A day in the life of a WeBWorK instructor

Informal instructions for using WeBWorK

Quick Overview

This document gives details on how one professor actually uses WeBWorK. By clicking on the question mark image ( ) in the upper left part of the page, there may be a help page specific to the current page you're viewing. Also the WeBWorK Main Forum [1] is a good place to go for help.

Adding Students

Adding Many Students at Once

When the course has first been created easiest way to do this is to obtain a spreadsheet of your student's information and then edit it so it matches the classlist file format. Be sure to give the file a .lst extension, otherwise WeBWorK won't recognize it as a classlist file. Once the file is ready, go to the **File Manger** to upload it. If you are a professor there should always be a link to the File Manager in the main menu. Hit the **Browse** button and select the classlist file you prepared. Then click the **Upload** button.

Once the file is uploaded it needs to be imported into the course's classlist. This is done on the **Class List Editor** (there's a link to it in the main menu). Click the "radio button" (the circular thing next to each option) next to the import option and select the file you just imported in the drop down menu. Make sure that it says "adding **any** new users". Then press the **Take Action** button to import it.

Adding a Few Students

If there are only a few students in a class, or you need to add one student after the main classlist file was already imported, there is another feature which may be easier to use. If you click on **Classlist Editor**, on that page there is an **Add ___ student(s)** option. Check the radio button next to that option and fill in however many students you wish to add to the course and click on that hit **Take Action** to go to the **Add Users** page.

Fill in the information for each student. The only required fields are the Student ID and the Login Name, but the first and last name should probably be filled in, and if there is no email address, the student will not receive emails. (Don't worry if you don't have the email address though, the student is able to enter or change this on his own.) The "Section" and "Recitation" fields may be useful in very large classes since these options can be used to sort students in various parts of the course, such as scoring.

Creating a Problem Set

Perhaps the most important part of having a successful course is creating good problem sets. You want the problems to correctly reflect the topics that are discussed in class, and to be the appropriate difficulty level. Thus, creating a problem set is one of the most important steps in maintaining a successful WeBWorK course. Creating problem sets can also be very time consuming, so be sure to give yourself plenty of time.

Very few WeBWorK professors write their own problems. Most subject material in courses that are well suited to WeBWork has already been covered by previous WeBWorK professors, and there is no need to reinvent the wheel. But if you are writing new problems see below "Writing New Problems or Editing Current Ones".

Selecting and Adding Problems to a Set

First, go to the **Library Browser** (from the link in the main menu). Notice that the buttons and menus are divided into four layered sections, one on top of the other. The uppermost section is to choose which problem set selected problems will be added to. You can also create a new problem set from here.

The next section is to choose which library to look at. Pick one of the libraries and then in the third section from the top choose one of the directories, or if it is set up so the menus are for subject and chapter make the according choices. There is an effort underway to make the problem libraries more accessible by subject and chapter, but even if the library is only organized by directory, the name of the directory is often enough to find the proper subject material. *See also: Problem Libraries.*

After making your choices from the menu(s) you can either change the display mode or the number of problems per page (more problems per page makes it longer to load the page) and then press the **View Problems** button. There should now be problems visible below all the tools.

Before you start marking problems, make sure the set you wish to add problems to is displayed on the menu in the first section. If you are creating a new set, type in the blank and press the "Create a New Set in This Course" button (There is no need to put the word "set" in front of the name, it is automatic on the new system) and then make sure this new set name is displayed in the menu next to the words "Adding Problems to Target Set:".

You are then ready to go through the problems and mark the ones you want to add. When you press the "Update" button all the problems marked to add or to not display do so. The other buttons in the lowest section are fairly self explanatory. The "Rerandomize" button changes the problem seed for the problems, which is what determines what the variables are.

Do not worry what order the problems are added in, or if you accidentally add a problem you didn't want, you'll get a chance to fix that later. You can change which problems you're viewing using the method described above, and add as many as you want to to a set.

Editing an Existing Problem Set

To edit an existing problem set, go to the **Instructor Tools** (in the main menu) and select the set in the lefthand menu, then click on the "Edit one set" button.

The open date is when the problems will become available to those assigned them. Between the open date and the due date the problems answers will be recorded. After the due date no new answers will be recorded. The answers will become visible to students after the answer date. These three dates must be sequential.

The set header file is what is displayed in the right hand column on the set's page. The system default is a good template as to what should be on that page. The easiest way to make your own for the set, is to click on the link on this page, or the one displayed when you view the set later (there will be a link entitled "edit" on the set header, visible to all professors).

After changing these things press the "Save" button. In order for you to tranfer this problem set's data to another course or to your local machine it must be exported to a .def file. But don't export the file using the "Export Set" button until you are done editing the set. Once the set is exported it can be transfered from the **File Manager** to your local machine. If having transfered them to your machine you wish to edit them there, or perhaps understand what they consist of, see Set Definition Files.

Once all the dates have been saved, click on the "Edit the list of problems in this set" link. This page can also be accessed by going to the **Hmwk Sets Editor** and clicking on the link in the "Problems" column of that problem set's row at the bottom of the page. If you want to view the problems, change the display mode from "None" to "images" or whichever you want, and press the "Refresh" button.

The order of problems can be changed by changing the numbers in the menus in the upper left hand corner of each problem's box. To delete check the box, but if you accidentally delete one, you'll have to go back to the Library

Browser Page and find it's original location to add it back again. The weight refers to how much the problem counts when scored, this is usually left at one unless there is a "practice" set at the begining of a course to get the students used to WeBWorK and then professors often set it to 0. Usually students are allowed an unlimited (write "unlim" in the box) amount of attempts at a problem, but sometimes if the problems are multiple choice a professor wants to limit how many times a student can try. (Students have a bad habit of guessing on multiple choice problems) When you wish to save changes made to the set, scroll down to the bottom of the page and press the "Save Problem Changes" button.

Adding Students to a Problem Set

Go to the **Hmwk Sets Editor** page, in the table at the bottom of the page, click on the link in the "Assigned Users" column of the set's row. To assign the set to all users, press the button marked as such. To assign to some subset of users, check the ones to be assigned and press the "Save" button. Be careful not to uncheck anybody who's already started since the student's scores will be lost.

Making a Set Visible to Students

The default for new sets is "invisible", this makes it so students can't see what you're working on. Once everything is ready for the students to see you want to make the sets "visible". To do this go to the **Hmwk Sets Editor** and click on the pencil next to the set's name and then check the "visible" checkbox and make sure you switch the option to "Save Changes" before you press the "Take Action" button.

Scoring a Problem Set

You can do scoring from the web. Go to the **Scoring Tools**. You can either score one set at a time, or get a total score for all the sets. To score one set select it and press the "Score Selected Set(s)" button. To score multiple sets, highlight them and press the button, this will create a "totals" file which combines the scores from all of the sets to give final scores, if the checkbox is checked, then the regular files for each individual set are created also. The scoring procedure creates files (in .csv format) that include the status of the problems, the number of attempts, and also the final score of the problems.

You can download these different files onto your personal computer clicking on the file names on this page, or from the **File Manager**.

You should realize that scoring a problem set is like writing grades into your grading book, once the grades are entered they are fixed unless you change them. Whatever a student does after a set has been scored, does not effect the scoring files.

There is no standard procedure of when to do scoring. You have a few options:

- You can score each problem set right after the problem set is due. This way, you can email your students their homework grades throughout the semester. The trouble with this is that if you gave a student an extension but scored the set before the student completed the set, anything the student did after you scored the set would not be recorded. Once the student has completed the set, you would have to edit the scoring files accordingly by hand.

- You can score all of the problem sets at the end of the semester. This way, there are no problems with extensions and no major editing needs to be done. The drawback is that you wouldn't be able to send emails to your students.

- The final option is a combination of the other options above. You can score each problem set right after the problem set is due, email your students if you want, and then score once more at the end of the semester. Scoring a set just appends the scores to the totals file so if you score a set twice, it will appear twice in the totals file. Thus, if you do this, you would have to use the totals file accordingly.

It should be noted that the first time a scoring file is created, student names, sections, and recitations will be taken from the current classlist information. If you score a set after that, the new information is appended to that scoring

file by matching student ID's. If you change a student's recitation (or name, etc) but keep their student ID, the new recitation will not be written in that scoring file. If students add or drop the course, this will be handled automatically.

Also, it's easy to use e.g. excel to add exam grades to the scoring file. See Scoring for more information on scoring.

Sending Email to Students

Sometimes, after you score problem sets, you may want to send your students an email discussing thier scores. Other times you may want to send an email to students with general announcements about your course. This can be accomplished on the **Email** page, which allows you to send personalized emails. When sending mail from the email page, make sure all the fields which originally contain "FIXME" are changed. The email can be sent to all, or any subset of the students.

The personalized variables can be viewed by clicking on the "list of insertable macros" drop down menu. They are:

- $FN - first name
- $LN - last name
- $SID - student ID number
- $SECTION - student's section
- $RECITATION - student's recitation
- $STATUS - C, drop, withdrawl, audit, etc.
- $EMAIL - student's email address
- $LOGIN - student's login name
- $COL[3] - third column in merge file
- $COL[-1] - last column in merge file

Any value is accepted for $COL[ ], but values that are out of range of the merge file will produce no output.

Here is a copy of a typical email :

```
Dear $FN,


This email message should go to everyone in mth141 for whom I have
an email address.


NEW WEBWORK ASSIGNMENT:


A new WeBWorK assignment (assignment 8) covering the material from
this week's lectures is up on the WeBWorK system.  It must be completed
by 2:00am Tuesday, November 5.  Remember, assignment 7  must be completed
by 2:00am Tuesday, October 29.



YOUR RECENT SCORES:


Your score on WeBWorK assignment 5 was $COL[-3] points out of a
possible 15 points.  Your score on WeBWorK assignment 6 was $COL[-1]
points out of a possible 10 points. Your score on Exam 2 was $COL[-2]
points out of a possible 100 points.


These scores should include any adjustments I have made. If there are
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any errors in these scores, please see me.


Have an enjoyable weekend.


Professor Pizer
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Now you can send a "personalized" email to your students by merging the above with (for example) the mth141_totals.csv file (the scoring file from assignment 5). Be sure to set the merge file in the drop down menu in the upper right hand corner.

Usually you want to be really careful, so you can first preview the email by selecting some student in the drop down menu and clicking on the "Preview" button. This allows you to read the email with all the variables filled in for that student.

To save your self future work, you may want to save one email to use as a template for other emails. You can save as many as you want, but the one you save as "default" is the one that appears when you first go to the screen so that should be the template you use most often.

Viewing Student Progress

Student progress can be viewed by going to the **Student Progress** page, a link to which is in the main menu. You can eith view the statistics on one set for all users, or all sets for one user. This is a good place to find out how an individual student is doing in the course, or to find out how the class as a whole is doing on a particular set.

The "ind" column is a statistical "success" indicator for the problem set, calculated as:

$$ind = \frac{\frac{\text{total correct problems}}{\text{total problems}^2}}{\text{average number of attempts per problem}}$$

which is a fairly good indicator of how well the students are grasping the concepts.

Acting as a Student

Often when a student is having trouble with a particular problem it is helpful to see thier version of the problem. You can do this by going to the **Instructor Tools** and selecting the student and the set and click the "Act as one user on one set" button. You can enter answers into the student's problem, they will not be recorded. Once you are done "acting" as that student, be sure to click on the "Stop Acting" link in the upper left hand corner of the screen.

Changing Set Data For an Individual Student

There are many times when you need to give a student an extension on a problem set, or change their score on a problem, or change the variables of a problem for a particular student. You can accomplish this by going to the **Instructor Tools** page and selecting the student and the set, and then pressing the "Edit one set for one user" button. To give an extension, click on override, and change the due date and answer date. If you want to give a student different variables than they currently have, click on the "Edit list of problems in this set for studentname" link at the bottom of this page. Changing the "problem seed" for a particular problem gives it different variables. The students score on a particular problem can be changed here also.

Changing a Password

If a student forgets his or her password, you can give them a new password. Go to the **Instructor Tools** page and select the student and press the "Change Password" button.

Removing Students or Changing Status

It is better to "drop" a student from a course instead of deleting them, since deleting them destroys all their data which may be needed later. In order to drop the student, go to the **Classlist Editor** and select the user (by checking the box next to his name in, then select the "Edit selected users" option and click the Take Action button. Just enter the word DROP or the letter D in the status box for the student classlist information. You may want to enter a comment giving the drop date. You can later resurrect the student by changing his or her status to C (for current). In that case, you may want to make sure the student has been assigned the problem sets.

Writing New Problems or Editing Current Ones

You may want to select problems from the text book which you want to modify into WeBWorK problems. In order to create a problem source file (i.e. a .pg file), usually you start with a PG file containing a problem similar to the one you already want and modify it. Nearly everywhere you see a problem there is an "Edit it" link. If you click on this link you will be take to an editor where you can edit this problem. This may not be an easy task, since this is computer code. There is a link on the editing page to the "Man pages" which can help you learn to write and edit problems.

For more on writing problems, see Category:Authors.

You won't want to write over the current problem (you probably won't be allowed to either), so give it a new name by typing it in the "Save As" blank. Be sure to also type in proper directory to put it. If the directory you type doesn't exist, WeBWork will make it. So if you type in new/problem.pg, WeBWorK will create the new directory for the problem.pg problem. This directory will the be available in the Local Problems section of the **Library Browser**.

When writing your own problems, you will usually have a few errors here and there. It is usually a good idea to click on the "Refresh" button often to make sure the problem is working.

Writing totally new problems may be difficult for a newer professor to do, but if you just want to change the wording or the variable parameters, it may be worth the time to make the small changes and save that problem to a new directory. Perhaps the best way to learn how the problems are written is making small changes to a bunch of them.

References

[1] http://webwork.maa.org/moodle/mod/forum/view.php?f=35

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