1a) Functional Specification [mod_tutorialbooking]

This is the document so that:

- Developers know what to build
- Testers know what tests to run
- Stakeholders know (and get them to approve) what they are getting

A Functional Specification of a (computer) system describes the *externally-visible behaviour* of that system.

Glossary

The thing is a "sheet";

Each sheet has slots *e.g.* "10 *a.m.*, Room A35, Trent Building";

Each slot has so many spaces *e.g.* 5 spaces means 5 students can attend the parent slot.

Who are the stakeholders?

Customer (who defines the requirements): Initially the Business School were the customer but now widely used by The School of Politics.

Coder (who builds the requirements): Neill Magill (Previously was Benjamin Ellis)

The Author of this document: Nigel Owen

Overview:

The mod provides functionality in Moodle that provides a tutorial booking service. It was created to replicate functionality offered within the Nexus system (Business School) and was commissioned as part of the Moodle implementation. A tutorial is small (informal) group teaching session with a cap on numbers. The system allows students to opt to attend specific slots. Typically slots are repeated through the week and students sign up to the most convenient slot.

Functional Requirements:

tb-r1 Create a tutorial booking sheet

Create functionality within Moodle where someone with capability to create a tutorial booking sheet i.e. Editing Teacher creates a sign up sheet to contain the individual sign up slots.

tb-r2 Add, Edit, Delete individual tutorial booking slots within the instance. Store a description and enrolment limit with them.

All slots must have the ability to have a description stored with them that enables the user to make a choice.
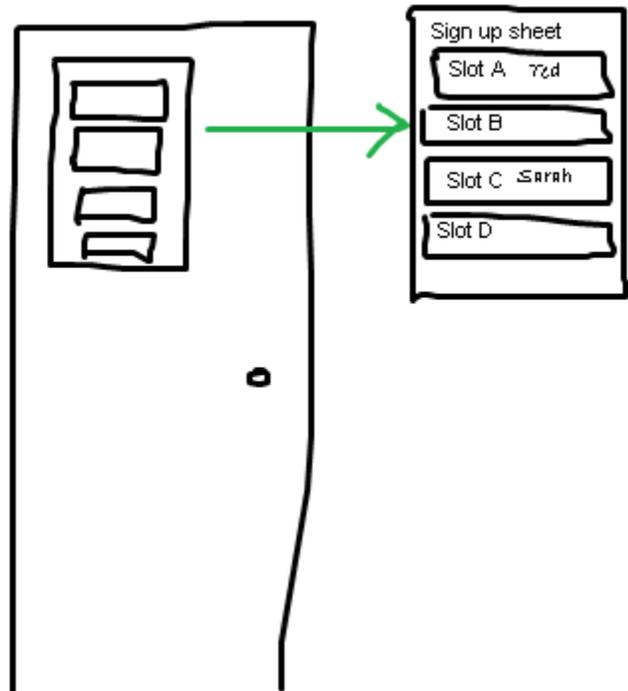
Sheets that do not have any slots must warn the creator/editing teacher that the sheet does not have any slots for the user to select. E.g. "Warning there are no slots within this sign up sheet for a student to join".

There should be a maximum of 65535 slots that can be added to a sign up sheet.

Each slot must have a user defined value for the amount of students that can attend in that slot (the number of spaces). Minimum = 1 (Zero is not a permissible value). Maximum = 65535 (5 nines). Anything outside of these values should not be allowed to be saved, show a warning.

Slots descriptions can be edited i.e. have their description changed at any time.

Available space on a slot can be increased or decreased. I.e. It is possible for a slot to to have the number of spaces reduced to less then the

amount of students currently indicated to attend. In this case the slot will become oversubscribed (see manual moderation). A warning should be presented and confirmation sought from the user that reducing the amount of spaces in a slot means that the slot will be oversubscribed and require manual moderation. Cancel this change if this is not acceptable.

Slots can be deleted. When a slot is deleted all students occupying that slot have their choice wiped (the slot disappears). They are then able to choose another slot on the sheet from the available spaces. A warning should be presented and confirmation sought from the user that deleting a session releases all those students back to the pool of students who have not selected.

tb-r3 Allows users to join an individual tutorial slot, store this value and display this back to the student for review.

Students should be able to click a button to participate in one of the slots (reserving a space in the slot). They will then see their name indicated as attending that slot. This state should be saved so that when the student returns their selected slot will still be indicated to the logged in user.

The ability to reserve a space in a slot must be limited by a role to control access to a tutorial booking i.e. prevent guest account from reserving a space in a slot in a tutorial booking activity.

tb-r4 Prevent users joining a full slot.

If a slot has no free space then a student will be unable to join it. Users with the moderation capability should be able to overide this (see manual moderation).

tb-r5 Prevent users occupying more than one space in one or more slots in a sheet. (limit the user to only one space).

A student must be limited to being only able to be in one space, in one slot on a sheet. It should not possible (even with moderation capability) to put a student in multiple spaces across one or more slots within a sheet.

tb-r6 Allow the student to change their mind give back their space and join another slot with space.

A student can go back into the sign up sheet be reminded of their occupied space. If they have the capability they can cancel that space. This will free their space in that slot so that another student could take (unless it is oversubscribed). The student must choose a space from one of the other vacant slots.

tb-r7 Allow space reservations to be visible or invisible to other students. I.e. They can/cannot see others students slots.

It should be a setting to determine if students can see the occupants of spaces within a sheet. If visibility is hidden then students will only see their own space reservation. If visibility is visible then a student will see other students space reservations. This should be a setting that can be changed at will. I.e. Do not prevent the state being changed once sign ups are received.

tb-r8 All sign up sheets and slots are independent of any other.

Each space reservation is absolutely unique to that slot and that sheet with regards to any staff moderation, editing or deletion. Any change of space by student should be limited to that one student in that specific slot. Changes made in one location are limited to that location.

tb-r9 Allow manual moderation of students in slots.
Create functionality where someone with capability i.e. Editing Teacher can manually remove a student from a slot thus freeing that single space or manually add a student to a slot. Permit oversubscribing it if the slot is full.

tb-r10 Lock the tutorial booking to prevent any sign ups

In locking a tutorial booking sheet students will be prevented from both joining or leaving slots (changing their space reservation) but those with capability can still moderate space reservation. For example a member of staff could either manually tweak space reservation after students have chosen by locking the tutorial booking and moderating students. Or create a new tutorial booking sheet in a locked state and moderating students into specific spaces before opening it guaranteeing that a specific student got a specific slot.

tb-r11 Export the data contained within the tutorial booking sheet

Provide functionality to output a list of users selection i.e occupied spaces into csv format. Provide the following data as a minimum

TimeSlotTitle	Student IDNumber	UserName	RealName	CourseFullname

tb-r12 Facilitate the printing of register.

Provide an output to screen (for printing) of a register ordering in either alphabetical or signed up order.

tb-r13 Facilitate the emailing of each tutorial session

Provide functionality to email all of the signed up users to a specific tutorial booking slot. Send these messages within the next run of the Moodle cron. Do not hold these until the daily digest is produced. Provide functionality to review a list of sent messages.

tb-r14 The tutorial booking instance must obey Moodle's standard default config elements for activities.

The tutorial booking system should work with groups and groupings.

The tutorial booking system should obey Moodle access restrictions (both grade and date/time)

The tutorial booking should support completion tracking.

The tutorial booking should be able to be indented, outdented, moved around section, moved from one topic to another topic.

tb-r15 The tutorial booking system should support Moodle's standard administration functionality with regards to back up and restore.

Backup

When a module is backed up without user data	When a module is backed up with user data:
The signup sheet and slots must be incorporated. However it is not necessary to include any student selections at the time of backup	The signup sheet, slots and student selections as they are at the time of backup must be incorporated.

Restore

Regardless of the type of restore (Backup restored as a new course | Contents of the existing course are deleted and replaced with a backup | Back up is merged with existing an existing course) During restore a new entity (with new database ids) that it is not dependant/linked in anyway to the old one is created. The signup sheet, slots are created as they were at the time of backup. Student selections must be restored as they were at the time of backup must be recreated.

It is assumed that the enrolment of the students back onto the module is handled by the core Moodle backup and restore code when including user data.

To illustrate this point... If a back up of a course were taken with user data and then immediately restored over the top of itself (deleting all contents) then the module would look no different. The only technical difference would be a new (latest) ids for the database instance and all of its dependant pages.

The tutorial booking system should allow duplication (using x2) to the same end as back up and restore. I.e. Create new instances that are in no way dependant/linked in anyway to the old one.

tb-r16 User added or remove to the course who carries a tutorial booking.

If a user is added to a course then they will need to go into the signup sheet and choose a space. Nothing will be 'bestowed' upon them.

If a user is unenrolled from a module then they will lose all of their spaces (they will be removed from the tables), freeing their space for others to utilise.

tb-r17 Users role amended so that they lose the role permission to hold a booking.

If a user has a capability amended the selections they held or the actions they carried out when they had that capability will still exist. However they will no longer be able to carry out the activity associated with the capability they have lost.

tb-r18 If the course is deleted

All references to that tutorial booking should be purged from the database.

Screens, Workflows and User interface Requirements

Revision Seminars.

I will be offering revision sessions over the next two weeks. Please sign up to one session (the most conveinent) if you wish to attend.

Session 1 Tuesdays 9am - 9.45am | 6 Taken | 4 Available

Ted Smith, Jackie Bailey, Thomas Redbrick, Sanjit Kharma, Gavinder Purwal, Onyip Ketang,

`Join`

Session 1A Tuesdays 10am - 11am | 0 Taken | 10 Available

`Join`

Session 2 Saturdays 4am - 6am | 3 Taken | 6 Available

Ted Smith, Terry Wilks, Marcus Davids,

`Join`

Session Friday 9am - 9.45am | 10 Taken | 0 Available

Marcel Davy, Roger Jones, Mark Fletcher, Andrew Travis, Rachael Watchorn, Brenda Blunt, Heather Owen, Bryan Dobson, Stacey Williams, Jeff Jones

Session F Thursday 9am - 9.45am | 6 Taken | 4 Available

Jasmin Stevenson, Tracey Brady, Samanatha Jackson, Sarah Butterworth. Sarah Pontefract, Ruth Hilton

`Join`

Policy and Issues:

Data security and confidentiality should be considered. E.g. If signups are invisible no student should be able to view others. Students should not be able to change other student reports.

Users and Security

The following must be separate capabilities that can be added to a role.

Capability: Can add tutorial booking activity and can create/amend sign up sheets and slots.

Capability: Can delete tutorial booking activity, sign up sheets and slots within a sheet.

Capability: Can participate in tutorial booking activity (sign up to a slot)

Capability: Can remove self from a slot - i.e. using role overide can force students to stick with first choice.

Capability: Can moderate users within a sheet (manually add or remove).

System administration and maintenance

It is envisaged that once deployed this system will need no maintenance, checking, further processing or review by system administrators.

Metrics:

It is expected that this code will be used institution wide with full module cohorts.It is anticipated that this code will be used under high concurrent load. E.g. A cohort of 400 students access it at 10am to reserve a favoured tutorial slot.

Attachments

Pencil File of screen Mock ups http://pencil.evolus.vn/

tutbooking.ep