# Change request log

# Team

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# Change Request

FEMR-137 <https://teamfemr.atlassian.net/browse/FEMR-137>

# Concept Location

|  |  |  |
| --- | --- | --- |
| Step # | Description | Rationale |
| 1 | We ran the system | Can’t fix what we can’t run. |
| 2 | Entering the birthdate for a patient occurs at Triage (know this because I needed to create a patient during FEMR-208). Going to the triage page to find out what the html is called.  App/femr/ui/views/triage/index.scala.html is the page with the HTML form that you input the patient's information into. This is a good place to start | Have to find out where the change would need to start at. Where you enter the birthdate is a good place to go. |
| 3 | Examined app/femr/ui/views/triage/index.scala.html  The form collects the information and POSTs on submit, but there doesn't seem to be any detailed logic. The file imports a lot of java scripts, but manually searching through all of them would be tedious. Looks like it's time to grep! | Manual searching is like going to the library and looking at index cards when you can just google. Both will get you to the same result, but one is 10x faster and will actually give you a detailed result while the other will leave you banging your head against a filing cabinet. |
| 4 | Since this has to deal with birthdays, executed the following line in the cmd prompt to try and find anything birthday related "grep –ri birthday ." | Unsure where the age is calculated. The new patient for allows you to enter an approximate date, age range or just guess the age.  In this case, unless they entered an exact date, it is an estimation that needs to be reflected in the database |
| 5 | Examine public/js/triage/triage.js  The java script has logic in place to convert from a year/month entry to a date and from a date to a year/month entry.  Logic will have to be put in place to make sure that when the date is being converted it is captured as an approximate date, while if the year/month is entered it is captured as an estimation. | Grep returned this file and looks like java script is called by the HTML code when patient is created in triage. |
| 6 | It looks like all the data is being POSTed for a Patient object. Time to grep some more.... this time looking for age | Greping is so much better than searching in Intellij |
| 7 | Executed cmd "grep –r age ." | Find where the birthdate is being stored.... |
| 8 | DataModelMapper.java - this is where the patient is being created into an object. And the age from the POST is being set... | The birthdate is already passed in when we create this object so we should find where that is called when it is created. |
| 9 | DataModelMapper.java implements an interface. Looks like we will have to update the interface IDataModelMapper.java with the changes needed to IPatient | Need to update the IPatient class with the added field, but first we have to see if any other classes call the patient class. |
| 10 | In cmd, executed "find . -name IPatient\* -print" | DataModelMapper.java creates a patient from the IPatient class. Need to see where that class is in order to see how they use date |
| 11 | IPatient is an interface. Next step is to see which class implements this interface by doing another grep... "grep –r "implements IPatient ." | Patient.java implements IPatient. This file will have to be updated with the new column |
| 12 | Grep to see if any other classes include a Patient object. Need to examine them further... "grep –r \*Patient\* ." | Find all instances where a Patient object exists because they will need to be updated. |
| 13 | Examined file app/femr/business/services/system/PatientService.java | This file has the object IPatient. It will need to be updated with our additional column. |
| 14 | Examined file  app/femr/business/services/system/SearchService.java | This file has the object IPatient. It will need to be updated with our additional column. |
| 15 | Examined file app/femr/common/IItemModelMapper.java | This file is an interface that also has mehtod for PatientItem. Has to be updated with the additional column |
| 16 | It looks like there are multiple files that will need to be updated for the Patient object as well as triage.js and index.scala.html. I don't see any other files that will need updating. |  |

**Time spent (in minutes):** 1 hr

# Impact Analysis

Use the table below to describe each step you followed when performing impact analysis for this change request. Include as many details as possible, including why classes are visited or why they are discarded from the ones that have to change.

Do not take the impact analysis of your changes lightly. Remember that any small change in the code could lead to large changes in the behavior of the system. Follow the process on impact analysis covered in the class. Describe in details how you followed this process in the change request log. Provide details on how and why you finished the impact analysis process.

|  |  |  |
| --- | --- | --- |
| Step # | Description | Rationale |
| 1 | Since this change request is only asking that the age approximation/estimation is stored for research purposes at a later date, it doesn't look like we need to update the Patient pages to display whether the age was an approximation/estimation. Since that is the case, the only classes that need to be updated are those that include initializing a Patient/IPatient object, or where the Patient data is being POSTed. | If the researchers want a way to look at the data within FEMR instead of the database, they should have specified that in the JIRA.  Words of the wise "Don't do anything you don't have to do" |
| 2 | The list of classes that would need updating because they are either an interface or they have the IPatient/Patient object within them grew to 16 classes. They are   1. [app/femr/business/services/system/PatientService.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-e117f71a4572398c39c285c5e3a1a71d) 2. [app/femr/business/services/system/SearchService.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-b61c039a8e98d6f3afc064dd9f5480e4) 3. [app/femr/common/IItemModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-27ba1bf4f0e4f7ff372b78c86ef90cb1) 4. [app/femr/common/ItemModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-eea8c1930a1b558de590d31ba349477f) 5. [app/femr/common/models/PatientItem.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-008c274bf1dad99d2705e6a2ba4fc930) 6. [app/femr/data/DataModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-ec4fe6e6ead3fe553b408476272fd3df) 7. [app/femr/data/IDataModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-f7dfce91571ce882ba01c93178036ec2) 8. [app/femr/data/models/core/IPatient.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-3f9ef239bafd0043def446fce3e36db9) 9. [app/femr/data/models/mysql/Patient.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-60f61cc02a58c438ff8906e18de97266) 10. [app/femr/ui/controllers/TriageController.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-901e7ef13c134781b21c3e1350a8f7be) 11. [app/femr/ui/models/triage/IndexViewModelPost.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-bed1d887930b28c5e148eeb4d063db7c) 12. [app/femr/ui/views/triage/index.scala.html](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-cbe5e960a4315db95501f2c0488a291e) 13. [test/mock/femr/data/MockDataModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-af56cb55bf3869413a712e0d53c622c7) | Going to have to update the code in order to implement this change, but there is a lot of variables to consider for each file. Multiplying that by 16 is dangerous. |
| 3 | We haven't found a specific class that executes MySQL statements, but we know we need to alter the table. The only location in the code where we were able to find and sql was under conf/evoluions.default | Not sure why the scripts are so ingeniously called 1.sql, 2.sql, …, 98.sql but the auto incrementing tells us that something is iterating through this on startup. Time to google! |
| 4 | Read <https://www.playframework.com/documentation/2.5.x/Evolutions> | Turns out the play framework has a really neat way to keep the database of a project up to date that doesn't involve blowing a database away or doing some super complicated scripting. Just create a SQL document in conf/evolutions/default/ and it will execute on startup. |

**Time spent (in minutes):** 5

# Actualization

Using the table below, describe each step you followed when changing the code. Include as many details as possible, including why classes/methods were modified, added, removed, renamed, etc.

|  |  |  |
| --- | --- | --- |
| Step # | Description | Rationale |
| 1 | Created file 99.sql  This SQL will update the Patient table in the database with a new column isApproximateAge.  The column is not required  Yes – Approximation  No – Estimation  Null – Null --> If this gets into the database then something really screwed up on patient create. | Have to update the table in the database with this column. Figured it doesn't have to be required so that way we don't have to create a new set of logic to update the current patient list with a guess... |
| 2 | Updated the definition of the patient object to include the String isApproximateAge with getter and setter...   1. App/femr/data/models/core/IPatient.java 2. App/femr/data/models/mysql/Patient.java | The PatientClass now takes into account whether the birthdate was a guess or is an approximation for new users! |
| 3 | Updated the following classes to have the newly updated Patient.java class declaration. This was adding 1 line every time a new Patient object was created   1. [app/femr/business/services/system/PatientService.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-e117f71a4572398c39c285c5e3a1a71d) 2. [app/femr/business/services/system/SearchService.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-b61c039a8e98d6f3afc064dd9f5480e4) 3. [app/femr/common/IItemModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-27ba1bf4f0e4f7ff372b78c86ef90cb1) 4. [app/femr/common/ItemModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-eea8c1930a1b558de590d31ba349477f) 5. [app/femr/common/models/PatientItem.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-008c274bf1dad99d2705e6a2ba4fc930) 6. [app/femr/data/DataModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-ec4fe6e6ead3fe553b408476272fd3df) 7. [app/femr/data/IDataModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-f7dfce91571ce882ba01c93178036ec2) 8. [app/femr/ui/controllers/TriageController.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-901e7ef13c134781b21c3e1350a8f7be) 9. [app/femr/ui/models/triage/IndexViewModelPost.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-bed1d887930b28c5e148eeb4d063db7c) 10. [test/mock/femr/data/MockDataModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-af56cb55bf3869413a712e0d53c622c7) | All the classes that use the Patient object are now updated to include the string for isApproximateAge. |
| 4 | Updated Public/js/triage/triage.js to set the value for isApproximateAge depending on whether the age was input from an age group, age guess or approximate age.  The function that converts from a date to years/months is only called when the user enters a birthdate. This is where the approximation occurs and will be set to a yes.  The function that converts from years/months to a date is only called when the user enters years/months. This is where the estimation occurs and will be set to a no.  Triage.js doesn't have a function that check's whether the age classification radio button is selected. But, a validate() function is called from TriageClientValidation.js | This is where the value is being calculated based on the input from the user. This value will be used when creating a new patient in the Patient.java class through the DataModelMapper class. |
| 5 | In TriageClientValidation.js there is a check to see if the birthdate was entered, either from the date/year/month or from the age classification. If this check passes, the function will pass and check the rest of the form for validation.  Adding an additional check if the form had a date entered that will check to see if a radio button for age classification was clicked. This is still an estimation, so the form will post that isApproximateAge="NO" | Have to store in the database that age classification is still an estimation and not a NULL value. |
| 6 | Test the system to see if the change works.  Create a new patient | Think I'm done. |
| 7 | Values aren't being stored.... sigh | Since this code is in javascript and not java, I can't run the IntelliJ debugger and see what is going on, but I can at least see what the current value is when it gets it from the post |
| 8 | Run FEMR in debug via IntelliJ. Breakpoints added to app/femr/business/services/system/PatientService.java | This is where the values from the POST are being mapped |
| 9 | Debug shows a null value (not the "NULL" string that I was expecting) | This isn't a good sign... |
| 10 | Attempt to debug the javascript with the built in debugger | The value isn't being set and I have no idea why |
| 11 | Download Firebug | I don't like the built in debugger, so I upgraded. |
| 12 | Run FEMR with Firebug enable to see what is going on in this javascriptting nightmare that I call FEMR.  Debug points are set in Triage.js where the age is being converted from a date to a year/month | <-- Sarcasm. That was sarcasm. |
| 13 | Debug shows that isApproximateAge is not a known variable.... WHAT!?!?!?!? | Now I'm just super bitter. |
| 14 | Google how to post in javascript. | Apparently I have forgotten how to post in HTML. Sadness. |
| 15 | Sigh at my stupidity.... in order to post data, you must add said data to the form......  Update index.scala.html with the textfield in the form. Have it visible for debugging. | This took way to long to figure out |
| 16 | Run in debug again!!!!  Oooooo, the debugger shows that it knows what isApproximateAge is! | This looks promising |
| 17 | Create a patient while still in debug mode | Debugger sees the value.... the textfield shows the value.... and we have a value!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!  Note: The number of exclamation points above is not nearly enough to convey my happiness at getting this form to post my variable |
| 18 | Update index.scala.html so that the textfield is hidden | In the words of the wise "because they are stupid" (triage.js)  On a serious note, we don't want the user to manually change the textfield. |

**Time spent (in minutes):** 1 hr

# Validation

Using the table below, describe any validation activity (e.g., testing, code inspections, etc.) you performed for this change request. Include the description of each test case, the result (pass/fail) and its rationale.

|  |  |  |
| --- | --- | --- |
| Step # | Description | Rationale |
| 1 | Created 3 new patients, one with a estimated age, one with an age group and one with an approximate age. | Best way to test is to try all three at once. |
| 2 | Manually logged into MySQL and performed a selection based on last name (Made sure they all had the same last name) | Fastest way to see what is saved to the database |
| 3 | All users regardless of input method are having a string value of "NULL" for isApproximateAge... but the column is being populated! | Not a good sign, but the column is being populated. |

**Time spent (in minutes):** 5

# Timing

Summarize the time spent on each phase.

|  |  |
| --- | --- |
| Phase Name | Time (in minutes) |
| Concept location | 60 |
| Impact Analysis | 30 |
| Prefactoring | 0 |
| Actualization | 60 |
| Postfactoring | 0 |
| Verification | 5 |
| Total | 2 hr 35min |

# Reverse engineering



# Conclusions

This change request was the most challenging of the 3. It involved changing the structure of the database as well as values in the code. One major task was figuring out what to modify and make sure that everything was modified correctly. The change report lists that it only wants to see the data stored correctly, not that it wants the user to see any indication if the data was guessed, so we decided to not update the UI for that reason. That left us with only figuring out where in the sql to add the column, what the column should be (boolean was out because we saw 3 possible options of YES, NO, NULL). To make it easier we didn't create a way to update an original database with this new field and "guess" for the existing patients if it was a guess or not. Instead, we made sure the column could be null.

Classes and methods changed:

1. [app/femr/business/services/system/PatientService.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-e117f71a4572398c39c285c5e3a1a71d)
   1. public PatientService()
2. [app/femr/business/services/system/SearchService.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-b61c039a8e98d6f3afc064dd9f5480e4)
   1. public SearchService()
3. [app/femr/common/IItemModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-27ba1bf4f0e4f7ff372b78c86ef90cb1)
   1. PatientItem createPatientItem()
4. [app/femr/common/ItemModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-eea8c1930a1b558de590d31ba349477f)
   1. PatientItem createPatientItem()
5. [app/femr/common/models/PatientItem.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-008c274bf1dad99d2705e6a2ba4fc930)
   1. private String isApproximateAge;
   2. public void setIsApproximateAge()
   3. public String getIsApproximateAge()
6. [app/femr/data/DataModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-ec4fe6e6ead3fe553b408476272fd3df)
   1. public IPatient createPatient()
7. [app/femr/data/IDataModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-f7dfce91571ce882ba01c93178036ec2)
   1. IPatient createPatient()
8. [app/femr/data/models/core/IPatient.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-3f9ef239bafd0043def446fce3e36db9)
   1. String getIsApproximateAge();
   2. void setIsApproximateAge(String isApproximateAge);
9. [app/femr/data/models/mysql/Patient.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-60f61cc02a58c438ff8906e18de97266)
   1. private String isApproximateAge;
   2. public String getIsApproximateAge(){return isApproximateAge;}
   3. Public void setIsApproximateAge(String isApproximateAge){this.isApproximateAge = isApproximateAge;}
10. [app/femr/ui/controllers/TriageController.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-901e7ef13c134781b21c3e1350a8f7be)
11. [app/femr/ui/models/triage/IndexViewModelPost.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-bed1d887930b28c5e148eeb4d063db7c)
12. [app/femr/ui/views/triage/index.scala.html](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-cbe5e960a4315db95501f2c0488a291e)
13. [conf/evolutions/default/99.sql](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-9bd16f01d5a30136c1de55b9d9b9ba15)
14. [public/js/triage/triage.js](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-08ff3973c54207c832f9ae34bff8753c)
15. [public/js/triage/triageClientValidation.js](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-5d63e8ae43286fd962859bb301d07fbb)
16. [test/mock/femr/data/MockDataModelMapper.java](https://github.com/FEMR/femr/compare/master...fearlesMICHELLE:FEMR-137?diff=unified&name=FEMR-137#diff-af56cb55bf3869413a712e0d53c622c7)