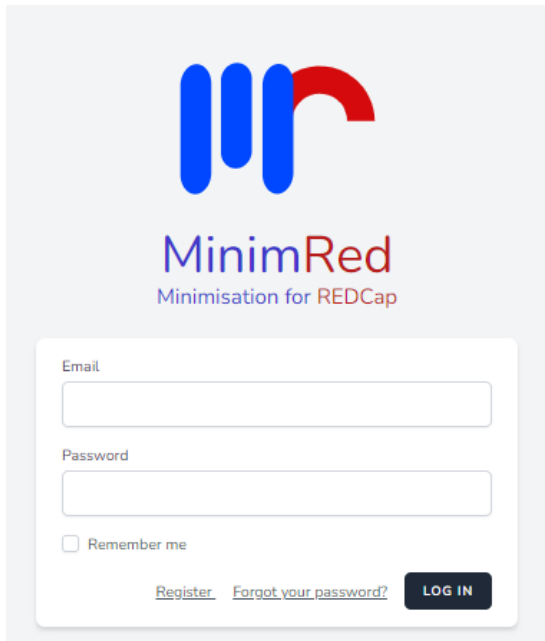
MinimRed
Minimisation for REDCap

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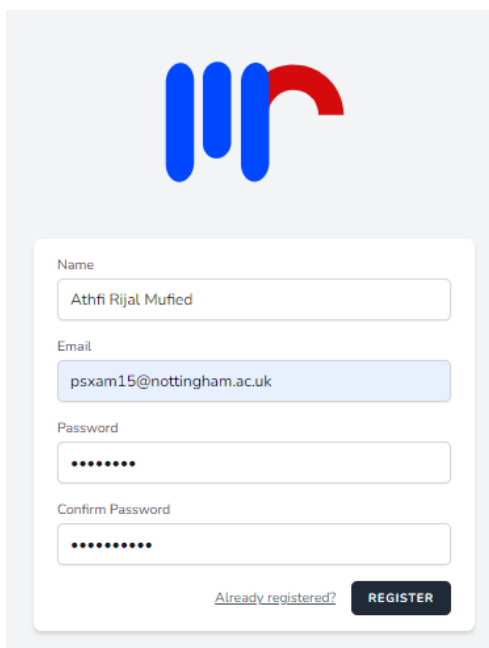
I. Create new account

1. Open minimRED



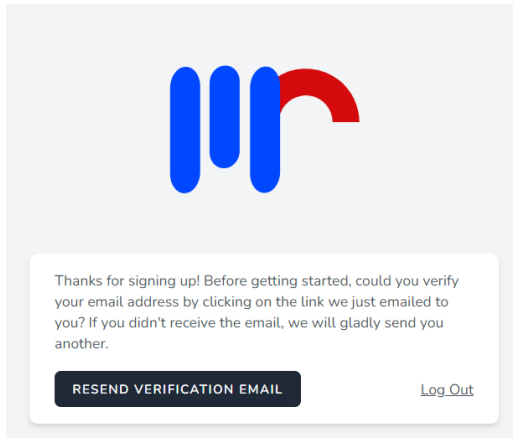
The image shows the MinimRed login page. At the top is the MinimRed logo, which consists of three blue vertical bars of increasing height followed by a red curved line. Below the logo is the text "MinimRed" in a sans-serif font, with "Minim" in blue and "Red" in red. Underneath that is the tagline "Minimisation for REDCap" in a smaller blue font. The main content area is a white box with a light gray border. It contains two input fields: "Email" and "Password". Below the password field is a checkbox labeled "Remember me". At the bottom of the box are three links: "Register", "Forgot your password?", and a dark gray button labeled "LOG IN".

2. Click **Register** link
3. Fill the form

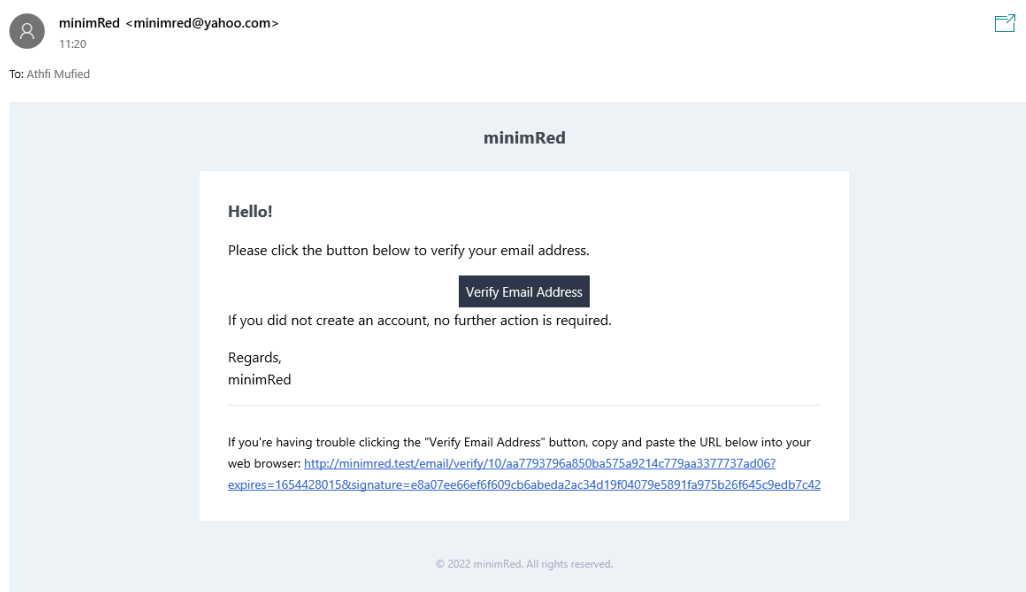


The image shows the MinimRed registration page. It features the same MinimRed logo and branding as the login page. The registration form is a white box with a light gray border. It contains four input fields: "Name" (filled with "Athfi Rijal Mufied"), "Email" (filled with "psxam15@nottingham.ac.uk"), "Password" (filled with seven dots), and "Confirm Password" (filled with seven dots). Below the "Confirm Password" field is a link "Already registered?" and a dark gray button labeled "REGISTER".

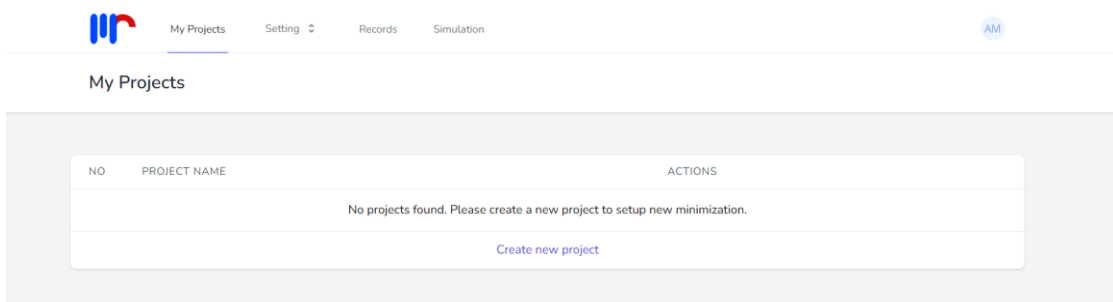
4. Click **Register** button



5. Open Email verification

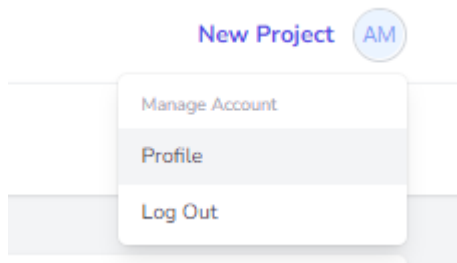


6. Click verify email, you will be logged to minim RED

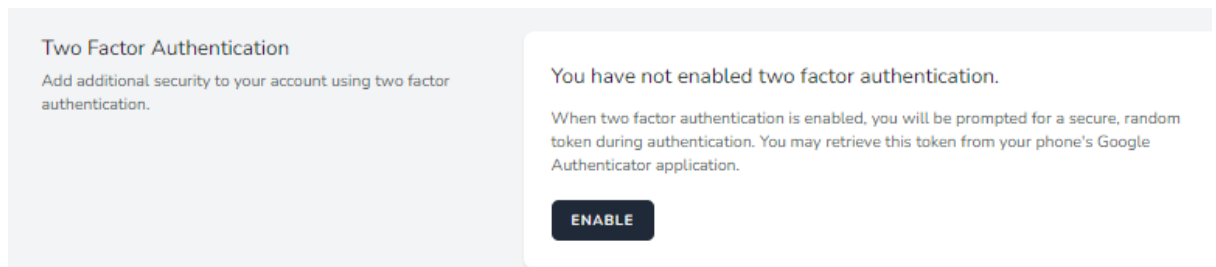


II. Setup two factor authentication

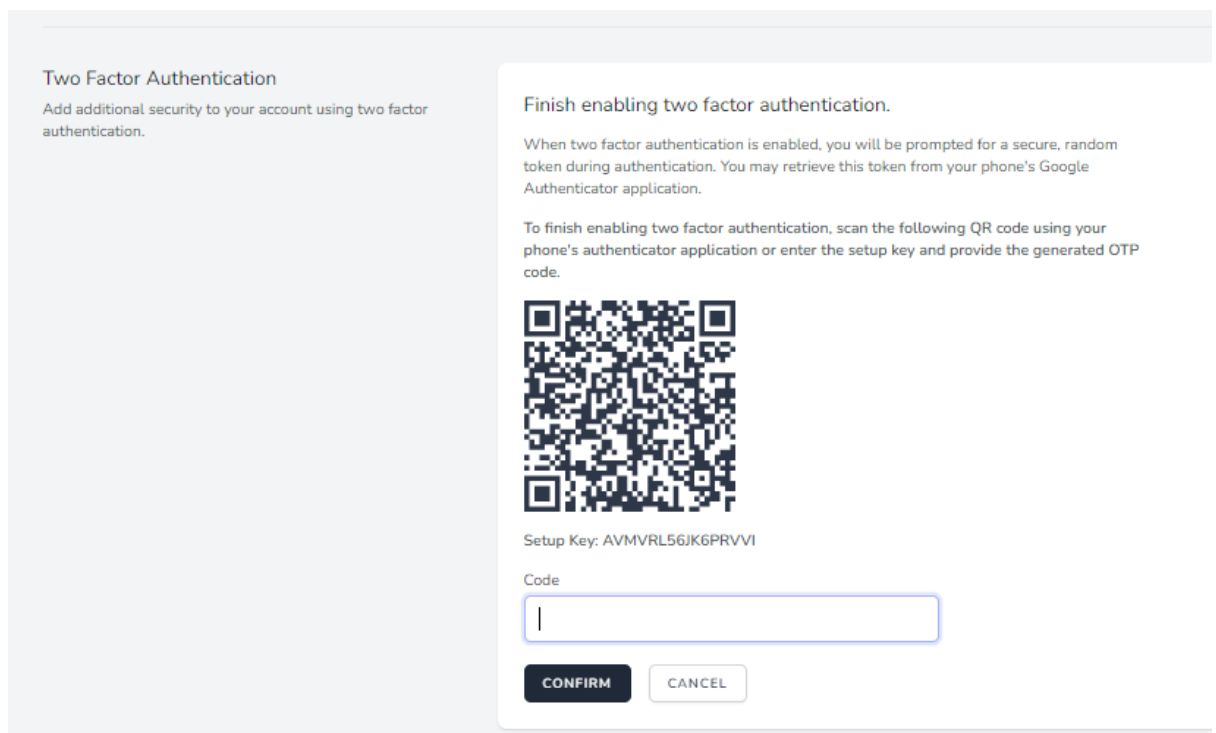
1. Open Profile page



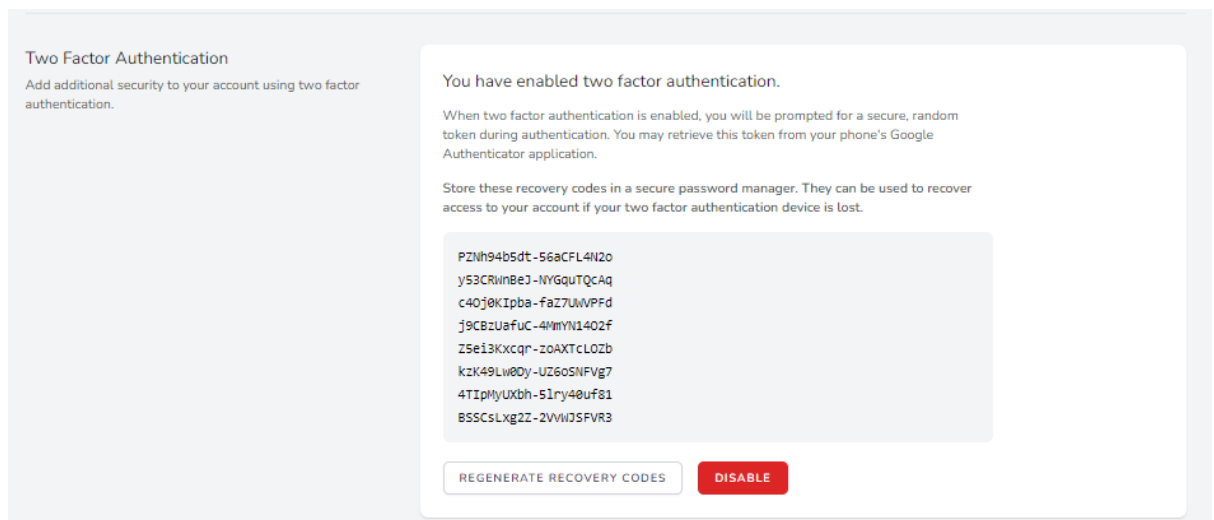
2. Go to “Two Factor Authentication” section



3. Click **enable**.

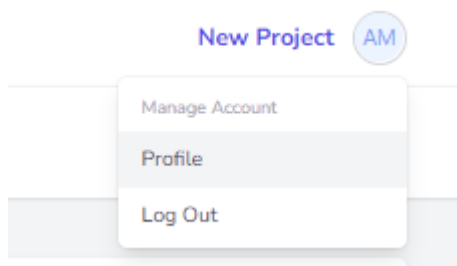


4. To finish enabling two factor authentication, scan the following QR code using your phone's authenticator application or enter the setup key and provide the generated OTP code.
5. Store the recovery codes in a secure password manager.

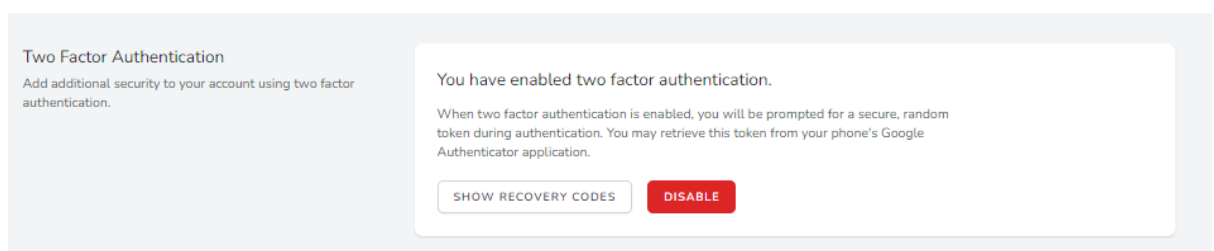


III. Disable two factor authentication

1. Open Profile page



2. Go to “Two Factor Authentication” section



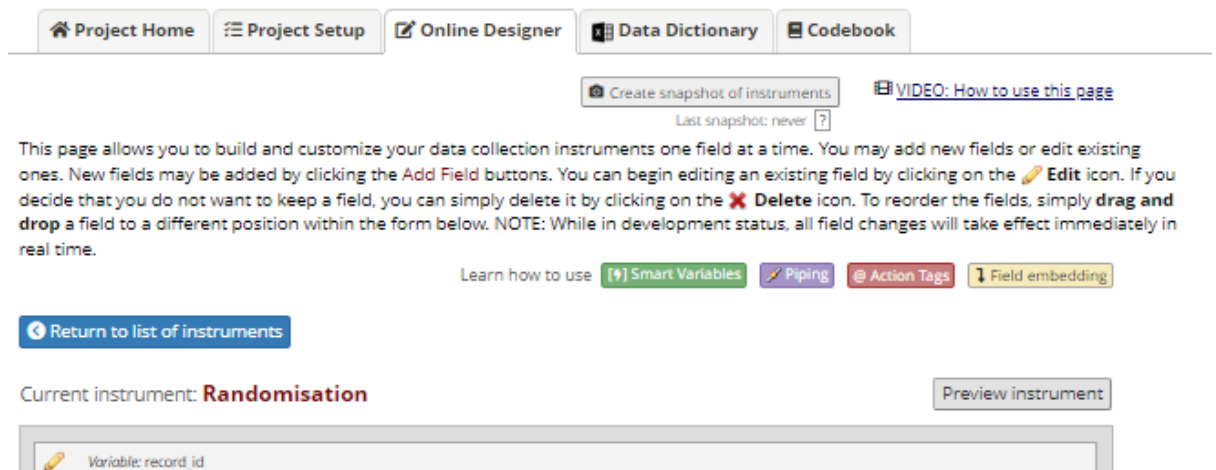
3. Click **Disable**

IV. Prepare minimisation in REDCap

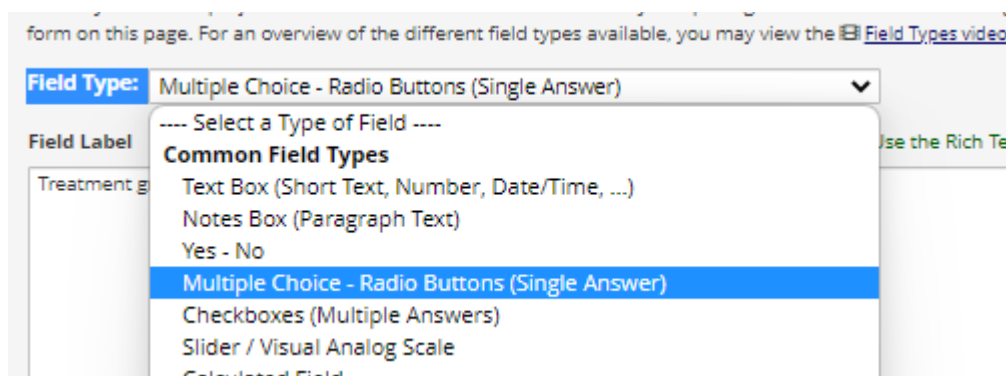
Before you can create minimisation in minimRED, you need to set up a few things in the REDCap database. The first is to add radio fields in REDCap to store randomization results. The second is to add radio fields in the REDCap database to collect data on prognostic factors. The third is getting the REDCap API token and URL.

A. Add treatment allocation field in REDCap

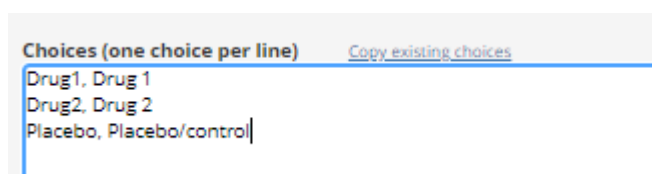
1. Open Online designer in REDCap then select the desired form



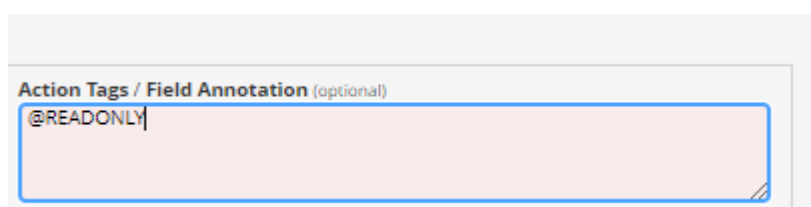
2. Add new fields
3. Select multiple Choice – Radio Buttons (Single Answer) as Field type



4. Put the treatment groups and treatment code as list of choices



5. We recommend that this field be set as read only so that the allocation treatment can only be done using minimRED



6. Click save

Edit Field

You may add a new project field to this data collection instrument by completing the fields below and clicking the Save button at the bottom. When you add a new field, it will be added to the form on this page. For an overview of the different field types available, you may view the [Field Types video \(4 min\)](#).

Field Type: Multiple Choice - Radio Buttons (Single Answer)

Field Label Use the Rich Text Editor ?
 Treatment group

Choices (one choice per line) [Copy existing choices](#)
 Drug1, Drug 1
 Drug2, Drug 2
 Placebo, Placebo/control

Action Tags / Field Annotation (optional)
 @READONLY

[Learn about @ Action Tags](#) or [using Field Annotation](#)

Variable Name (utilized in logic, calcs, and exports)
 rand_group Enable auto naming of variable based upon its Field Label?
ONLY letters, numbers, and underscores

How to use: [Smart Variables](#) [Piping](#) [Field embedding](#)

Required?* ☒ No ☐ Yes
* Prompt if field is blank

Identifier? ☒ No ☐ Yes
Does the field contain identifying information (e.g., name, SSN, address)?

Custom Alignment Right / Vertical (RV)
Align the position of the field on the page

Field Note (optional)
Small reminder text displayed underneath field

[How do I manually code the choices?](#)

Save **Cancel**

B. Add prognostic factors in REDCap

At least one prognostic factor is required for minimisation and each factor have at least two levels.

1. Open Online designer in REDCap then select the desired form

[Project Home](#) [Project Setup](#) [Online Designer](#) [Data Dictionary](#) [Codebook](#)

[Create snapshot of instruments](#) [VIDEO: How to use this page](#)
 Last snapshot: never ?

This page allows you to build and customize your data collection instruments one field at a time. You may add new fields or edit existing ones. New fields may be added by clicking the **Add Field** buttons. You can begin editing an existing field by clicking on the **Edit** icon. If you decide that you do not want to keep a field, you can simply delete it by clicking on the **Delete** icon. To reorder the fields, simply **drag and drop** a field to a different position within the form below. NOTE: While in development status, all field changes will take effect immediately in real time.

Learn how to use: [Smart Variables](#) [Piping](#) [Action Tags](#) [Field embedding](#)

[Return to list of instruments](#)

Current instrument: **Randomisation** [Preview instrument](#)

Variable: record_id

2. Add new fields
3. Select multiple Choice – Radio Buttons (Single Answer) as Field type

form on this page. For an overview of the different field types available, you may view the [Field Types video](#).

Field Type: Multiple Choice - Radio Buttons (Single Answer) ▼

Field Label: Treatment group

---- Select a Type of Field ----

Common Field Types

- Text Box (Short Text, Number, Date/Time, ...)
- Notes Box (Paragraph Text)
- Yes - No
- Multiple Choice - Radio Buttons (Single Answer)**
- Checkboxes (Multiple Answers)
- Slider / Visual Analog Scale
- Calculated Field

- Put factor levels as list of choices. For example the Sex has two levels: Male and Female so we set the list as:

Choices (one choice per line) [Copy existing choices](#)

M, Male
F, Female

- Set the field to required

Variable Name (utilized in logic, calcs, and exports)

sex ☐ Enable auto naming of variable based upon its Field Label?

ONLY letters, numbers, and underscores

How to use: [Smart Variables](#) [Piping](#) [Field embedding](#)

Required?* ☒ No ☐ Yes
* Prompt if field is blank

Identifier? ☒ No ☐ Yes
Does the field contain identifying information (e.g., name, SSN, address)?

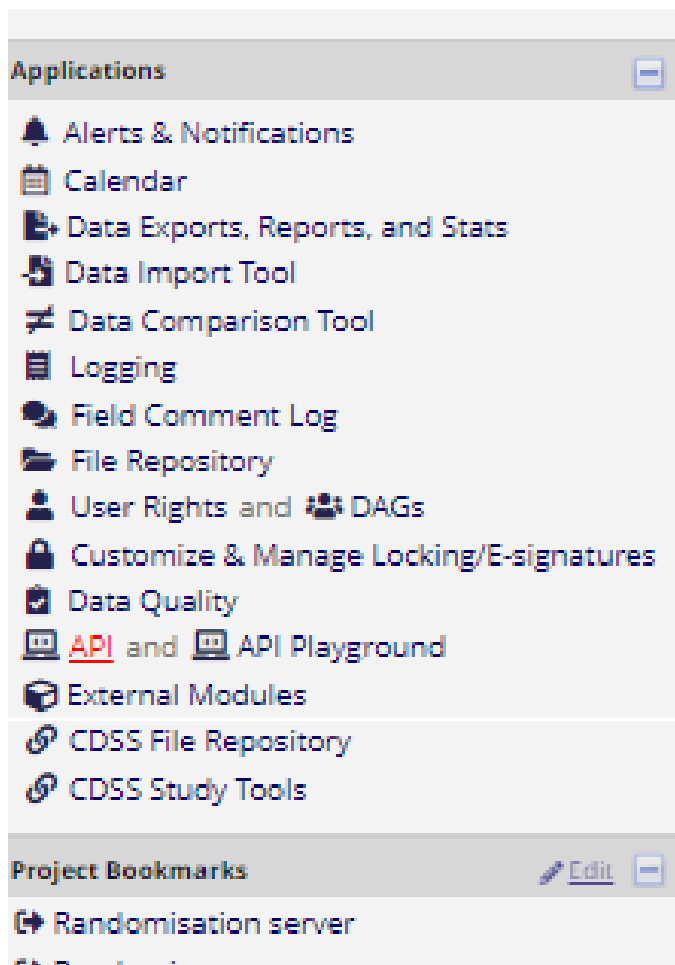
Custom Alignment Right / Vertical (RV) ▼
Align the position of the field on the page

Field Note (optional)
Small reminder text displayed underneath field

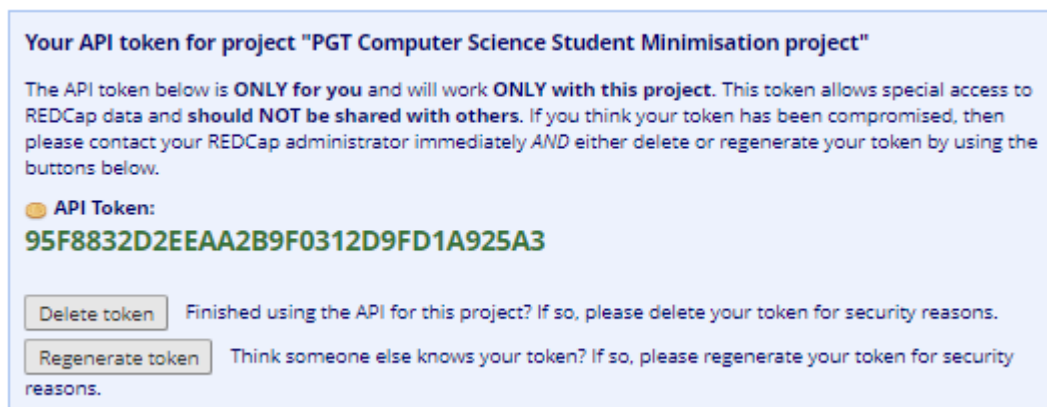
- Repeat step 1 to 5 to add other prognostic factors

C. Get REDCap API token and REDCap API URL

- Open REDCap API



2. Generate REDCap API token



3. Open API Playground
4. Find the REDCap API URL

API Playground

The API Playground is an interface that allows experimentation with the REDCap API without actually writing any code. You can explore all the different API methods and their various options to customize a given API request. You may even execute a real API request and see the exact response that REDCap returns from the request. If you are interested in creating an API script, the section at the bottom will provide code samples for various programming languages to give you a head start. For details on the capabilities of the REDCap API and how to use it, please see the [REDCap API documentation](#).

Select an API method from the drop-down list below, after which it will load any other options that are specific to that method.

API Method:

Format:

Errors:


Raw Request Parameters

Displayed in the box below are all the POST parameters that would be sent in the API request based on the selections above.

```
token: 95F8832D2EEAA2B9F0312D9FD1A925A3
content: project
format: json
returnFormat: json
```

Response

Click the Execute Request button to execute a real API request, and it will display the API response in a text box below.

 Execute Request

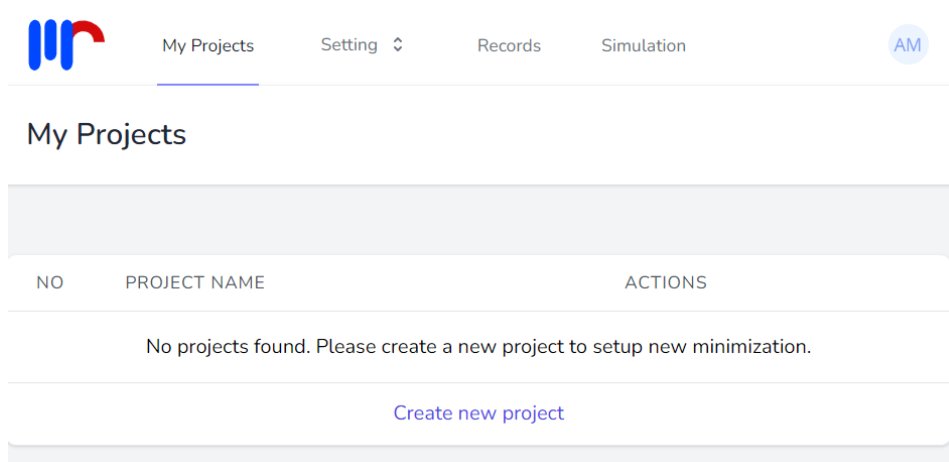
PHP Perl Python Ruby Java R cURL

Displayed in the box below is the code you would use to execute this API request in the selected programming language.

```
<?php
$data = array(
    'token' => '95F8832D2EEAA2B9F0312D9FD1A925A3',
    'content' => 'project',
    'format' => 'json',
    'returnFormat' => 'json'
);
$ch = curl_init();
curl_setopt($ch, CURLOPT_URL, 'https://mslapctsd01.nottingham.ac.uk/redcap/api/');
curl_setopt($ch, CURLOPT_RETURNTRANSFER, true);
curl_setopt($ch, CURLOPT_SSL_VERIFYPEER, false);
```

D. Create new project in minim RED

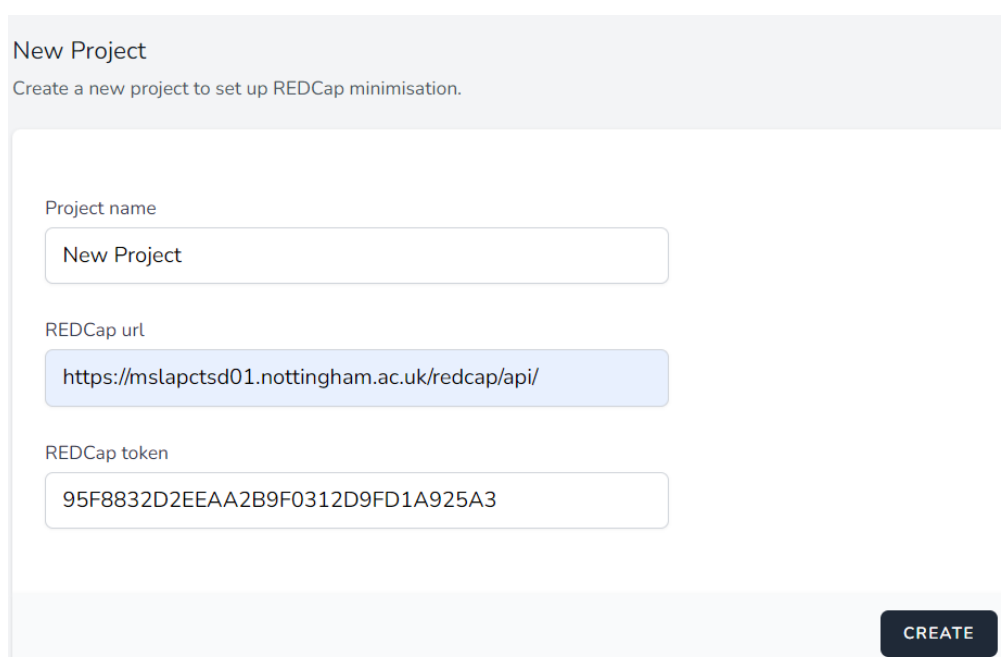
1. Login to minimRED
2. Click **Create new project**



My Projects

NO	PROJECT NAME	ACTIONS
No projects found. Please create a new project to setup new minimization.		
Create new project		

- Fill the form. Use the REDCap API and REDCap API URL from REDCap database



New Project

Create a new project to set up REDCap minimisation.

Project name

New Project

REDCap url

https://mslapctsd01.nottingham.ac.uk/redcap/api/

REDCap token

95F8832D2EEAA2B9F0312D9FD1A925A3

CREATE


- Click **Create** button

New Project
Create a new project to set up REDCap minimisation.

Project name

REDCap url

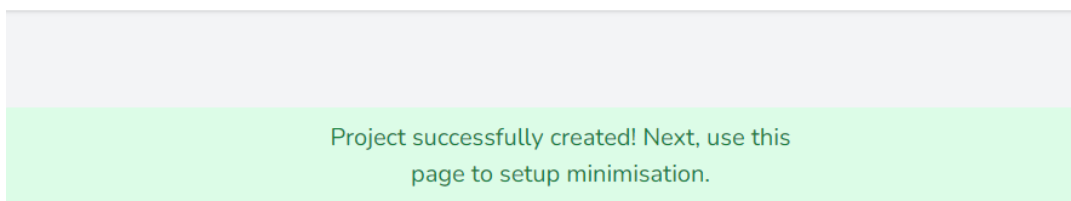
REDCap token

 Creating new project

CREATE

5. If successfully created, you will be redirected to minimisation setting page

Minimisation setting



E. Minimization setup

Group allocation

1. Go to "Group allocation" section
2. Select a field to store the randomisation result

Field to store randomisation

Please select ...

Please select ...
age (Age)
cancer_details_v2 (Please specify details for can...)
chf_details_v2 (Please specify details for con...)
ethnic (Race)
liver_disease_details_v2 (Please specify details for liv...)
rand_group (Treatment group)
sex (Sex)
shock_type_v2 (What is the suspected cause of...)

3. Set allocation ratio of each treatment group

Field to store randomisation

rand_group (Treatment group)

Name	Ratio
Drug 1	1
Drug 2	3
Placebo/control	1

4. Click Save

Group allocation

Select the REDCap field that will be used to store the randomisation results and specify the allocation ratio.

The type of field that can be used to store randomisation results is multiple choice with single option (radio).

Group allocation successfully updated.

Field to store randomisation

rand_group (Treatment group)

Name	Ratio
Drug 1	1
Drug 2	2
Placebo/control	1

CANCEL

SAVE

Prognostic factors

1. Go to “Prognostic factors” section
2. Select redcap field that will be used as prognostic factor

Factor	Levels	Weight
(Please select ...)		
(Please select ...)		
sex (Sex)		
age (Age)		
ethnic (Race)		
rand_group (Treatment group)		
chf_details_v2 (Please specify details for con...)		
cancer_details_v2 (Please specify details for can...)		
liver_disease_details_v2 (Please specify details for liv...)		

3. Click add
4. Set weighted ratio

Factor	Levels	Weight	Action
Sex	Male (M) Female (F)	1.1	⊗

5. Repeat step 2-4 to add other factors
6. Click save

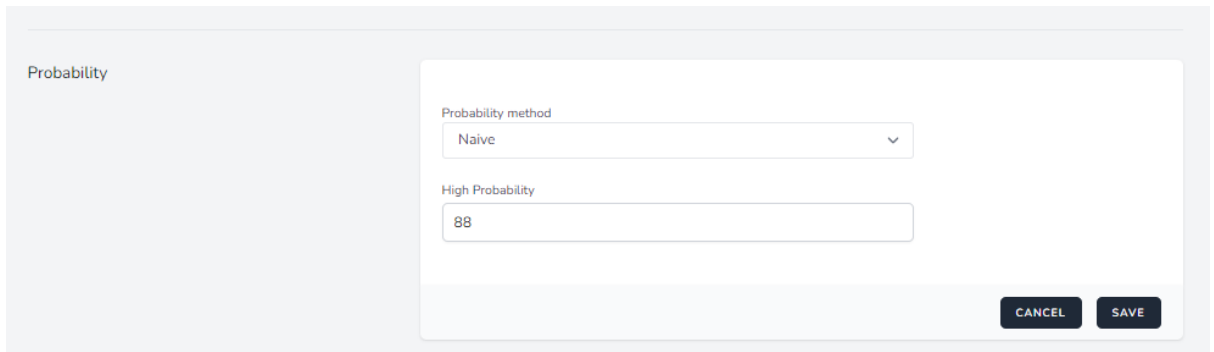
Prognostic factor(s) successfully updated.

Factor	Levels	Weight	Action
Sex	Male (M) Female (F)	1.1	⊗
Race	White (1) Mixed or Multiple ethnic group... (2) Asian or Asian British (3) Black, African, Caribbean or B... (4) Other ethnic group (5)	1	⊗
Please specify details for liv...	Chronic hepatitis without port... (1) Cirrhosis and portal hypertens... (2) Cirrhosis and portal hypertens... (3)	1	⊗
(Please select ...)			ADD

CANCEL SAVE

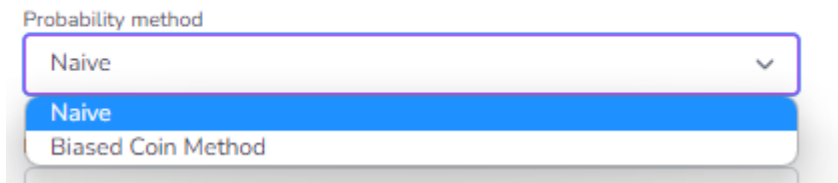
Probability

1. Go to “Probability” section



The screenshot shows the 'Probability' settings page. On the left, there is a sidebar with the word 'Probability'. The main content area contains two input fields: 'Probability method' with a dropdown menu showing 'Naive', and 'High Probability' with a text input field containing '88'. At the bottom right, there are two buttons: 'CANCEL' and 'SAVE'.

2. Select Probability method



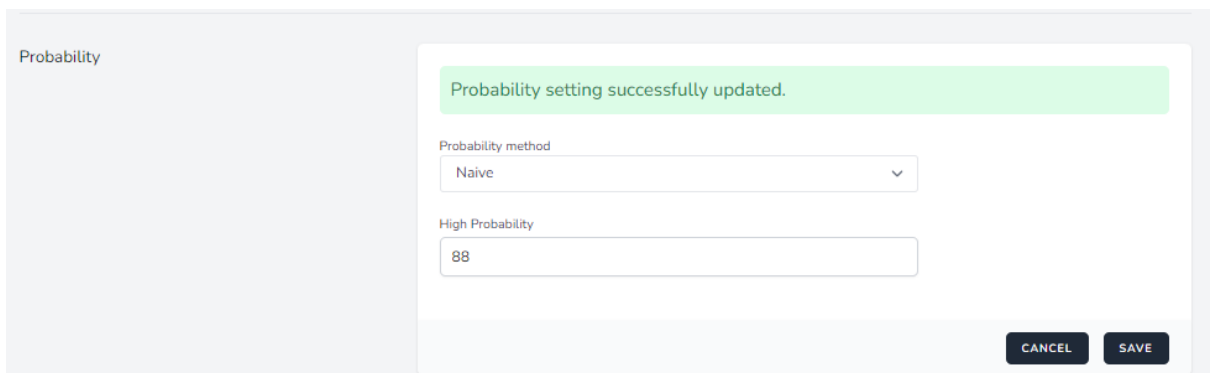
This close-up shows the 'Probability method' dropdown menu. The menu is open, displaying two options: 'Naive' and 'Biased Coin Method'. The 'Naive' option is currently selected and highlighted with a blue background.

3. Set High Probability value



This close-up shows the 'High Probability' input field. The field contains the value '88' and has a small upward and downward arrow icon on the right side, indicating it is a numeric input.

4. Click save



The screenshot shows the 'Probability' settings page after the changes have been saved. A green success message, 'Probability setting successfully updated.', is displayed at the top of the main content area. Below the message, the 'Probability method' dropdown still shows 'Naive' and the 'High Probability' text input still shows '88'. The 'CANCEL' and 'SAVE' buttons are still present at the bottom right.

Distance

1. Go to “Distance” section

Distance

Distance method

Range

CANCEL SAVE

2. Select distance method

Distance method

Range

Range

Variance

Standard deviation

Marginal balance

3. Click save

Distance

Distance method successfully updated.

Distance method

Range

CANCEL SAVE

Time randomised

1. Go to "Time randomised" section

Time randomised

Select the REDCap field that will be used to store the time randomised.

The type of field that can be used to store time randomised is date time field.

Field name to store time randomised

(Please select ...)

CANCEL SAVE

2. Select Field name to store time randomised

Field name to store time randomised

(Please select ...)

(Please select ...)

rand_time (Time of randomisation)

time_test (Time of hospital admission)

3. Click save

Time randomised

Select the REDCap field that will be used to store the time randomised.

The type of field that can be used to store time randomised is date time field.

Field name to store time randomised successfully updated.

Field name to store time randomised

rand_time (Time of randomisation)

CANCEL SAVE

V. Add minimRED Bookmark to REDCap

A. Generate REDCap bookmarks

1. Open minimRED
2. Open setting->project
3. Go to "REDCap bookmarks" section
4. Click **Generate**

REDCap bookmarks

Generate REDCap project bookmarks that allow REDCap user to login to this minimisation site.

REDCap bookmarks successfully generated.

REDCap bookmarks for records

http://minimred.test/redcap/login?

check=839&page=records&project_id=18&signature=eb7d12b0316707a047c83cebc0bba530e5619867

ac63370d4489a0e87f54625f

REDCap bookmarks for randomisation

http://minimred.test/redcap/login?

check=839&page=randomise&project_id=18&signature=76d1ea221ef446fbca817f9e61b80c2cec3cf298

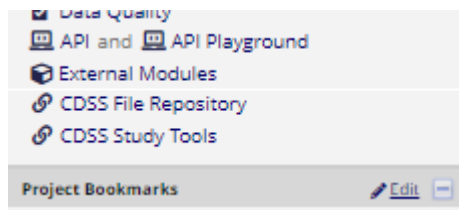
af0c23eaf87128daa1707bb9

GENERATE

B. Add REDCap bookmark to REDCap project

1. Open REDCap

2. Go to Project Bookmark edit page



3. Fill the form using generated REDCap bookmark from minimRED. Select link type as “Advanced Link”. For randomisation bookmark, activate the “Append record to URL”

<input type="button" value="Add"/>	<input type="text" value="Records"/> <small>Enter the label for the link as it is seen on the left-hand menu</small>	<input type="text" value="http://minimred.test/redcap/login?check=839&page=records&project_id=18&signature=eb7d12b0316707a047c83ce6c0bba530e5619867ac63370d4489a0e87f54625f"/> <small>Enter the web address (URL) for the link (e.g., http://www.mysite.com/mypage.html)</small>	<input type="text" value="Advanced Link"/>	<input checked="" type="radio"/> All users <input type="radio"/> Selected users <input type="radio"/> Selected DAGs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
------------------------------------	---	---	--	---	-------------------------------------	--------------------------	--------------------------	--------------------------

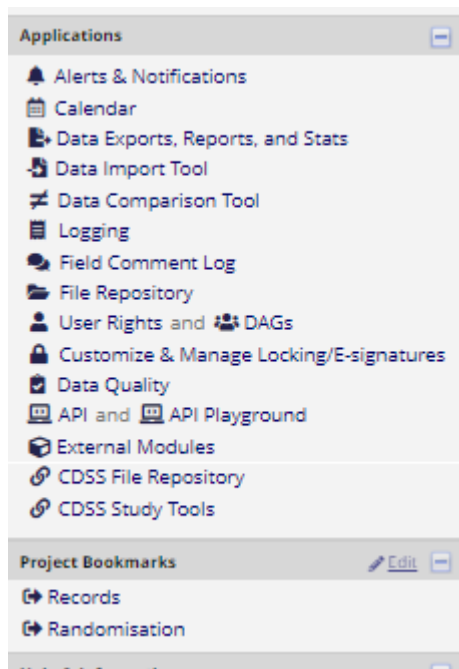
4. Click add

	Link #	Link Label	Link URL / Destination	Link Type	User Access	Opens new window	Append record info to URL	Append project ID to URL	Delete
	1	Records	http://minimred.test/redcap/login?check=839&page=records&project_id=18&signature=eb7d12b0316707a047c83ce6c0bba530e5619867ac63370d4489a0e87f54625f	Advanced Link	<input checked="" type="radio"/> All users <input type="radio"/> Selected users <input type="radio"/> Selected DAGs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="button" value="Add"/>		<input type="text"/>	<input type="text"/>	Simple Link	<input checked="" type="radio"/> All users <input type="radio"/> Selected users <input type="radio"/> Selected DAGs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Repeat step 3 and 4 to add another bookmark

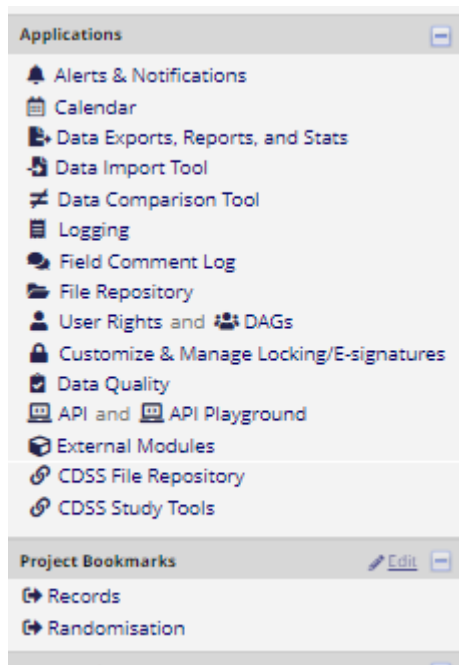
	Link #	Link Label	Link URL / Destination	Link Type	User Access	Opens new window	Append record info to URL	Append project ID to URL	Delete
	1	Records	http://minimred.test/redcap/login?check=839&page=records&project_id=18&signature=eb7d12b0316707a047c83ce6c0bba530e5619867ac63370d4489a0e87f54625f	Advanced Link	<input checked="" type="radio"/> All users <input type="radio"/> Selected users <input type="radio"/> Selected DAGs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	2	Randomisation	http://minimred.test/redcap/login?check=839&page=randomise&project_id=18&signature=76d1ea221ef446fbca817f9e51b80c2cc3cf298af0c23eaf87128daa1707bb9	Advanced Link	<input checked="" type="radio"/> All users <input type="radio"/> Selected users <input type="radio"/> Selected DAGs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="button" value="Add"/>		<input type="text"/>	<input type="text"/>	Simple Link	<input checked="" type="radio"/> All users <input type="radio"/> Selected users <input type="radio"/> Selected DAGs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. The redcap bookmark link displayed in the left hand menu under Project Bookmarks in REDCap




VI. Login to minimRED as REDCap user

1. Login to REDCap
2. Open REDCap project
3. Click the Project Bookmark on the left-hand menu



4. You are logged to minimRED as REDCap User


Records
Athfi Rijal Mufied

Project : New Trial Project
PGT Computer Science Student Minimisation project

Login success. Welcome Athfi Rijal Mufied to minimRed.

Records
Records from REDCap


Participant ID	Group	Randomisation time	Action
C001-0001	Drug2	2022-06-06 20:58	view
C001-0002	Drug1	2022-06-02 08:37	view
C001-0003	Placebo	2022-06-02 08:37	view
C001-0004	Drug2	2022-06-02 08:42	view
C001-0005			randomise
C001-0006			randomise
C001-0014			randomise
C001-0015	Placebo	2022-06-02 08:37	view
C001-0016			randomise
C001-0017			randomise
C001-0018	Drug2	2022-06-06 10:44	view
C001-0019	Drug1	2022-06-02 08:37	view
C001-0020			randomise
C001-0021			randomise
C001-0022	Drug1	2022-06-06 20:45	view
C001-0026			randomise

VII. Randomise New Participants

1. Open records page


My Projects
Setting
Records
Simulation
New Trial Project
AM

2. Select new participant by clicking **randomise** link

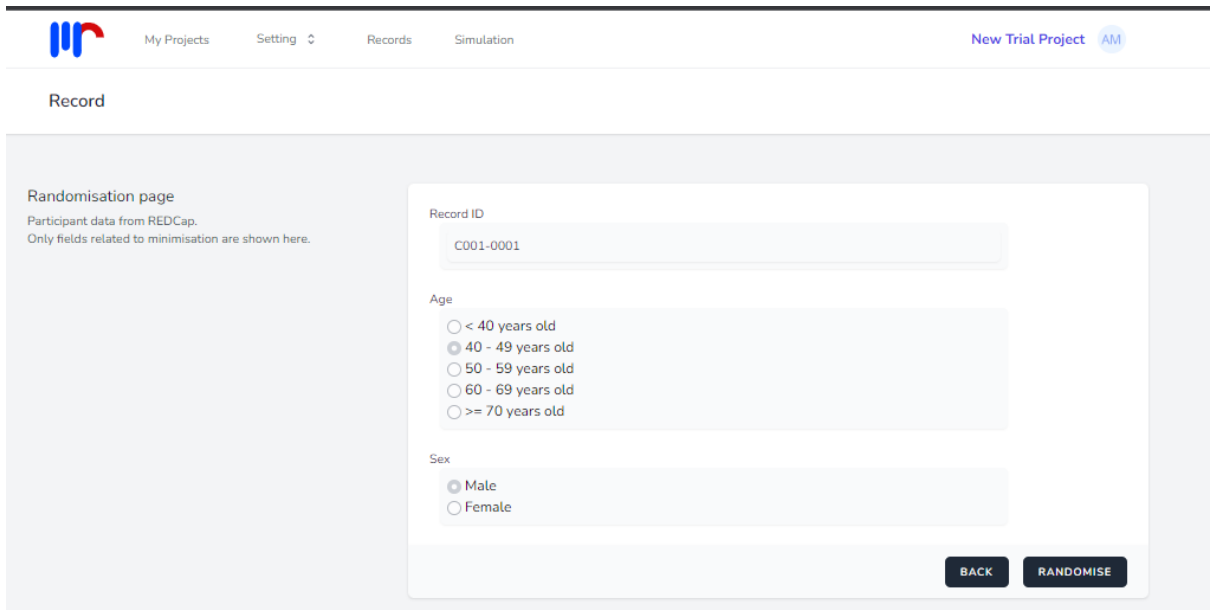

My Projects
Setting
Records
Simulation
New Trial Project
AM

Records

Records
All of the records from REDCap

Participant ID	Group	Randomisation time	Action
C001-0001			randomise
C001-0002			randomise
C001-0003			randomise
C001-0004			randomise
C001-0005			randomise
C001-0006			randomise
C001-0014			randomise
C001-0015			randomise
C001-0016			randomise
C001-0017			randomise
C001-0018			randomise
C001-0019			randomise
C001-0020			randomise
C001-0021			randomise
C001-0022			randomise
C001-0026			randomise

3. Click randomise

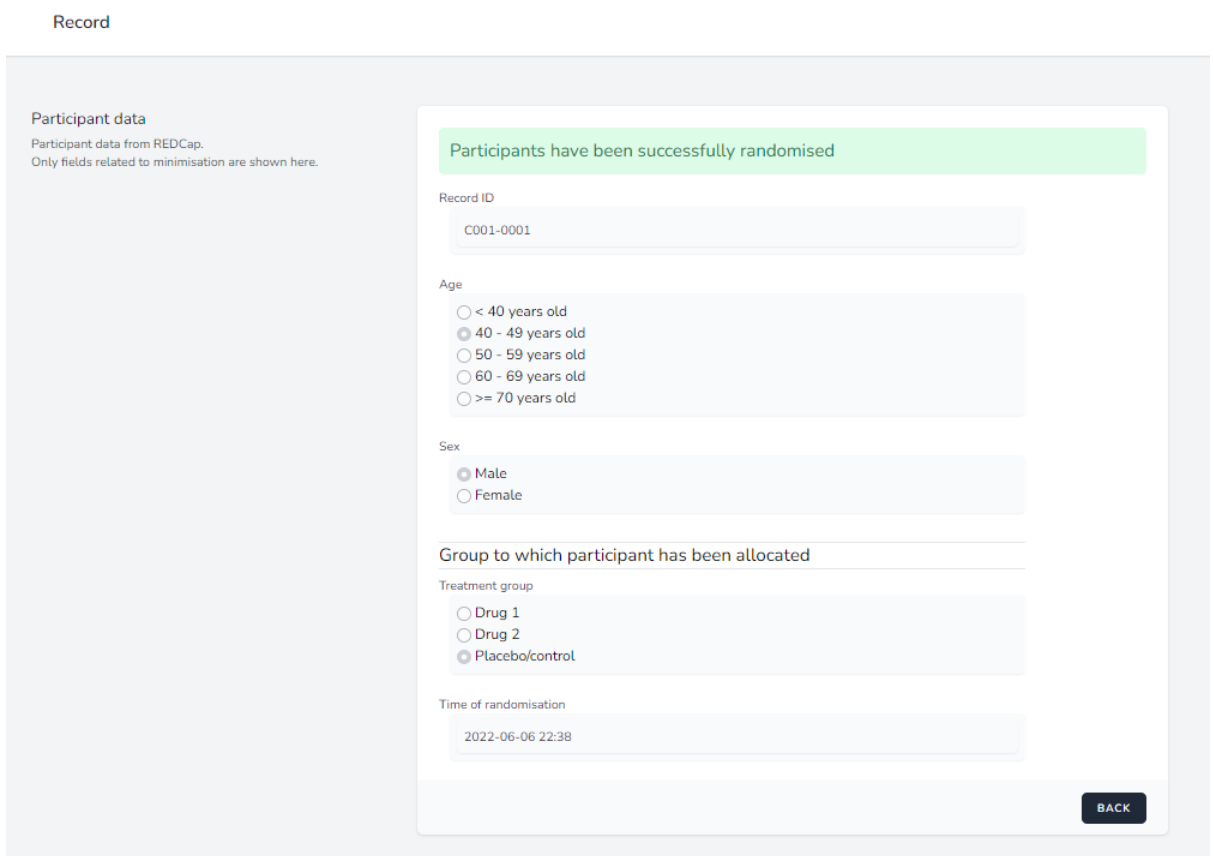


The screenshot shows the 'Randomisation page' in the MinimRED interface. The page title is 'Record' and the subtitle is 'Randomisation page'. Below the subtitle, it says 'Participant data from REDCap. Only fields related to minimisation are shown here.' The main form area contains the following fields:

- Record ID:** A text input field containing 'C001-0001'.
- Age:** A radio button group with five options:
 - ☐ < 40 years old
 - ☒ 40 - 49 years old
 - ☐ 50 - 59 years old
 - ☐ 60 - 69 years old
 - ☐ >= 70 years old
- Sex:** A radio button group with two options:
 - ☒ Male
 - ☐ Female

At the bottom right of the form, there are two buttons: 'BACK' and 'RANDOMISE'.

4. New participant randomised successfully



The screenshot shows the 'Participant data' page in the MinimRED interface. The page title is 'Record' and the subtitle is 'Participant data'. Below the subtitle, it says 'Participant data from REDCap. Only fields related to minimisation are shown here.' The main form area contains the following fields:

- Record ID:** A text input field containing 'C001-0001'.
- Age:** A radio button group with five options:
 - ☐ < 40 years old
 - ☒ 40 - 49 years old
 - ☐ 50 - 59 years old
 - ☐ 60 - 69 years old
 - ☐ >= 70 years old
- Sex:** A radio button group with two options:
 - ☒ Male
 - ☐ Female
- Group to which participant has been allocated:** A section header.
- Treatment group:** A radio button group with three options:
 - ☐ Drug 1
 - ☐ Drug 2
 - ☒ Placebo/control
- Time of randomisation:** A text input field containing '2022-06-06 22:38'.

At the bottom right of the form, there is a 'BACK' button.

VIII. Simulate minimisation

1. Open Simulation page



2. Wait until simulation done
3. MinimRED will show the simulation result

The screenshot shows the top navigation bar of the MinimRED application. It includes a logo on the left, followed by links for 'My Projects', 'Setting' (with a dropdown arrow), 'Records', and 'Simulation' (which is highlighted with a blue underline). On the right side of the bar, there is a link for 'New Trial Project' and a user profile icon labeled 'AM'.

Minimisation Simulation

Simulation no: 1

Treatment group	Age						Sex		
	lt_40	40_49	50_59	60_69	mte_70	Total	M	F	Total
Drug1	21	16	24	22	17	100	46	54	100
Drug2	12	20	30	14	21	97	50	47	97
Placebo	23	26	24	14	16	103	52	51	103
Total	56	62	78	50	54	300	148	152	300

Simulation no: 2

Treatment group	Age						Sex		
	lt_40	40_49	50_59	60_69	mte_70	Total	M	F	Total
Drug1	24	20	21	10	16	91	46	45	91
Drug2	16	20	29	13	18	96	47	49	96
Placebo	16	22	28	27	20	113	55	58	113
Total	56	62	78	50	54	300	148	152	300

Simulation no: 3

Treatment group	Age						Sex		
	lt_40	40_49	50_59	60_69	mte_70	Total	M	F	Total
Drug1	15	21	27	17	22	102	57	45	102
Drug2	20	21	26	12	17	96	45	51	96
Placebo	21	20	25	21	15	102	46	56	102
Total	56	62	78	50	54	300	148	152	300

Simulation no: 4

Treatment group	Age						Sex		
	lt_40	40_49	50_59	60_69	mte_70	Total	M	F	Total
Drug1	29	21	29	16	20	115	52	63	115
Drug2	18	15	31	14	17	95	49	46	95
Placebo	9	26	18	20	17	90	47	43	90
Total	56	62	78	50	54	300	148	152	300