Make a calculate-able database activity

William Lu for iMoot15

Hello, everyone

My name is William.

I have been using Moodle for more than 10 years.

I love Moodle very much and I believe Moodle is not just an online teaching and learning tool, but also a very good **management** tool, especially with the most versatile and powerful module: **Database activity**.

Make a calculable Database

In this session, I will show you how to create a calculable database activity which will work like a spreadsheet.

I will create a ‘Time Tracking’ database from scratch, then add JavaScript and CSS to its templates.

Even if you’ve never created a Database activity before, by the end of this session, you’ll be a pro :)

It will work like this:

Add entry

Time Tracking

Where has the time gone?

View list | View single | Search | Add entry

New entry

Time	Hour	Minute	Duration
Start at:	Choose...	Choose...	
End at:	Choose...	Choose...	

Task:
Choose...

Details:
Paragraph | B | I
Path: p
HTML format

Date:
22 May 2015

Save and view | Save and add another

Enter 'Start time' and 'End time'.

Duration will be calculated automatically

Select a task category

Add more details

Default Date is today or choose a date

View single

Time Tracking

Where has the time gone?

View list | View single | Search | Add entry

Page: 1 2 3 4 (Next)

Added at: Thursday, 21 May 2015, 12:55 am & Mo

Name:	Admin Lu
Task:	Project 1
Details:	Task allocation
Date:	22 May 2015
Duration:	15:30 - 17:50
Spent:	**2.33** hours

Page: 1 2 3 4 (Next)

View single

Who did what and details

Duration and Date

Time spent for one entry

View list

Time Tracking

Where has the time gone?

View list | View single | Search | Add entry

Link to 'Single View'

Name	Date	Task	Duration	Spent
Admin Lu	22 May 2015	Project 1	15:30 - 17:50	2.33
Admin Lu	21 May 2015	Meeting	14:30 - 16:35	2.08
Admin Lu	20 May 2015	Administration	8:50 - 10:10	1.34
Admin Lu	19 May 2015	Research	8:15 - 9:45	1.50
			Total hours:	7.25

Sum of 'List' rows on this page

Advanced Search

Time Tracking

Where has the time gone?

View list | View single | Search | Add entry

Entries per page: 10

Sort by: date | Descending | Advanced search | Save settings

Search by Task

Search by Details

Task: ✓ Choose... / Project 1 / Research / Administration / Meeting

Details:

Author first name:

Author surname:

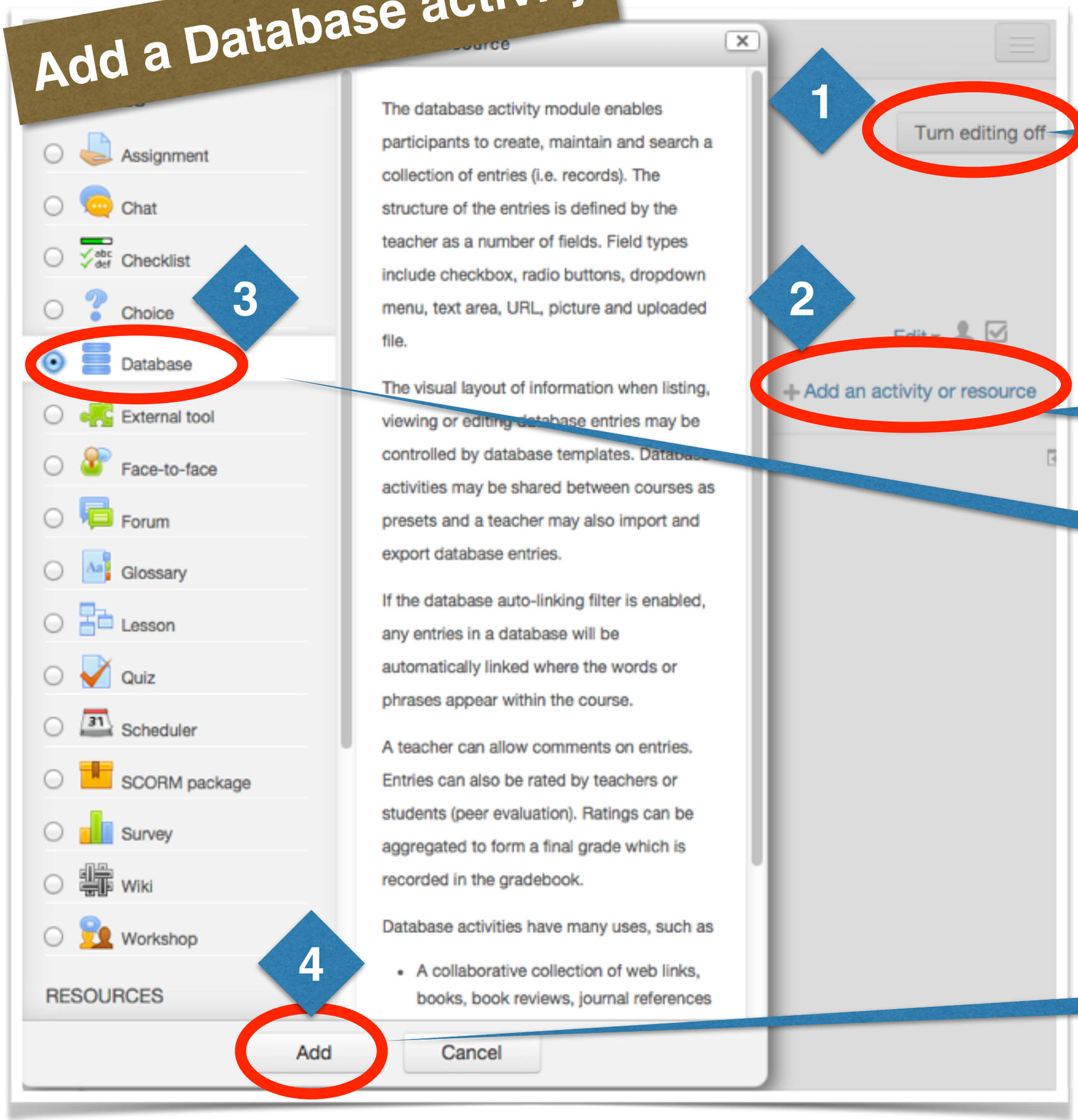
Or list by User

Save settings | Reset filters

STEP 1

Create a New Database Activity

Add a Database activity



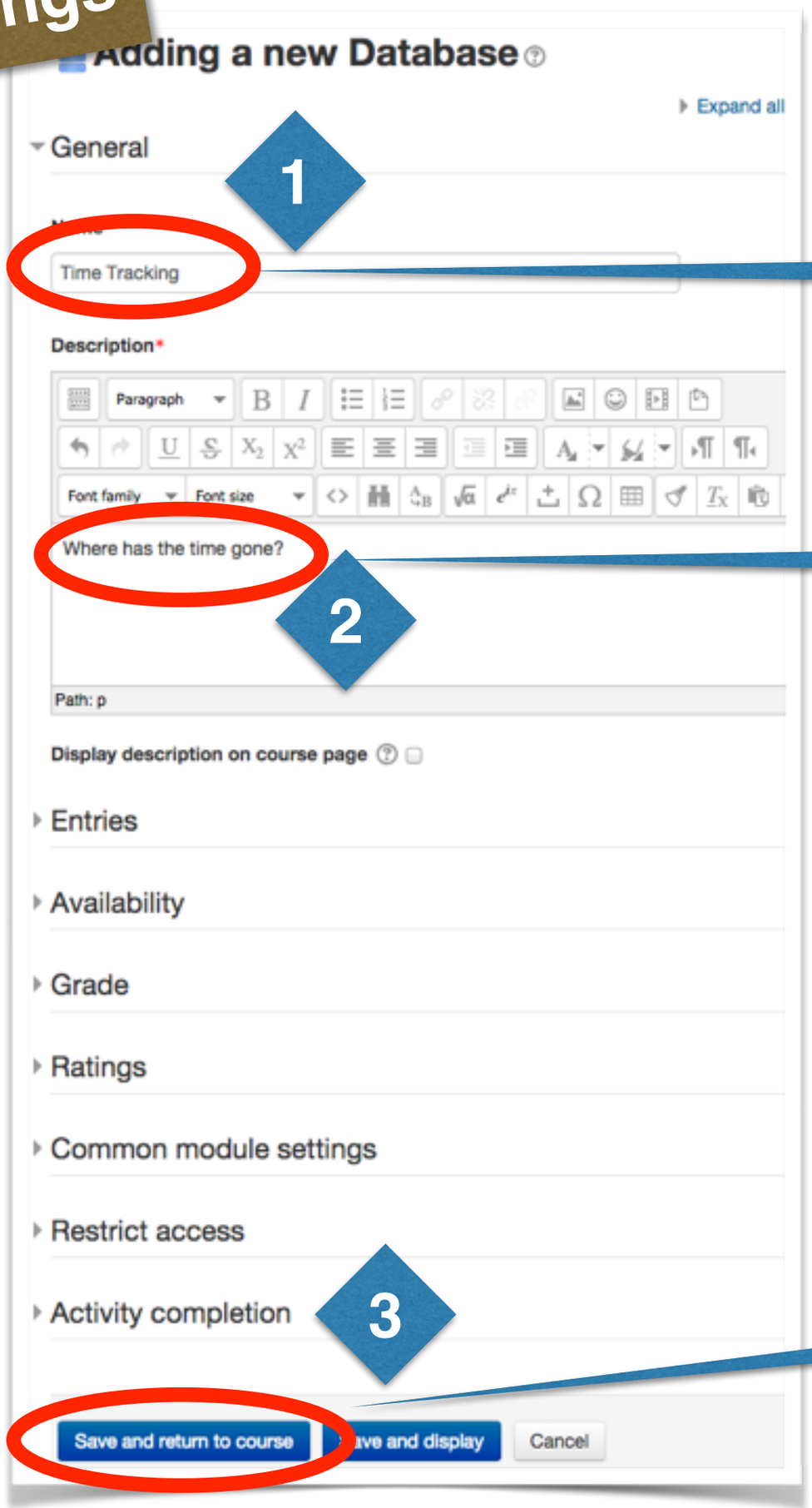
Turn editing on

Add an activity or resource

Select 'Database'

Add

Edit settings



Title

Description

Save

Create fields

Time Tracking

Where has the time gone?

View list | View single | Search | Add entry | Export | Templates | Fields | Presets

There are no fields defined for this database.

Please create some below or choose a predefined set to get started.

Create a new field

Or choose a preset

Create a new field

- ✓ Choose...
- Checkbox
- Date
- File
- Latlong
- Menu
- Multimenu
- Number
- Picture
- Radio button
- Text area
- Text input
- URL

Time added

Save

Add menu field

Time Tracking

Where has the time gone?

View list | View single | Search | Add entry | Export | Templates | Fields | Presets

Menu field

Field name: startminute

Field description: Start Minute

Options (one per line):

10
15
20
25
30
35
40
45

Add | Cancel

Important

Not important

Minutes (number only)

Add text area field

Time Tracking

Where has the time gone?

View list | View single | Search | Add entry | Export | Templates | Fields | Presets

Textarea field

Field name: detail

Field description: Details

Width: 10 columns

Height: 5 rows

Maximum embedded file size (bytes): 0 If set to zero will

unlimited by default

Add | Cancel

Important

Not important

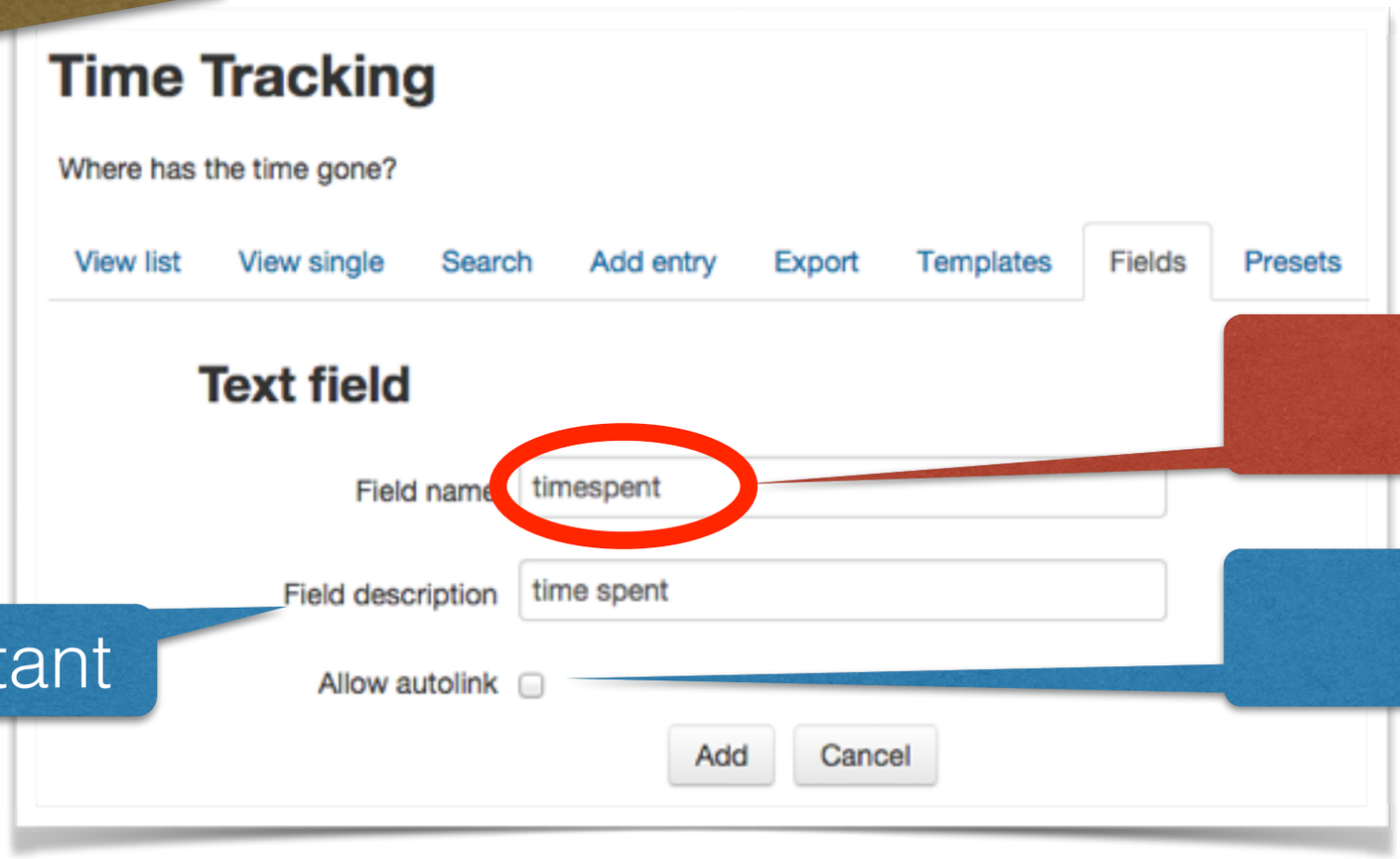
Not important

Not important

Change from '60' to a smaller number

Change from '35' to a smaller number

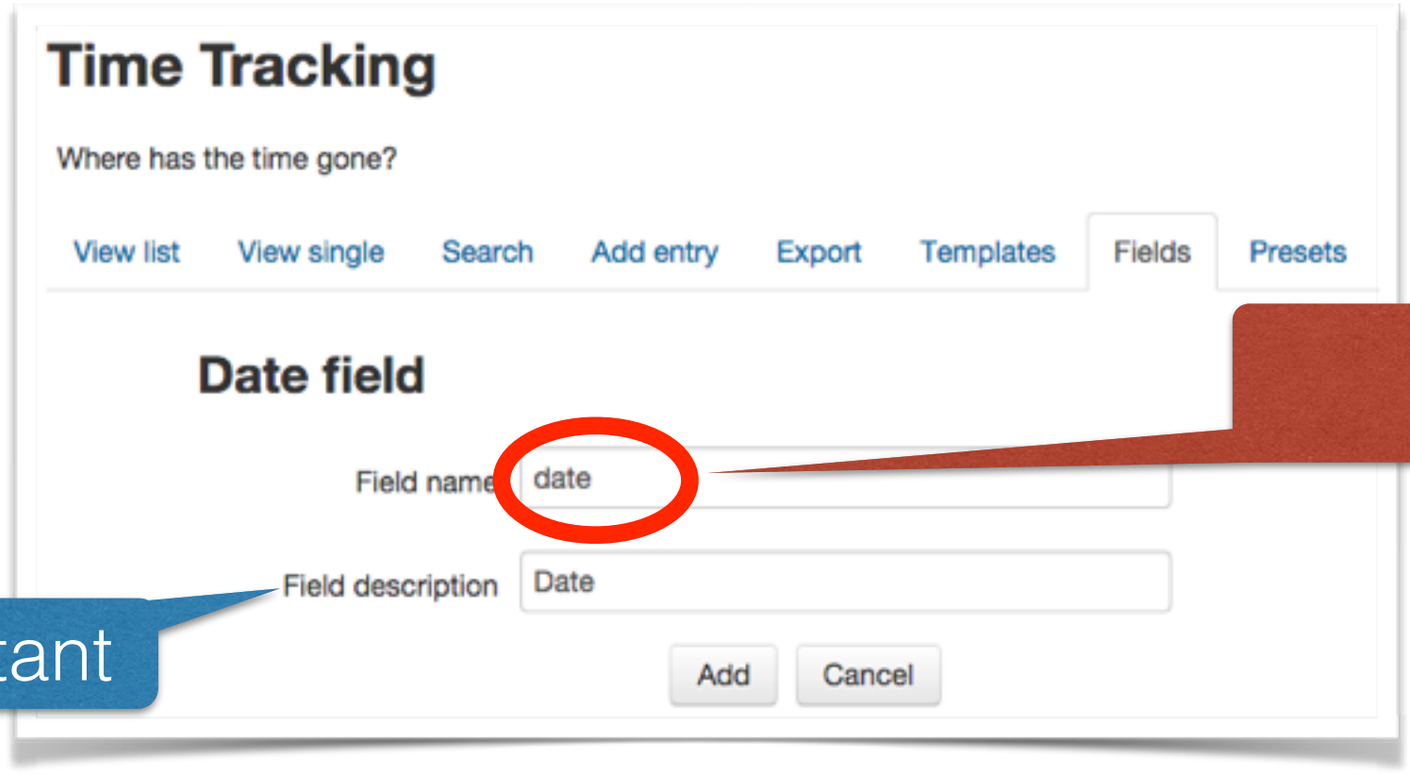
Add more fields



Important

Not important

Untick



Important

Not important

Select default order

Tracking

Where has the time gone?

View list | View single | Search | Add entry | Export | Templates | Fields | Presets

Field added

Field name	Field type	Field description
startminute	Menu	Start Minute
starthour	Menu	Start Hour
endminute	Menu	End minute
endhour	Menu	End hour
task	Menu	Task
timespent	Text	time spent
date	Date	Date
detail	Textarea	Details

Create a new field

Choose...

Default sort field

Time added

Ascending

✓ Descending

Save

All fields we need

Selecting a 'Default sort field' will change the order of 'View list'

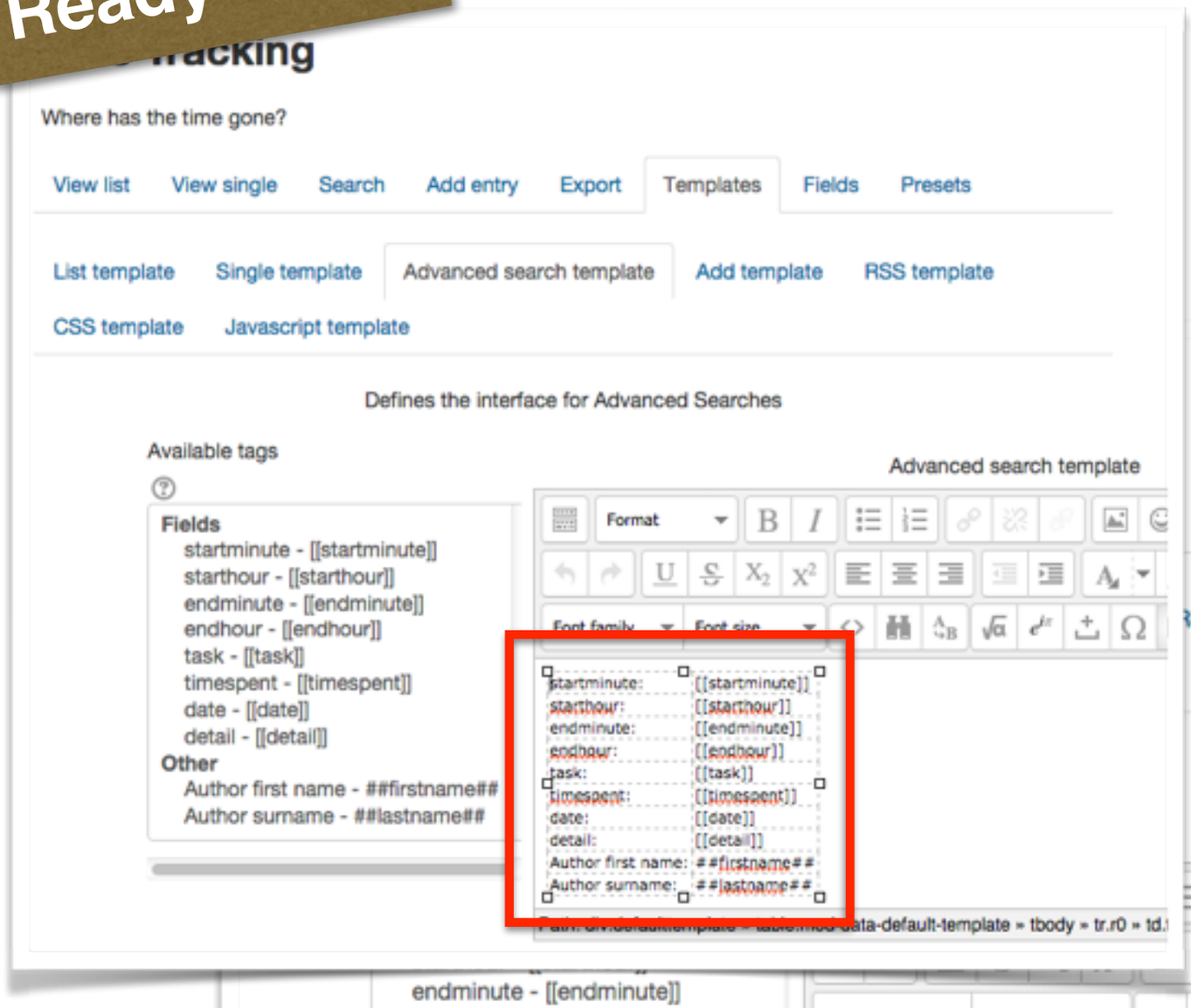
Changing from Ascending to Descending will list the latest entry on top

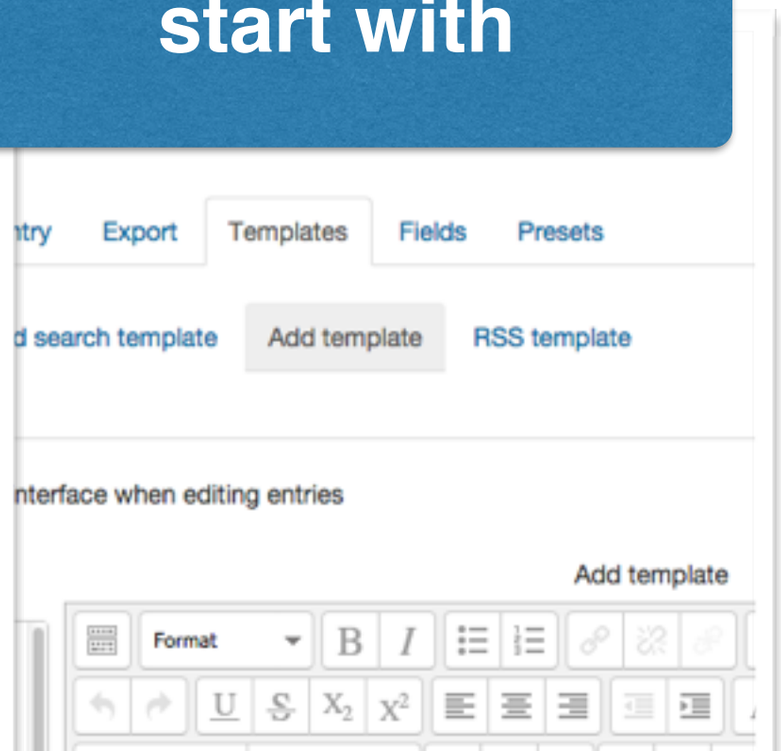
STEP 2

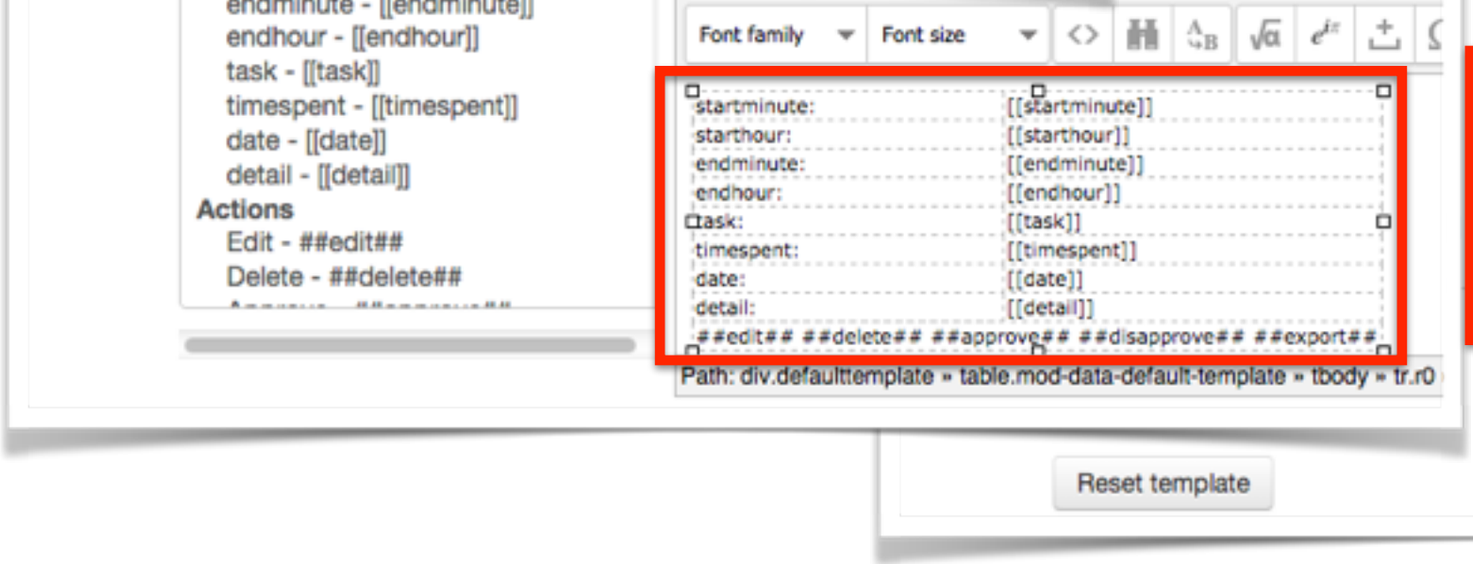
Edit Templates

Ready made

Moodle has kindly created table layouts for us to start with







Edit 'Add template'

Fields
- startminute - [[startminute]]
- starthour - [[starthour]]
- endminute - [[endminute]]
- endhour - [[endhour]]
- task - [[task]]
- timespent - [[timespent]]
- date - [[date]]
- detail - [[detail]]

Field ids
- startminute id - [[startminute#id]]
- starthour id - [[starthour#id]]

Add template

```
<div class="defaulttemplate">
<table border="1" cellspacing="0" cellpadding="2">
 <tbody>
  <tr>
   <th align="center">Time</th>
   <th align="center">Hour</th>
   <th align="center">Minute</th>
   <th align="center">Duration</th>
  </tr>
  <tr>
   <td align="right"><strong>Start at:</strong></td>
   <td>[[starthour]]</td>
   <td>[[startminute]]</td>
   <td rowspan="2" align="center" valign="middle">[[timespent]]</td>
  </tr>
  <tr>
   <td align="right"><strong>End at:</strong></td>
   <td>[[endhour]]</td>
   <td>[[endminute]]</td>
  </tr>
 </tbody>
</table>
</div>
<br /><strong>Task:</strong>[[task]]Details:[[detail]]<strong>Date:</strong>[[date]]
```

Reset template

Enable editor

Save template

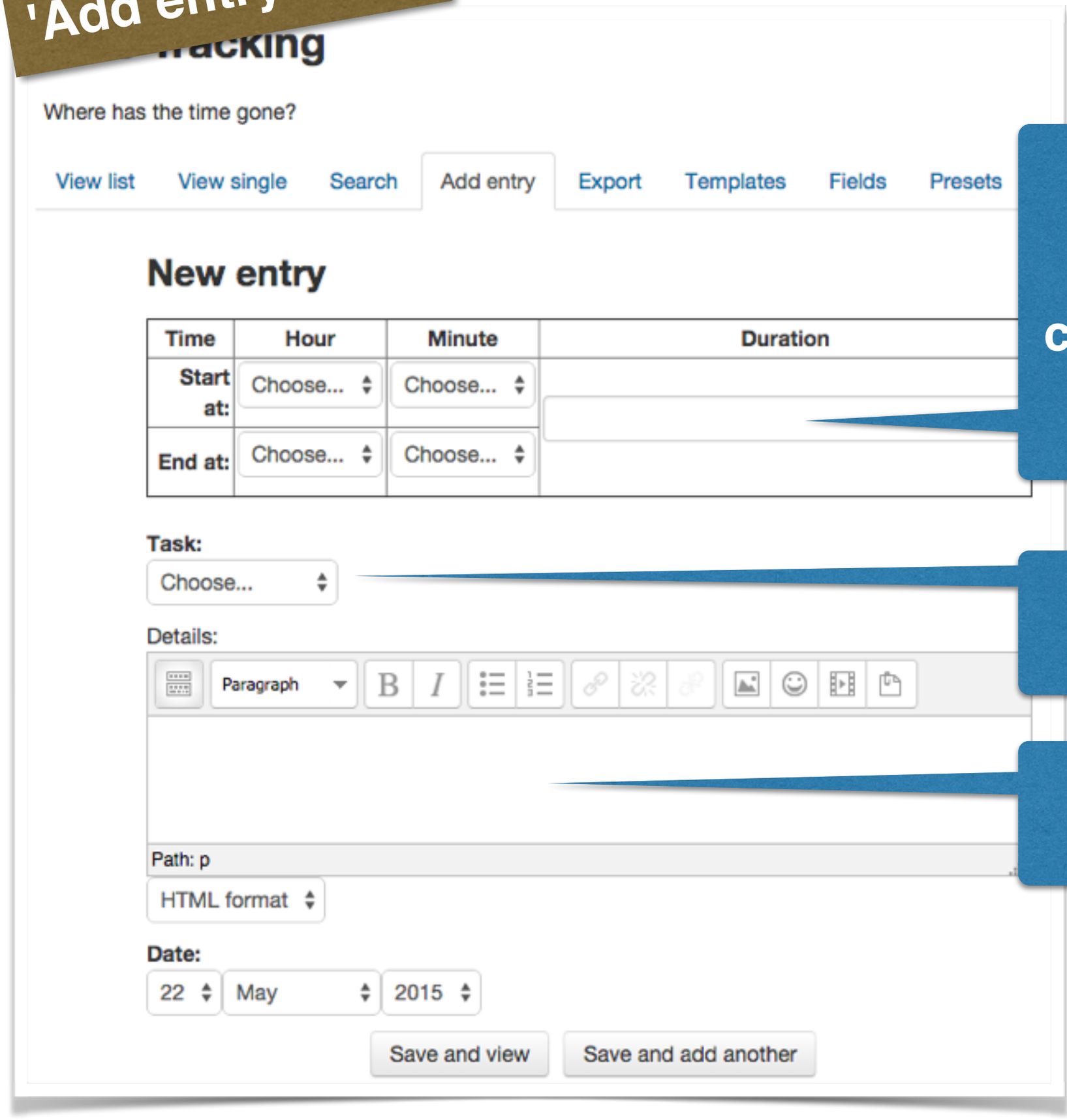
Keep
Important

Modify the 'Add Template' table

Move out from table

Disable editor

'Add entry' form



Dummy content is needed for checking the template's Design

Dummy content is needed

Dummy content is needed

Edit 'Single template'

Fields
- startminute - [[startminute]]
- starthour - [[starthour]]
- endminute - [[endminute]]
- endhour - [[endhour]]
- task - [[task]]
- timespent - [[timespent]]
- date - [[date]]
- detail - [[detail]]

Actions
- Edit - ##edit##
- Delete - ##delete##

Reset template

Enable editor

Disable editor

Single template

```
<div class="defaulttemplate">
<p>##edit## Added at: ##timeadded## &amp;amp; Modified at:
##timemodified## ##export## ##delete##</p>
<div>
<table border="1" cellspacing="0" cellpadding="3">
<tbody>
<tr>
<td align="right"><strong>Name:</strong></td>
<td>##user##</td>
</tr>
<tr>
<td align="right"><strong>Task:</strong></td>
<td>[[task]]</td>
</tr>
<tr>
<td align="right"><strong>Details:</strong></td>
<td>[[detail]]</td>
</tr>
<tr>
<td align="right"><strong>Date:</strong></td>
<td>[[date]]</td>
</tr>
<tr>
<td align="right"><strong>Duration:</strong></td>
<td>[[starthour]]:[[startminute]] - [[endhour]]:[[endminute]]</td>
</tr>
<tr>
<td align="right"><strong>Spent:</strong></td>
<td><strong>[[timespent]]</strong>hours</td>
</tr>
</tbody>
</table>
</div>
```

Save template

Remove

Modify the 'Single template' table

Remove

View single

Time Tracking

Where has the time gone?

View list | View single | Search | Add entry

Page: 1 2 3 4 5 (Next)

Added at: Thursday, 21 May 2015, 2:40 am & Modifi

Name:	Admin Lu
Task:	Emailing
Details:	Announce a big news to colleagues.
Date:	23 May 2015
Duration:	8:30 - 9:30
Spent:	**1.00** hours

Page: 1 2 3 4 5 (Next)

Dummy content

Edit 'Search template'

Defines the interface for Advanced Searches

Available tags

Fields
- startminute - [[startminute]]
- starthour - [[starthour]]
- endminute - [[endminute]]
- endhour - [[endhour]]
- task - [[task]]
- timespent - [[timespent]]
- date - [[date]]
- detail - [[detail]]

Other
- Author first name - ##firstname##
- Author surname - ##lastname##

Advanced search template

Format | Font family | Font size

~~startminute:~~	~~[[startminute]]~~
~~starthour:~~	~~[[starthour]]~~
~~endminute:~~	~~[[endminute]]~~
~~endhour:~~	~~[[endhour]]~~
task:	[[task]]
~~timespent:~~	~~[[timespent]]~~
~~date:~~	~~[[date]]~~
detail:	[[detail]]
Author first name:	##firstname##
Author surname:	##lastname##

Path: div.defaulttemplate » table.mod-data-default-template » tbody » tr.r0 » td

Remove rows

Reset template

Disable editor

Modify the 'Advanced search template' table

Save template

'Search' form

Time Tracking

Where has the time gone?

View list | View single | Search | Add entry

Entries per page: 10

Sort by: date | Descending | Advanced search | Save settings

Task: ✓ Choose... / Project 1 / Research / Administration / Meeting

Details:

Author first name:

Author surname:

Save settings | Reset filters

You need dummy content to display the drop down menu

Edit 'List template'

Table Header

Modify the 'List Template' table

'More' url link

Repeated Table rows

Disable editor

Table Footer

List view

Time Tracking

Where has the time gone?

View list | View single | Search | Add entry | Export | Templa

Link to 'View single'

Table Header

Name	Date		Task	Duration	Spent
Admin Lu	23 May 2015		Emailing	8:30 - 9:30	1.00
Admin Lu	22 May 2015		Project 1	15:30 - 17:50	2.33
Admin Lu	21 May 2015		Meeting	14:30 - 16:35	2.08
Admin Lu	20 May 2015		Administration	8:50 - 10:10	1.34
Admin Lu	19 May 2015		Research	8:15 - 9:45	1.50
				Total hours:	

Repeated Table Rows

Table Footer

Select all | Deselect all | Delete selected

STEP 3

Use JavaScript for 'Add entry' form

Add template

…racking

Where has the time gone?

View list | View single | Search | Add entry | Export | Templates | Fields | Presets

List template | Single template | Advanced search template | Add template | RSS template

CSS template | Javascript template

Select 'Templates'

Select 'Add template'

…erface when editing entries

Available tags

task - [[task]]
timespent - [[timespent]]
date - [[date]]
detail - [[detail]]
Field ids
startminute id - [[startminute#id]]
starthour id - [[starthour#id]]
endminute id - [[endminute#id]]
endhour id - [[endhour#id]]
task id - [[task#id]]
timespent id - [[timespent#id]]
detail id - [[detail#id]]

Add template

Format | B | I | U | S | X₂ | X² | Font family | Font size

Time	Hour	Minute	Duration
Start at:	[[starthour]]	[[startminute]]	[[timespent]]
End at:	[[endhour]]	[[endminute]]	

Task:[[task]]Details:[[detail]]**Date:**[[date]]

Path: div.defaulttemplate » table » tbody » tr » th

Reset template

Disable editor

Disable editor

Save template

JS for 'Add template'

task - [[task]]
timespent - [[timespent]]
date - [[date]]
detail - [[detail]]

Field ids

startminute id - [[startminute#id]]
starthour id - [[starthour#id]]
endminute id - [[endminute#id]]
endhour id - [[endhour#id]]
task id - [[task#id]]
timespent id - [[timespent#id]]
detail id - [[detail#id]]

Reset template

Enable editor

Add template

```
</table>
</div>
<br /><strong>Task:</strong>[[task]]Details:[[detail]]<strong>Date:</strong>[[date]]

<script type="text/javascript">
// <![CDATA[
document.getElementById('[[starthour#id]]').onchange=function(){spent();};
document.getElementById('[[startminute#id]]').onchange=function(){spent();};
document.getElementById('[[endhour#id]]').onchange=function(){spent();};
document.getElementById('[[endminute#id]]').onchange=function(){spe
function spent() {
var starthour=document.getElementById('[[starthour#id]]').value;
var startminute=document.getElementById('[[startminute#id]]').value;
var endhour=document.getElementById('[[endhour#id]]').value;
var endminute=document.getElementById('[[endminute#id]]').value;
var duration =(endhour + "." + parseFloat(10*endminute/6).toFixed(0)) - (starthour + "." +
parseFloat(10*startminute/6).toFixed(0));
 document.getElementById('[[timespent#id]]').value=parseFloat(duration).toFixed(2);
}
// ]]>
</script>
```

Form event: onchange

Get value

Calculate

Display

Save template

STEP 4

Use Javascript for List View

List template

…racking

Where has the time gone?

View list | View single | Search | Add entry | Export | Templates | Fields | Presets

List template | Single template | Advanced search template | Add template | RSS template | CSS template | Javascript template

Defines browsing interface for multiple entries

Header

Format | B | I

Name | Date | Task | Duration | Spent

Path: div » table » tbody » tr » th

Available tags

Fields
- startminute - [[startminute]]
- starthour - [[starthour]]
- endminute - [[endminute]]
- endhour - [[endhour]]
- task - [[task]]
- timespent - [[timespent]]
- date - [[date]]
- detail - [[detail]]

Actions
- Edit - ##edit##
- Delete - ##delete##

Repeated entry

Paragraph | B | I

Font family | Font size

##delcheck## ##user## ##edit##[[date]]##more## [[task]] [[starthour]]:[[startminute]] - [[endhour]]:[[endminute]][[timespent]]

Path: p

Reset template

Disable editor

Footer

Paragraph | B | I

Total hours:

Select 'Templates'

Select 'List template'

Disable editor

Add classes

Single | Search | Add entry | Export | Templates | Fields | Presets

List template | Single template | Advanced search template | Add template | RSS template | CSS template | Javascript template

Header

Available tags

Fields
- startminute - [[startminute]]
- starthour - [[starthour]]
- endhour - [[endhour]]
- endminute - [[endminute]]
- timespent - [[timespent]]
- date - [[date]]
- detail - [[detail]]
- task - [[task]]

Actions
- Edit - ##edit##
- Delete - ##delete##

```
<div>
<table border="1" cellspacing="0" cellpadding="3">
<tbody>
<tr>
  <th align="center">Name</th>
  <th align="center">Date</th>
  <th align="center">Task</th>
  <th align="center">Duration</th>
  <th align="center">Spent</th>
</tr>
```

Repeated entry

```
<tr>
  <td>##delcheck## ##user## ##edit## </td>
  <td>[[date]]</td>
<td>##more## <a href="##moreurl##">[[task]] </a></td>
<td [[starthour]]:[[startminute]] - [[endhour]]:[[endminute]]</td>
<td class="singlespent">[[timespent]]</td>
</tr>
```

Reset template

Enable editor

Footer

```
<tr>
  <td colspan="4" align="right"><b>Total hours: </b></td>
  <td class="total"></td>
</tr>
</tbody>
</table>
</div>
```

Add class for every row

Add class for 'Sum placeholder'

JS template

View list | View single | Search | Add entry | Export | Templates | Fields | Presets

List template | Single template | Advanced search template | Add template | RSS template

CSS template | Javascript template

Defines custom Javascript for the other templates

Reset template

Javascript template

```
var timespent = 0;
var total = 0;

function timecount () {
  var timespent = document.getElementsByClassName("singlespent")
      for (i=0; i < timespent.length; i++) {
      total += timespent[i].innerHTML*1;
    }
document.getElementsByClassName("total")[0].innerHTML = total;
  }
window.onload = timecount;
```

Save template

Select 'Templates'

Select 'Javascript template'

Every *var* has to be declared and start from 0

Sum

Multiplying by 1 converts string to value

Display

Event

STEP 5

Add Cascade Style Sheets

Add template

Select 'Templates'

Select 'Add template'

Changing the text field from default to a smaller size

This won't work in CSS template page

Disable editor

View single | Search | Add entry | Export | Templates | Fields | Presets

te | Single template | Advanced search template | Add template | RSS template | CSS ter

template

Available tags

Add template

task - [[task]]
timespent - [[timespent]]
date - [[date]]
detail - [[detail]]
Field ids
startminute id - [[startminute#id]]
starthour id - [[starthour#id]]
endminute id - [[endminute#id]]
endhour id - [[endhour#id]]
task id - [[task#id]]
timespent id - [[timespent#id]]
detail id - [[detail#id]]

```
var endhour=document.getElementById('[[endhour#id]]').va
var endminute=document.getElementById('[[endminute#id]
var duration =(endhour + "." + parseFloat(10*endminute/6).
parseFloat(10*startminute/6).toFixed(0));
 document.getElementById('[[timespent#id]]').value=parseF
}
// ]]>
</script>

<style>
#[[timespent#id]]
    background: #FFFFCC;
    width:40px !important;
}
</style>
```

Reset template

Enable editor

Save template

Before

Time Tracking

Where has the time gone?

View list | View single | Search | Add entry | Export | Templates | Fields | Presets

New entry

Time	Hour	Minute	Duration
Start at:	Choose...	Choose...	
End at:	Choose...	Choose...	

Moodle default text field size

After

Time Tracking

Where has the time gone?

View list | View single | Search | Add entry | Export

New entry

Time	Hour	Minute	Duration
Start at:	Choose...	Choose...	
End at:	Choose...	Choose...	

CSS defined text field size

CSS template

View single | Search | Add entry | Export | Templates | Fields | Presets

List template | Single template | Advanced search template | Add template | RSS template | CSS template | Javascript template

Defines local CSS styles for the other templates

CSS template

```
.total
{
    font-weight: bold;
    color: red;
    font-size: 18px;
}

.sub
{
    font-weight: bold;
    color: green;
    font-size: 16px;
}
```

Reset template

Save template

For 'View list'

For 'View single'

Select 'Templates'

Select 'CSS template'

Single template

Available tags

Fields
- startminute - [[startminute]]
- starthour - [[starthour]]
- endminute - [[endminute]]
- endhour - [[endhour]]
- task - [[task]]
- timespent - [[timespent]]
- date - [[date]]
- detail - [[detail]]

Actions
- Edit - ##edit##
- Delete - ##delete##

Single template

```
<tr>
<td align="right"><strong>Date:</strong></td>
<td>[[date]]</td>
</tr>
<tr>
<td align="right"><strong>Duration:</strong></td>
<td>[[starthour]]:[[startminute]] - [[endhour]]:[[endminute]]</td>
</tr>
<tr>
<td align="right"><strong>Spent:</strong></td>
<td class="sub">[[timespent]] hours</td>
</tr>
</tbody>
</table>
```

Reset template

Enable editor

Add class 'sub' for 'Spent'

Page: (Previous) 1 2 3 4 5 (Next)

Added at: Thursday, 21 May 2015,

Name:	Admin Lu
Task:	Project 1
Details:	Task allocation
Date:	22 May 2015
Duration:	15:30 - 17:50
Spent	**2.33 hours**

Page: (Previous) 1 2 3 4 5 (Next)

List template

Footer

```
<tr>
 <td colspan="4" align="right"><b>Total hours: </b></td>
 <td class="total"></td>
</tr>
</tbody>
</table>
</div>
```

Add class 'total' for 'Total hours'

View single | Search | Add entry | Export | Templates

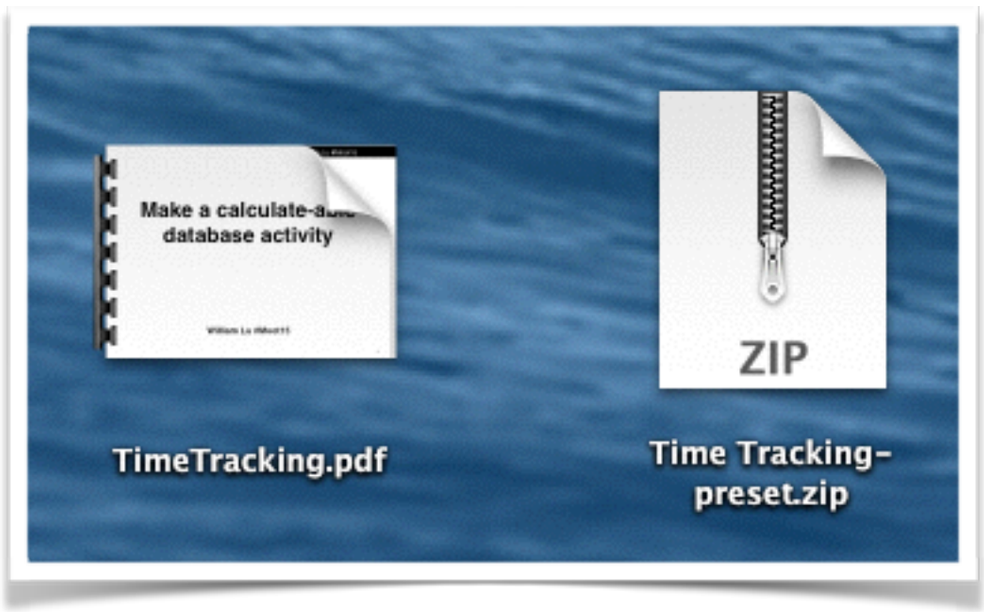
Name	Date	Task	Duration	Spent
Admin Lu	23 May 2015	Emailing	8:30 - 9:30	1.00
Admin Lu	22 May 2015	Project 1	15:30 - 17:50	2.33
Admin Lu	21 May 2015	Meeting	14:30 - 16:35	2.08
Admin Lu	20 May 2015	Administration	8:50 - 10:10	1.34
Admin Lu	19 May 2015	Research	8:15 - 9:45	1.50
			Total hours	**8.25**

Select all | Deselect all | Delete selected

FREE DOWNLOAD

Please download the preset of this Database and this presentation's PDF file from MOODLE.NET

https://moodle.net/mod/data/view.php?d=1&rid=135



Use preset

Time Tracking

Where has the time gone?

View list | View single | Search | Add entry | Export | Templates | Fields | Presets

There are no fields defined for this database.

Please create some below o choose a predefined set o get started.

Choose a preset

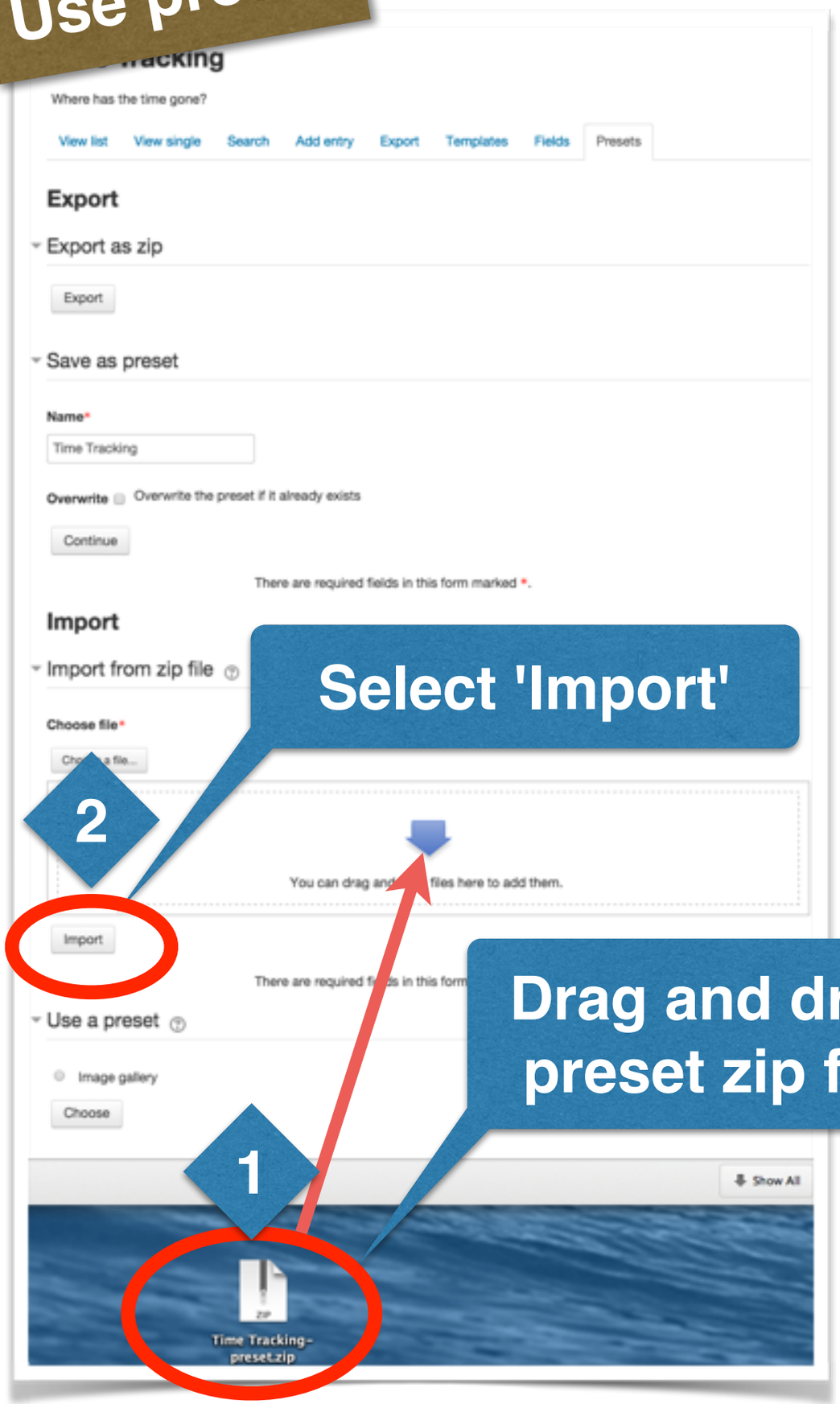
Create a new field

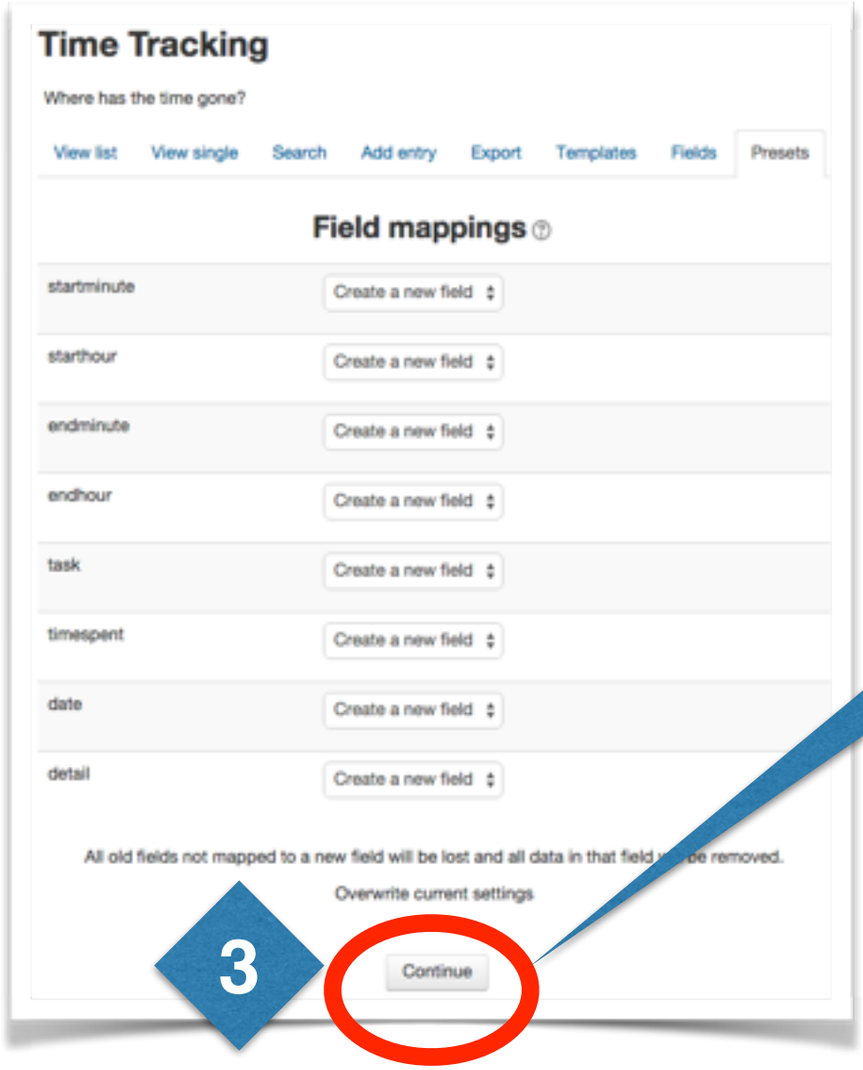
Choose...

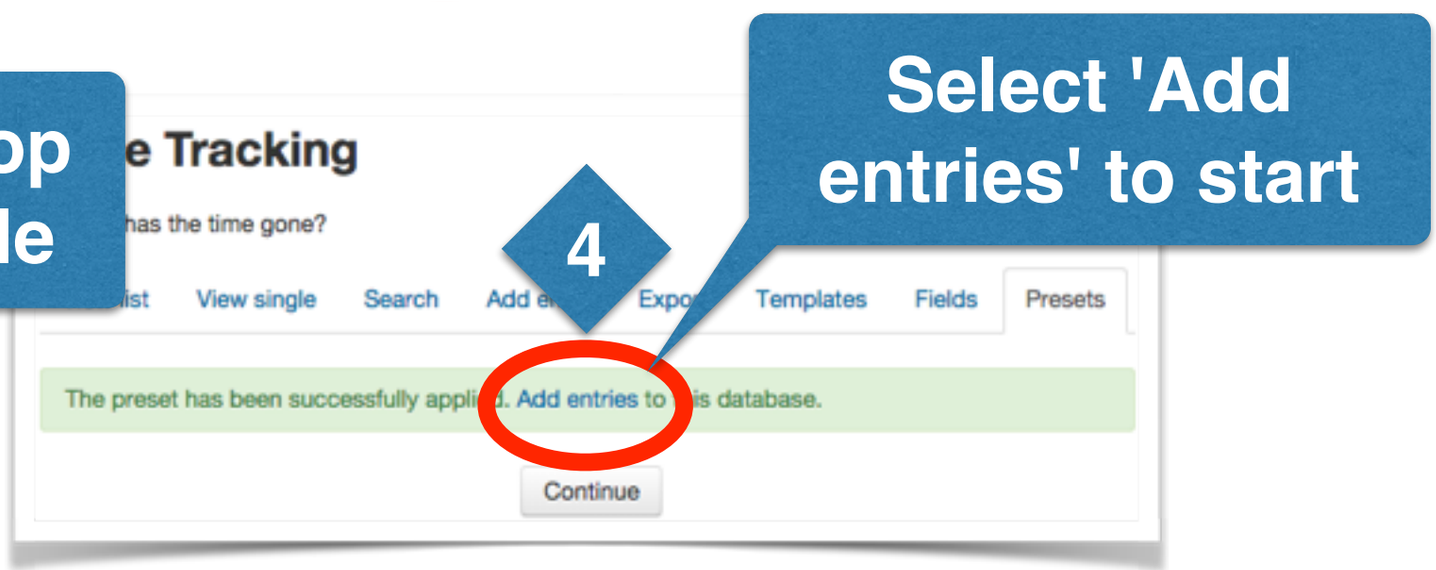
Default sort field

Time added | Ascending | Save

Use preset


Where has the time gone?
View list
View single
Search
Add entry
Export
Templates
Fields
Presets
Export
Export as zip
Export
Save as preset
Name*
Time Tracking
Overwrite
Overwrite the preset if it already exists
Continue
There are required fields in this form marked *.
Import
Import from zip file
Choose file*
You can drag and files here to add them.
Import
Use a preset
Image gallery
Choose
Show All
Time Tracking-preset.zip
Select 'Import'
2
1
Drag and drop preset zip file


Time Tracking
Where has the time gone?
View list
View single
Search
Add entry
Export
Templates
Fields
Presets
Field mappings
startminute
starthour
endminute
endhour
task
timespent
date
detail
Create a new field
All old fields not mapped to a new field will be lost and all data in that field will be removed.
Overwrite current settings
Continue
3
Nothing to change, just select 'Continue'


Tracking
has the time gone?
View single
Search
Templates
Fields
Presets
The preset has been successfully appli . Add entries to is database.
Continue
4
Select 'Add entries' to start

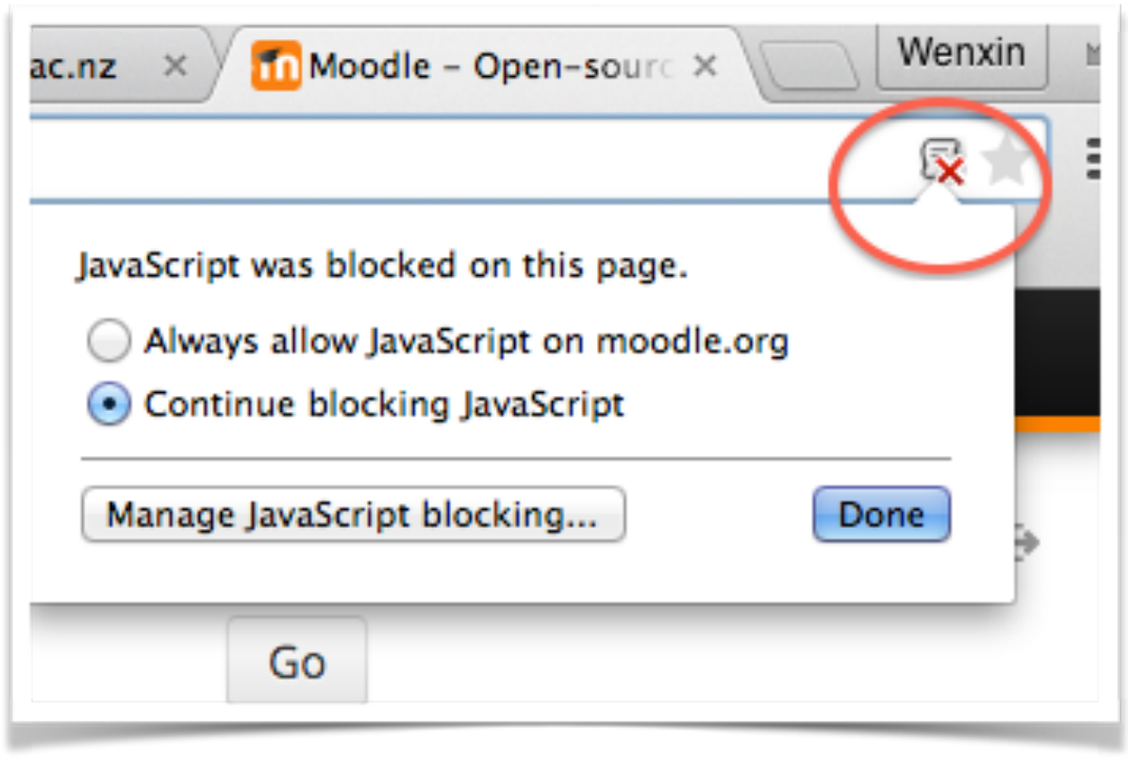
OTHER EXAMPLES

at the Moodle Database forum

https://moodle.org/mod/forum/discuss.php?d=140433

ISSUES

The calculation **won't** work at all if JavaScript is **disabled** in user's browser settings. All calculable cells will be empty, no error message in Moodle page. But the browser will show a warning icon - users can click on the icon to allow JS.



CREDIT

Code inspired by

Itamar Tzadok

Yong Li

and other Moodlers

NOTE

Code tested on Moodle1.9 and Moodle2x

Screenshots based on Moodle2.6

Any Questions?