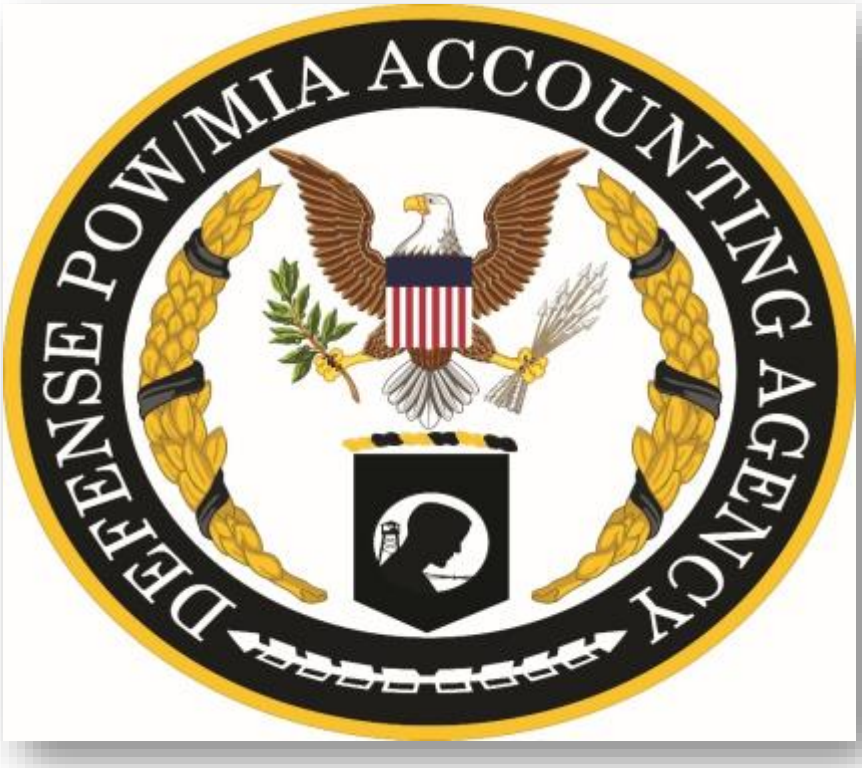
USER MANUAL

CORA

CLIENT:



Reference: http://media.defense.gov/2016/Feb/02/2001339699/-1/-1/0/151116-N-ZZ666-001.JPG

CAPSTONE CLASS 001

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Introduction

The Commingled Remains Analytics (CoRA) application provides the client with a web-based interface designed to enable the cataloging and reporting of Skeletal Elements being analyzed by Forensic Anthropologists. The system was designed through a partnership between a team of Forensic Anthologists operating out of Offutt Air Force Base in Bellevue, NE and a class of graduate students at the University of Nebraska at Omaha. Features of the system were implemented to support activities such as:

- Cataloguing of skeletal elements
- Reporting on the skeletal elements
- Workflow management for the assignment of cataloguing and peer review efforts
- And auditing capabilities for compliance and security

The primary objectives of the system were to centralize to the cataloguing and reporting activities. The workflow management aspect was a secondary objective to help facilitate these efforts and the plan is to expand on current functionality with future analytical capabilities. The system design was also intended to be open-source and scalable. The team out of Offutt was working through a massive number of skeletal elements collected from World War II disasters like the bombing of the USS Oklahoma; however the system's scalability will support much smaller efforts as well. The goal was to design a system that would be flexible enough to gain traction within both the forensic anthropologist and open-source development communities so that it may grow as an asset in supporting the identification of deceased individuals.

User License

Application Roles

CoRA has multiple roles embedded in it and there is a significant change between each other. Depending upon on the role of a person a system administrator can assign respective role for each user. This functionality helps an administrator to limit access.

Roles currently available on the application are:

- **Administrator:** Will have the privilege to access the entire application. Only an Administrator can assign an Administrator role to another user.
- **Anthropologist:** Anthropologist is allowed full Read/Write access to skeletal elements and related data
- **Dentist:** is allowed Read access to skeletal elements and Read/Write access to Dental elements data
- **DNA-Analyst:** DNA Analyst is allowed Read access to skeletal elements and Read/Write access to DNA data
- **Historian:** Historian is allowed Read access to skeletal elements and Read/Write access to ante mortem data
- **Intern:** Intern is allowed Read access to skeletal elements and related data
- **Manager:** Manager is allowed to manage users, to assign permissions to roles, and full Read/Write access to skeletal elements and related data

System Requirements

The CoRA application is designed to be used with any Internet-capable computer. The system functions best with Google Chrome and Mozilla Firefox. Other browsers may be used, but some individual field functionalities may be unavailable or unpredictable.

Application Features

This section provides an overview of different features developed in this application. Each section provides a brief description of what the feature is meant for, whilst also providing supporting screenshots which explain how to use the feature.

Navigating the Application

The CoRA Application consists of four tabs as shown in screenshot below. These provide the maps to access other features in the Application. The Administration Menu is primarily intended for an Admin and shows major areas such as Bone Management, Instruments, Task Management and User Management. Each of these is explained in following sections. Figure 1 shows the basic Navigation within the Application.

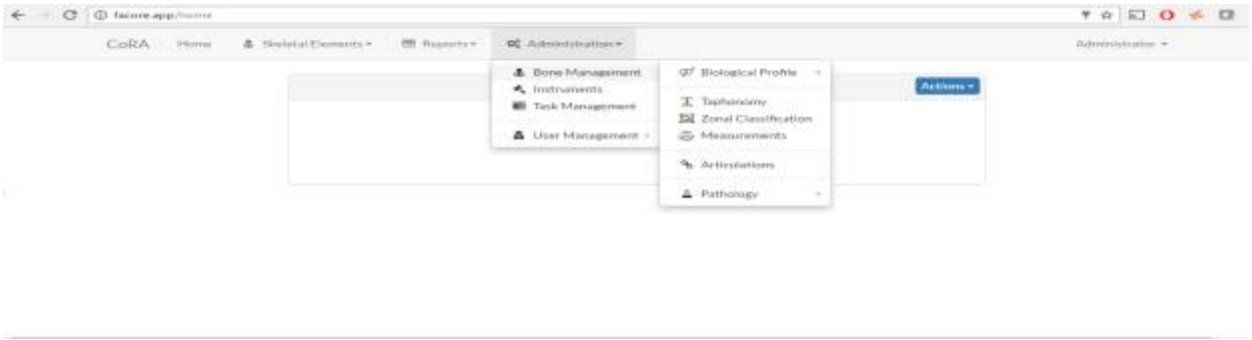


Figure 1: Navigation within the Application

Home Page

Upon logging in, the user is navigated to the home page which is comprised of a dashboard specific to the user. The dashboard lists out the current assignments of the user. The assignments are divided based on whether they are to be inventoried or reviewed. Figure 2 shows an example of how the tasks are displayed upon logging in to the application.

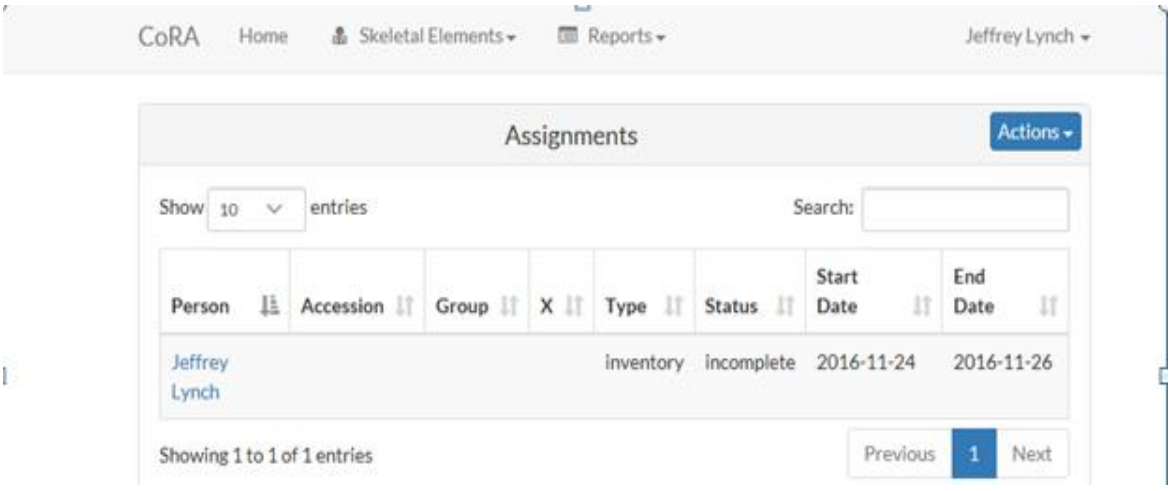


Figure 2: Dashboard after logging in to the Application

Administration Menu

The Administration Menu is primarily intended for an administrator (admin). Using this menu, an admin will be able to access the different areas of application with the ability to create, edit, view, and delete any records related to each Skeletal Elements. Furthermore, he will be able to view data related to bone articulation. The Task Management menu allows an admin to assign the tasks to anthropologist users along with instruments used for the tasks. This Menu is demonstrated in Figure 3.

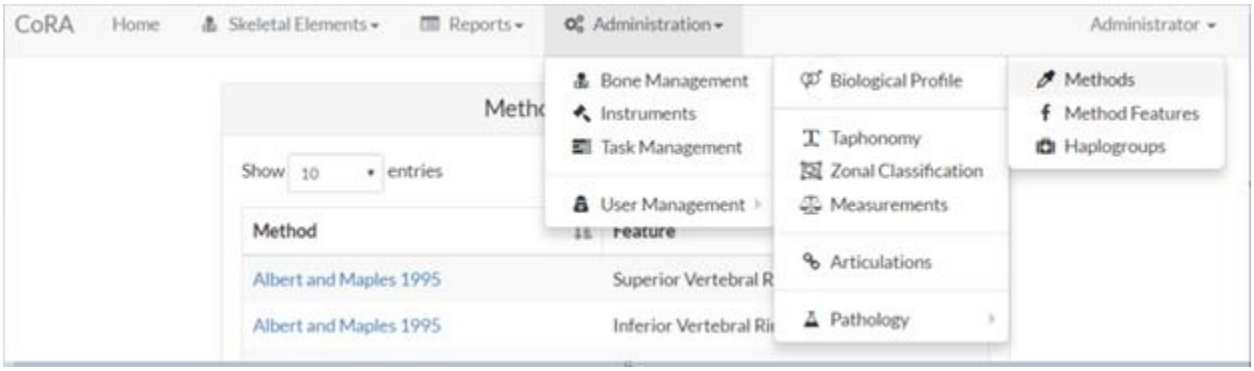


Figure 3: Administration Menu

Create, Edit, View, and Delete in Administration Screens

This section describes the method to create, edit, view and delete Skeletal Elements in different screens. It is to be noted that the same procedure needs to be followed by the user for all other screens. This section uses Taphonomy screen as an example to demonstrate the usage to the user.

Creating a new Taphonomy Skeletal Element

From Administrator Menu click “Taphonomy” as shown in Figure 4.

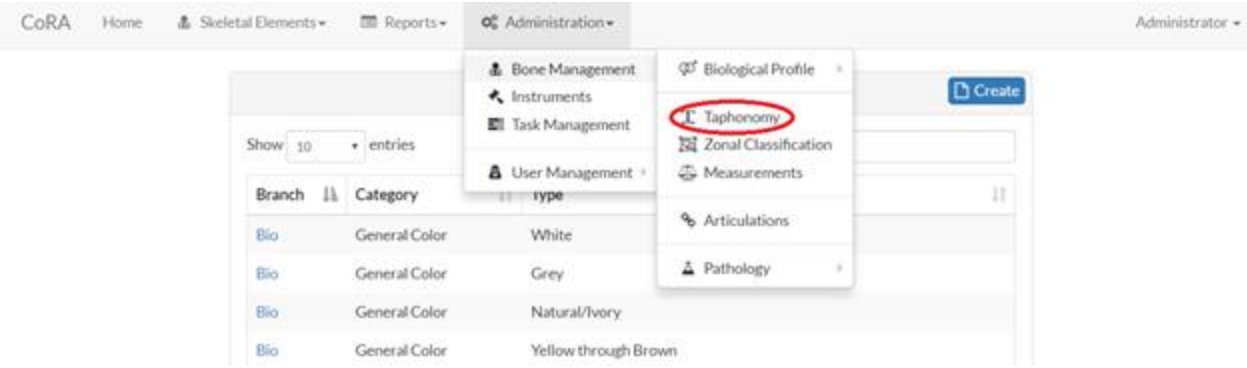


Figure 4: Creating a new Taphonomy Skeletal Element

Click on "Create" to create a new Taphonomy as shown in Figure 5.

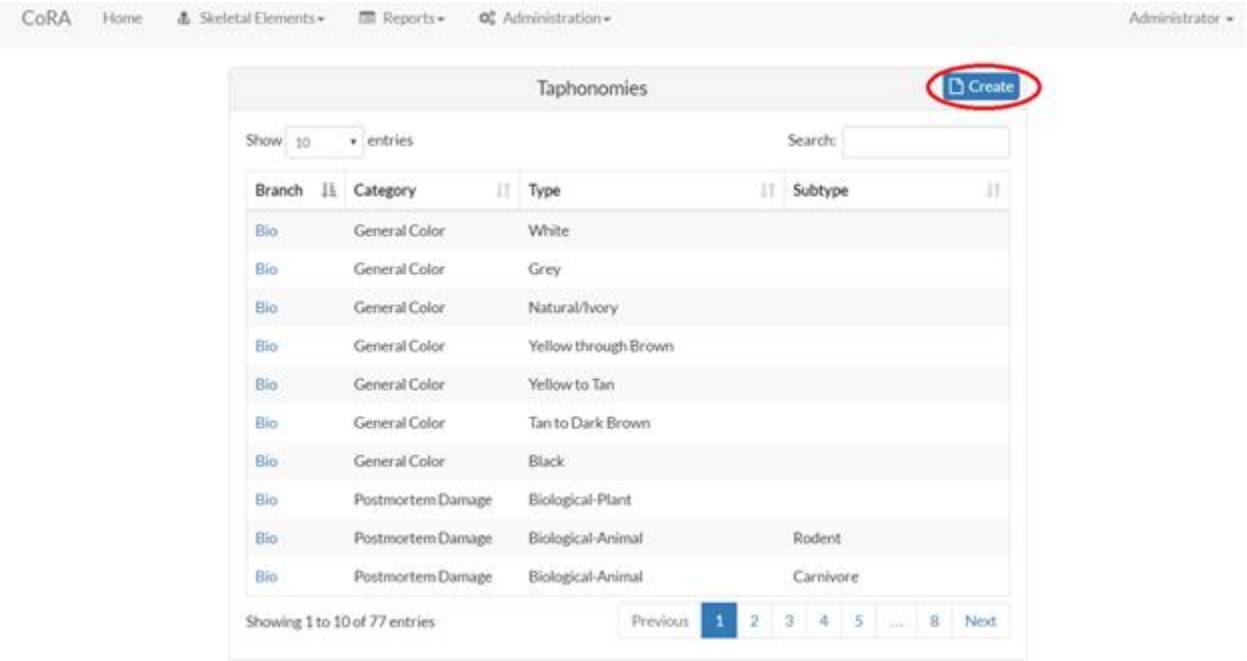


Figure 5: Creating a Taphonomy Element

A New page will open to allow user to add new Taphonomy information. Once the information is added to the fields, click on "Save" to add the new record into the Database as shown in Figure 6.

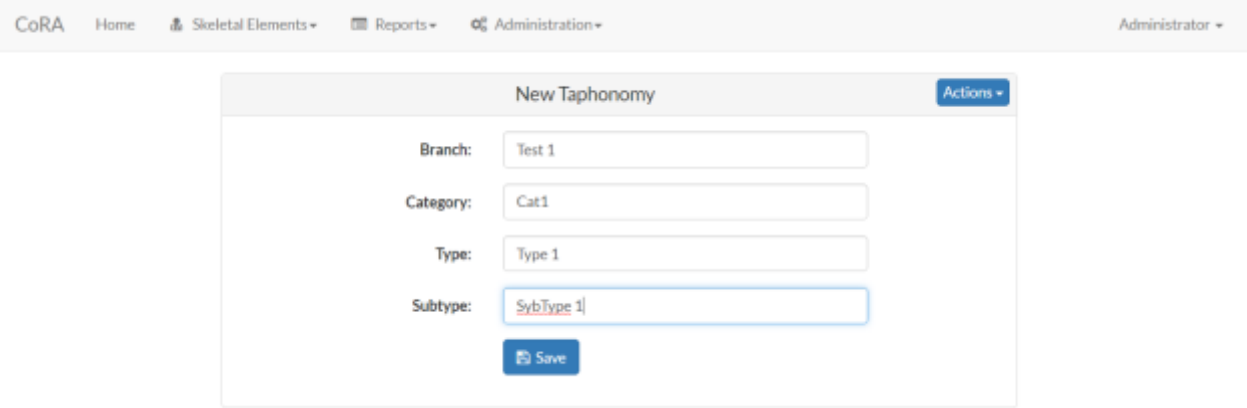


Figure 6: Saving the Taphonomy Element

An Alert Message “Taphonomy is successfully created” is displayed upon saving the Skeletal Element as shown in Figure 7.

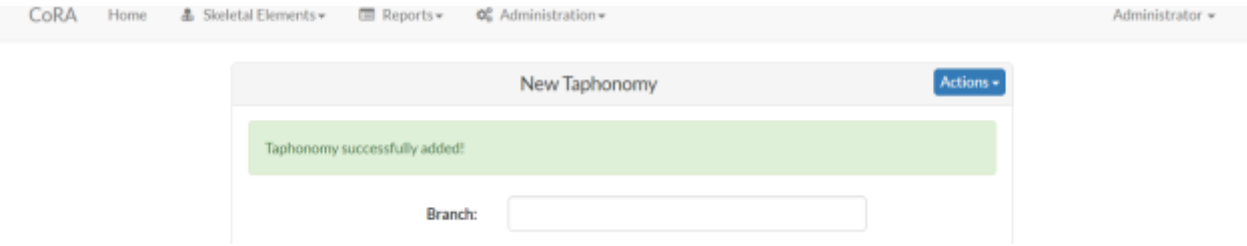


Figure 7: Alert Message upon saving Taphonomy Element

To view the new record, click the Actions menu then click “All” as shown in Figure 8.

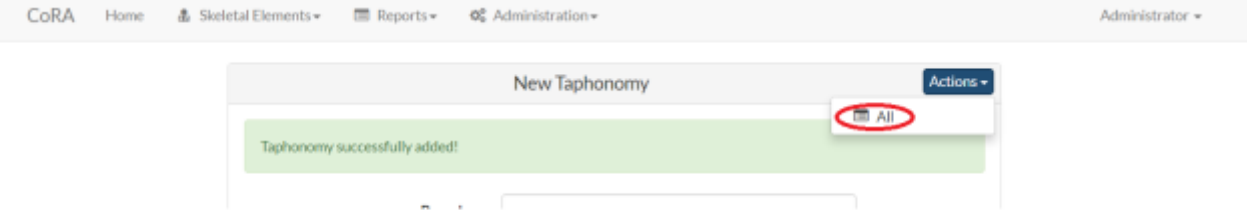


Figure 8: Viewing all Taphonomy Elements

All Taphonomy records will appear in the View Page as shown in Figure 9.

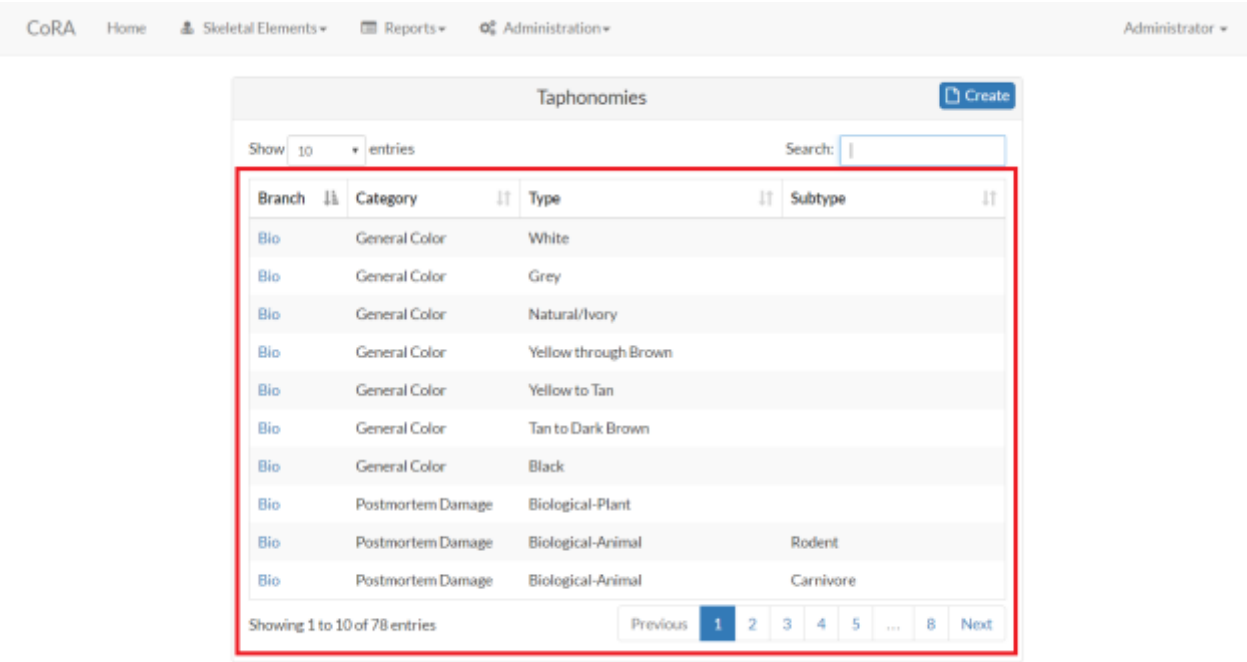


Figure 9: List of Taphonomy Elements on clicking "All"

Viewing a taphonomy skeletal element

To view the new record, you can type the name of the new record the user wants to access in the search box area as shown in Figure 10.

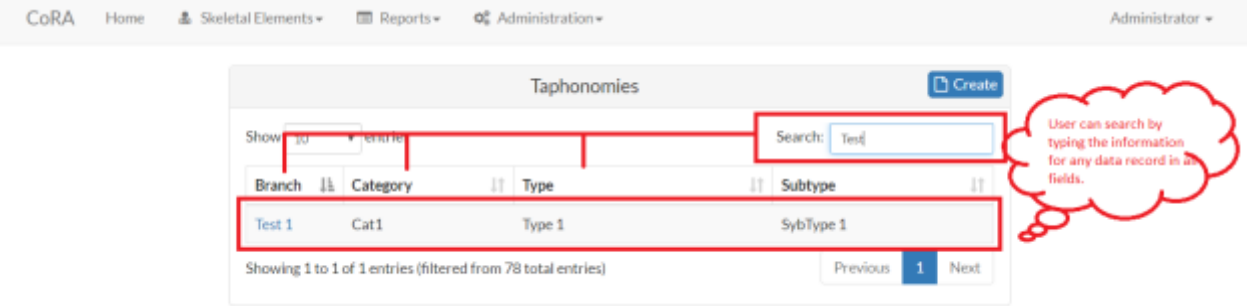


Figure 10: Viewing a Taphonomy Elements

In order to view more details click on the link provided on each Taphonomy element as shown in Figure 11.

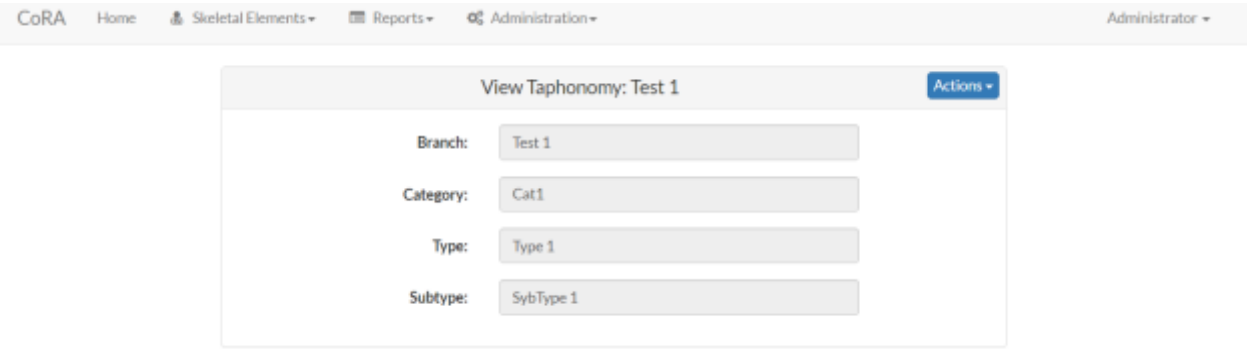


Figure 11: Viewing a Taphonomy Element

Editing a Taphonomy skeletal element

To edit the record, click on the link for the record the user wants to edit, then from Actions menu click "Edit" as shown in Figure 12.

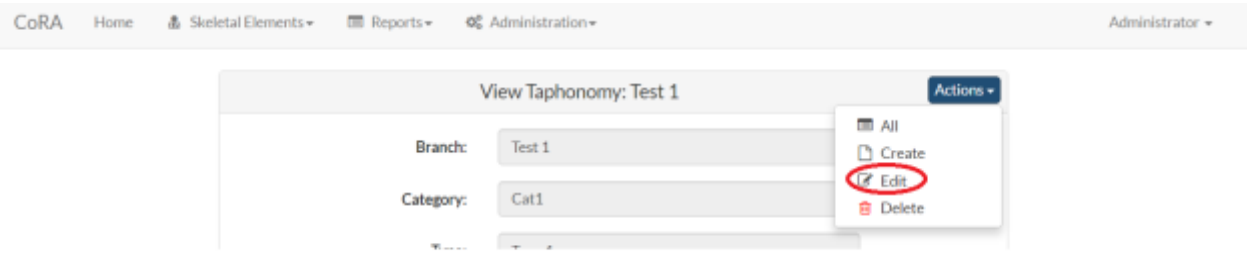


Figure 12: Editing a Taphonomy Skeletal Element

After making the required changes click on “Save” to save the new changes made by the user as shown in Figure 13.

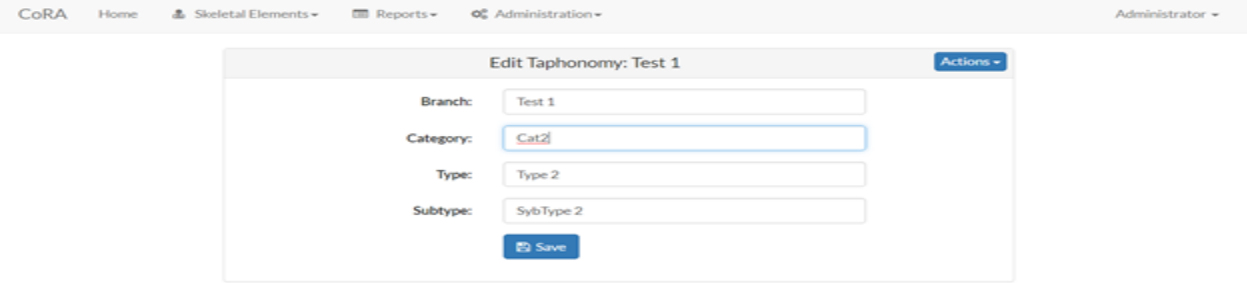


Figure 13: Saving Changes in Taphonomy Skeletal Element Screen

Deleting a Taphonomy Skeletal Element

To delete a record, choose the “Delete” option within the action drop-down as shown in Figure 14.

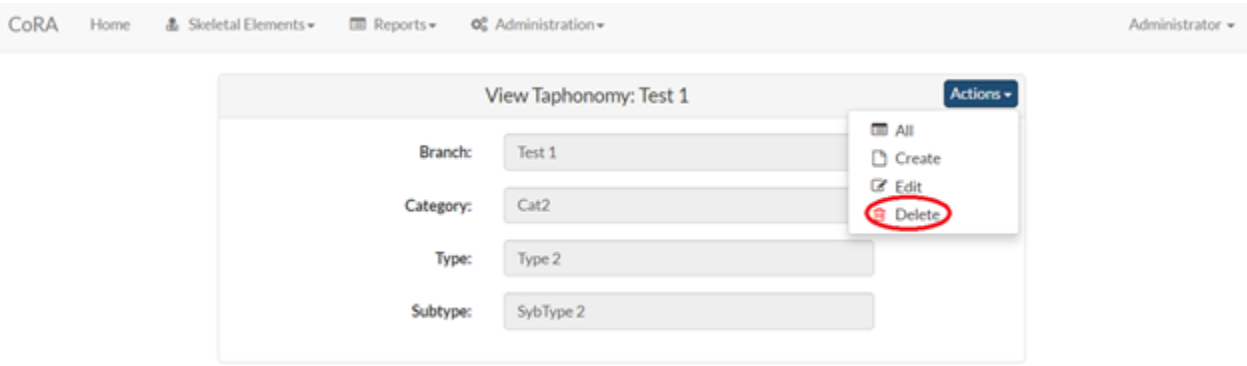


Figure 14 Deleting a Taphonomy Skeletal Element

A Popup message will appear to confirm the deletion for the record if the user is sure to delete the record. Based on the requirement the user should click “OK” otherwise he should click “Cancel” as shown in Figure 15.

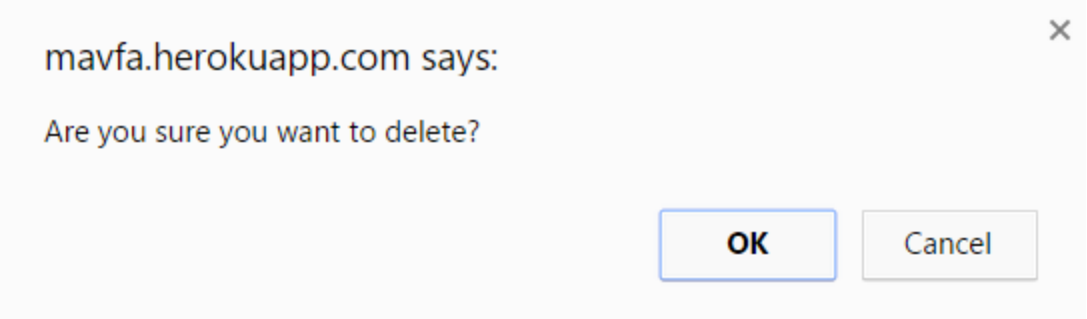


Figure 15: Alert Message before Deleting a Taphonomy Element

Data Manipulation and Ease of access

Admin Screens have been provided for ease of access and manipulation provision with CRUD (Create - Read – Update- Delete) functionalities for Skeletal Elements, Method, Method Features, Haplogroup, Taphonomy, Zonal Classification, Measurements, Articulation, Trauma, Pathology, Anomaly, Instruments, Tasks, Task Assignment, Users, Roles.

Enhanced ease of access by:

- Search auto-complete
- Pre-populated drop-down fields
- Pre-populated and auto complete multi-select value fields
- Sortable data list
- Ability to manage number of data entries visible on a page

Data Export

This section explains the method to generate and run skeletal element reports. It also shows the way to export the Report in Excel and PDF format.

To generate a Report, the User can navigate to any admin screen as per requirement. Figure 16 shows that the Skeletal Elements can be filtered on basis of category, code or module.

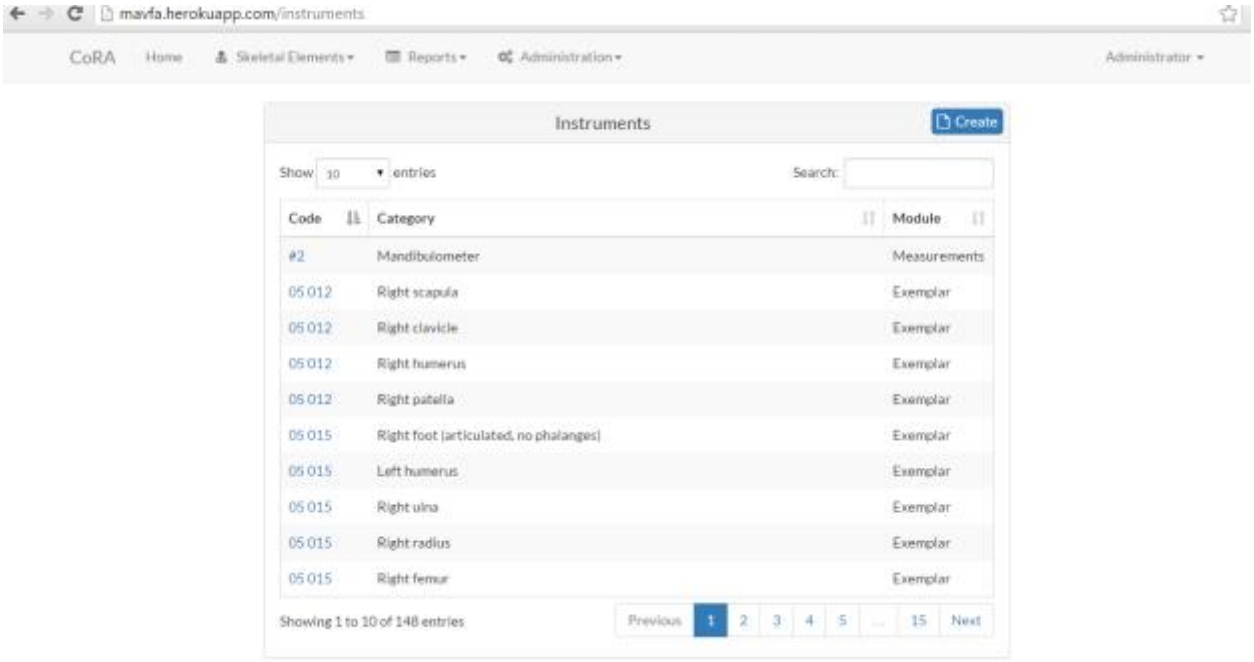


Figure 16: Generating a Report - Step 1

To filter, look for the search bar as shown in Figure 17

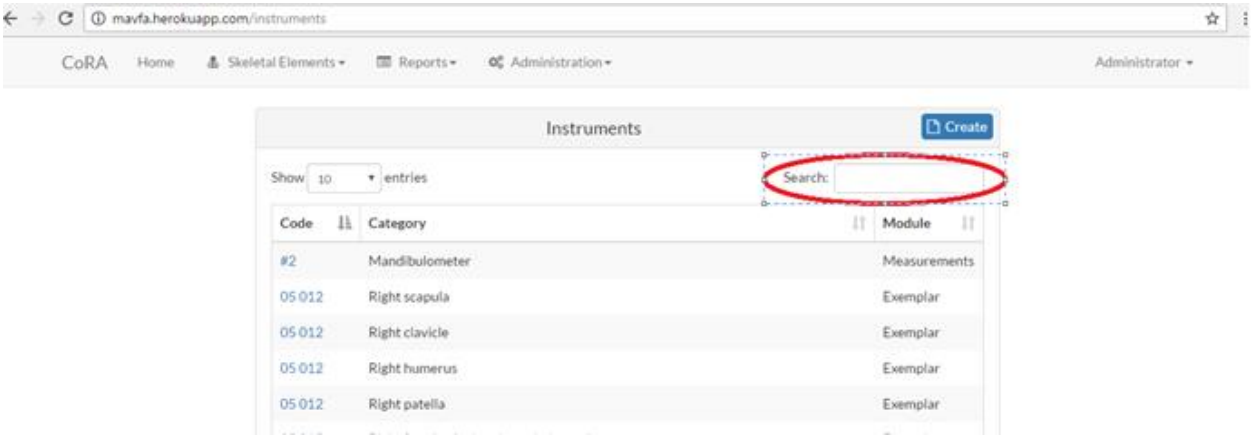


Figure 17: Searching for a Skeletal Element

To filter, provide values in the search bar and relevant results are obtained. In Figure 18, Category-femur is filtered.

In order to sort, click on the sorting button as shown in Figure 18.

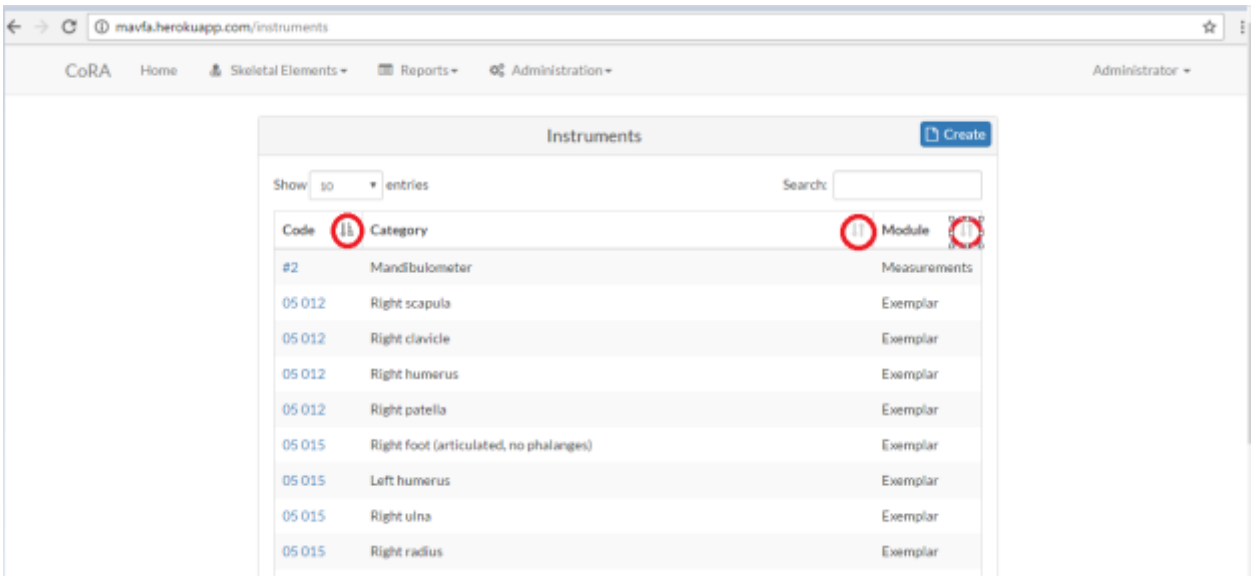


Figure 18: Filter and Sort Skeletal Elements

Generating a Report

This section explains the procedure to generate and run the Report. To start, navigate to reports as shown in Figure 19 and select “Standard Reports”

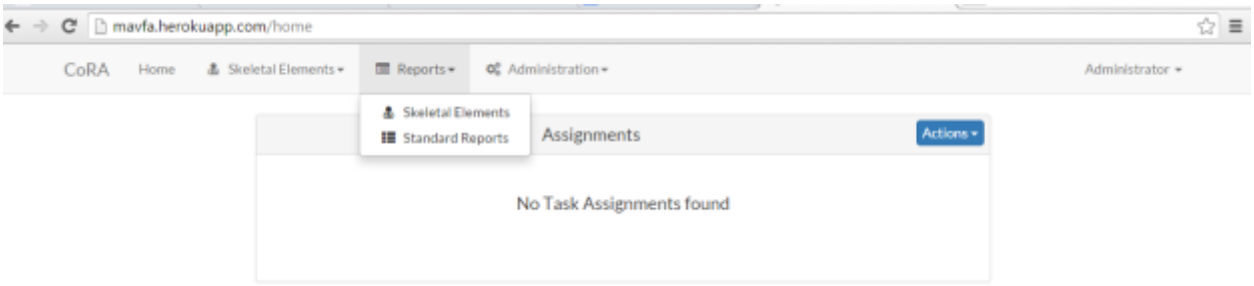


Figure 19: Generating a Report

Running a Report

In order to run a report a user must select the specific criteria from list of elements shown below and click on “Generate” as shown in Figure 20.

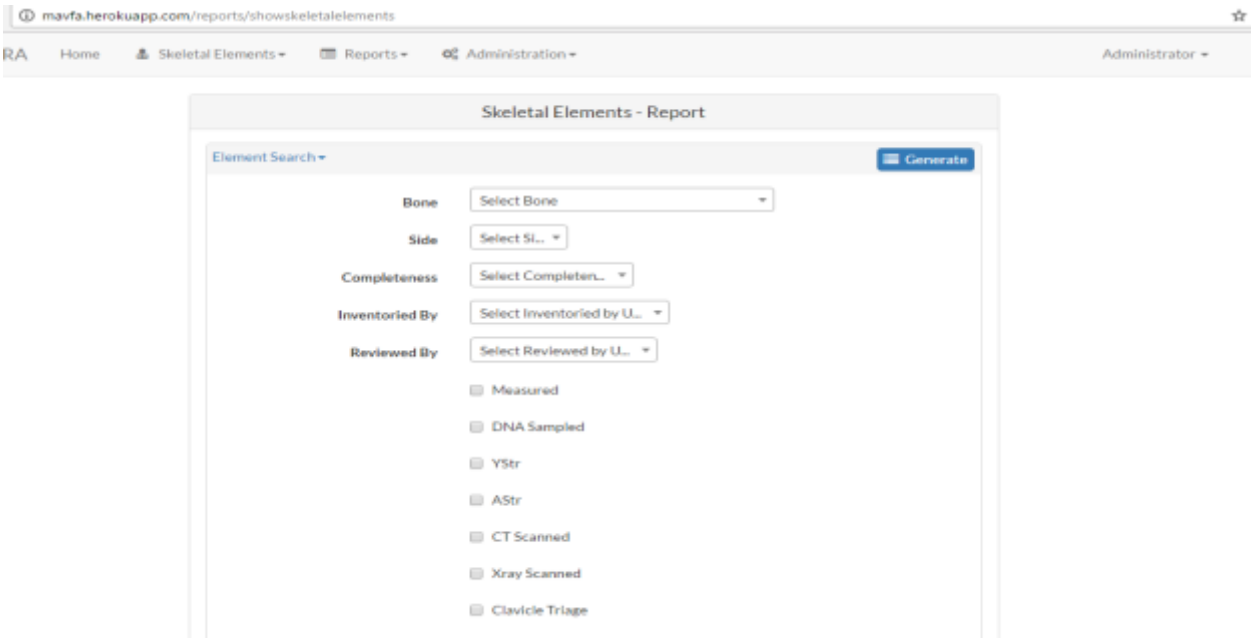


Figure 20: Filtering the Data for Reporting

Click on any option from the Element Search and then click on the Generate button as shown in Figure 21.

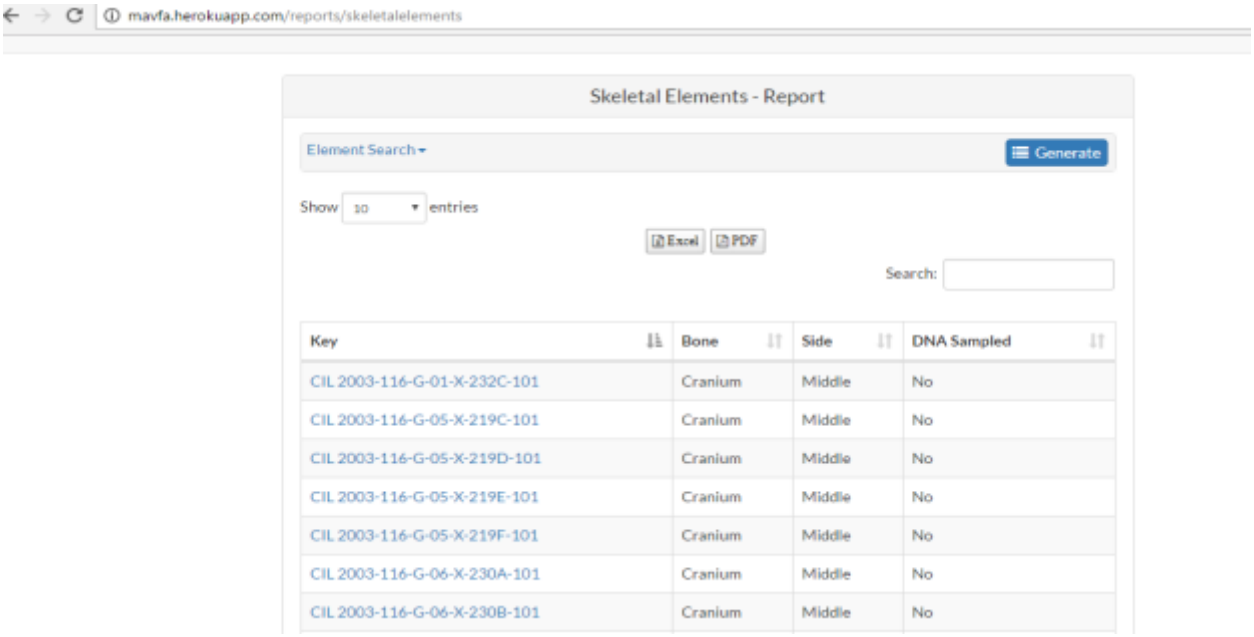


Figure 21: Running the Report

Viewing a report

The user has an option to view the report in two forms, Excel or PDF based on his selection. In Figure 22, the Report is generated in form of Excel.

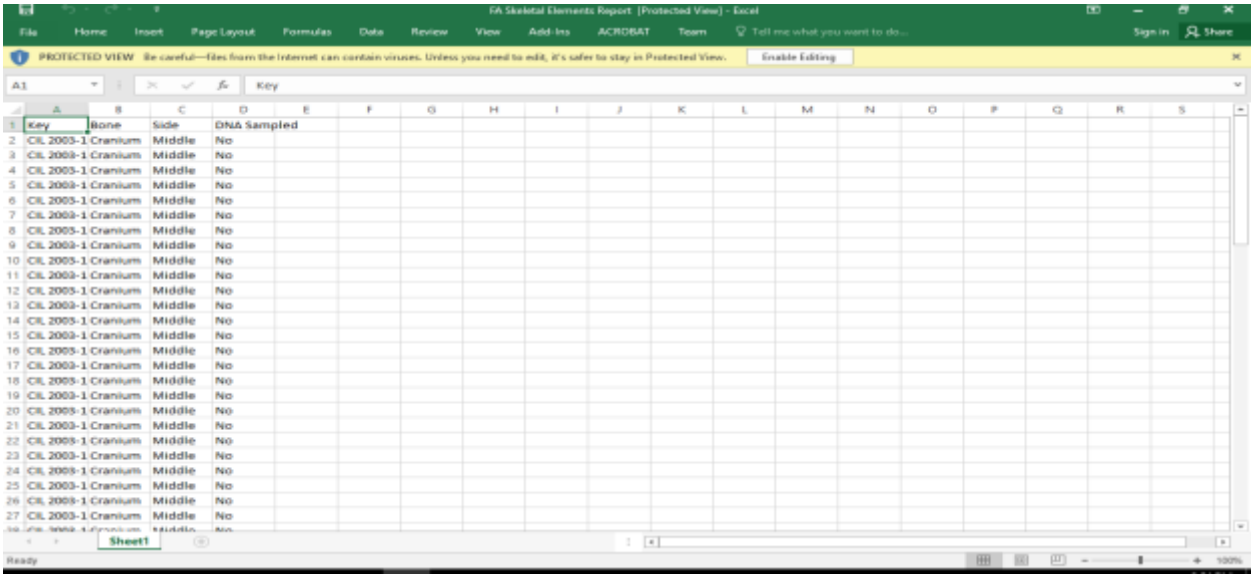


Figure 22: Report generated in form of Excel

In Figure 23, the Report is generated in form of a PDF.

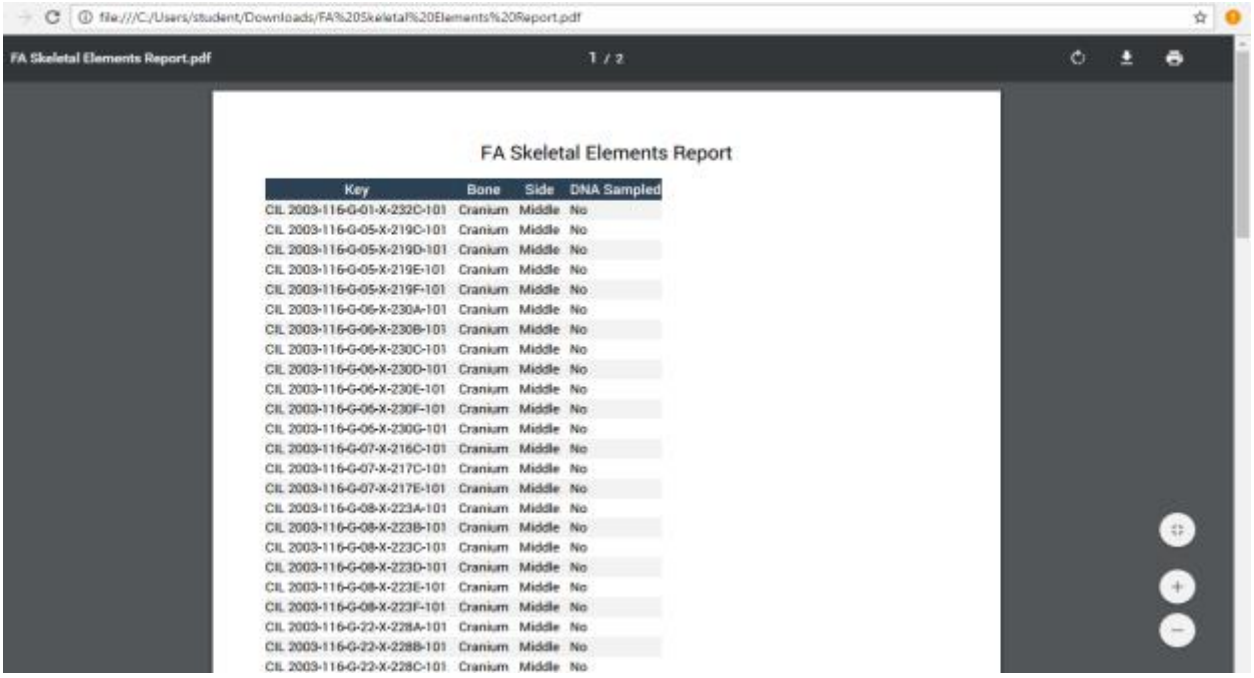


Figure 23: Report generated in form of PDF

Workflow management

This section describes the ability for a Manager or an Admin to generate and manage the workflow system.

- **Assignment**

Ability for a Manager to create new Tasks and assign Analysts to inventory and review the Task Assignments

- **Review System**

Ability for an Analyst (Reviewer) to review the tasks inventoried. The difference of values between inventory and review are summarized and submitted in the Review Screen.

Creating Tasks and Task Assignments

Tasks and Task Assignments are part of the Workflow System provided in the Application. The Task Management under the Administration drop down as shown in Figure 24 allows the user to create, edit, delete and view different tasks.

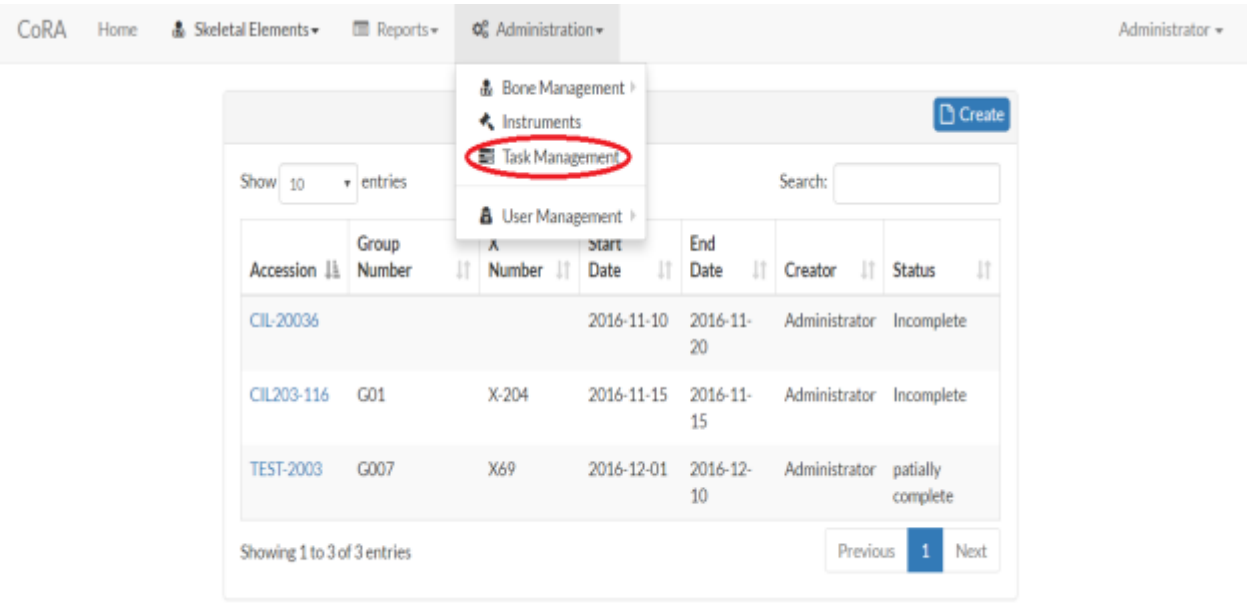


Figure 24: Task Management under Admin Menu

Creating a New Task

The User should click on “Create” in the Tasks menu as shown in Figure 25.

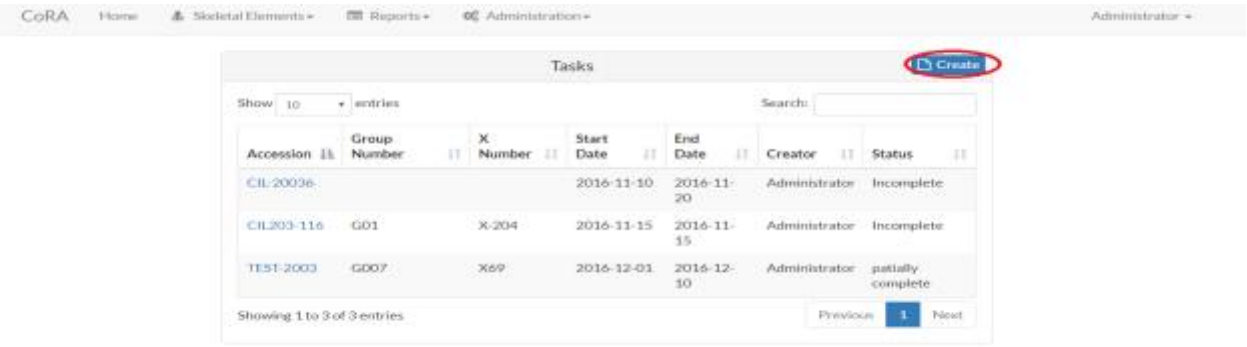


Figure 25: Creating a Task Assignment

Enter the desired values into the screen as shown in Figure 26 and click on “Save” in order to add the new record into the Database.

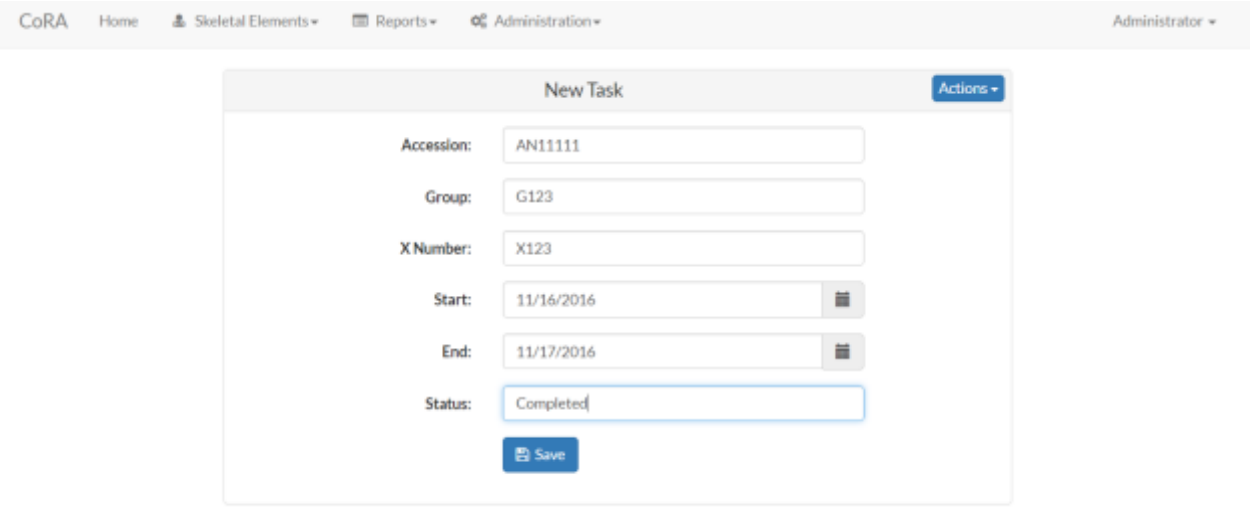


Figure 26: Adding a new Task Assignment

An Alert Message “Task Successfully Added” is displayed as shown in Figure 27.

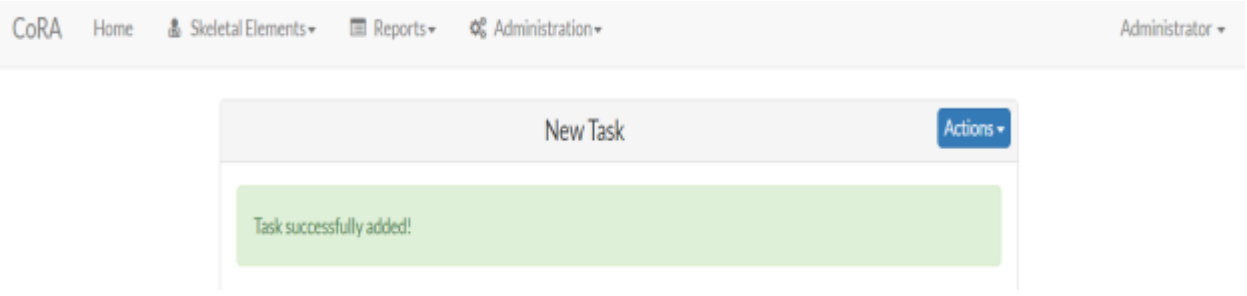


Figure 27: Alert Message on saving a Task

Viewing a Task

To view a Task, click on any of the open Tasks and the relevant Task details are displayed as shown in Figure 28.

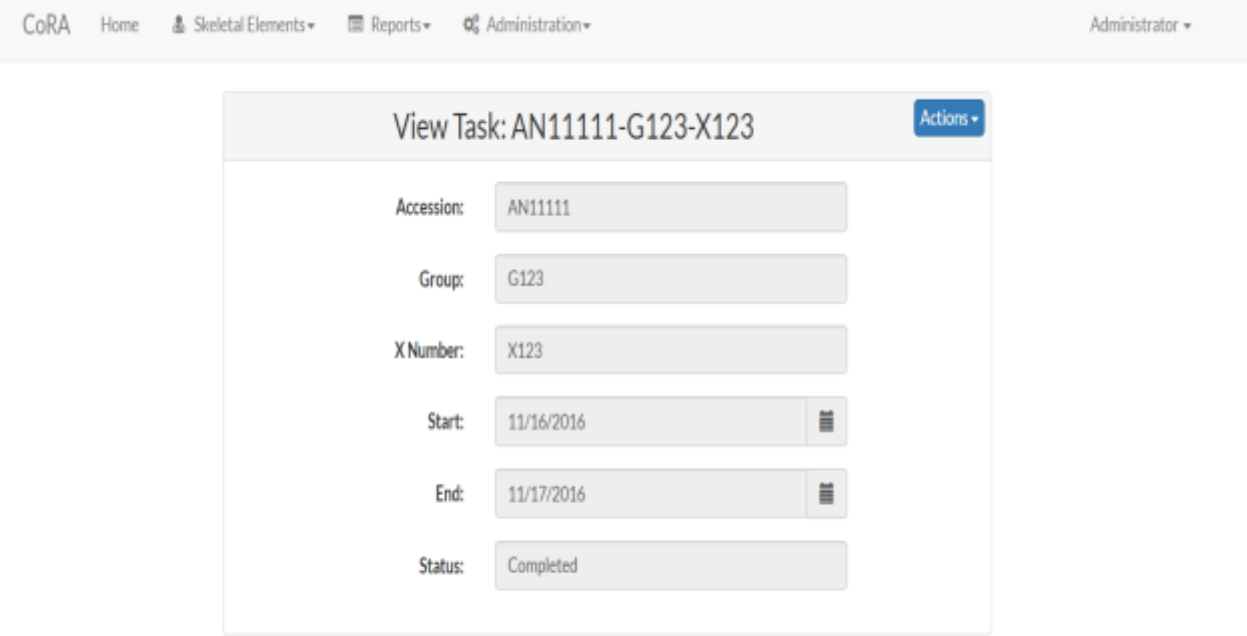


Figure 28: Viewing a Task

Viewing a Task

Figure 29 shows the view screen. In order to edit, the user needs to click on “Edit” as shown in Figure 29.

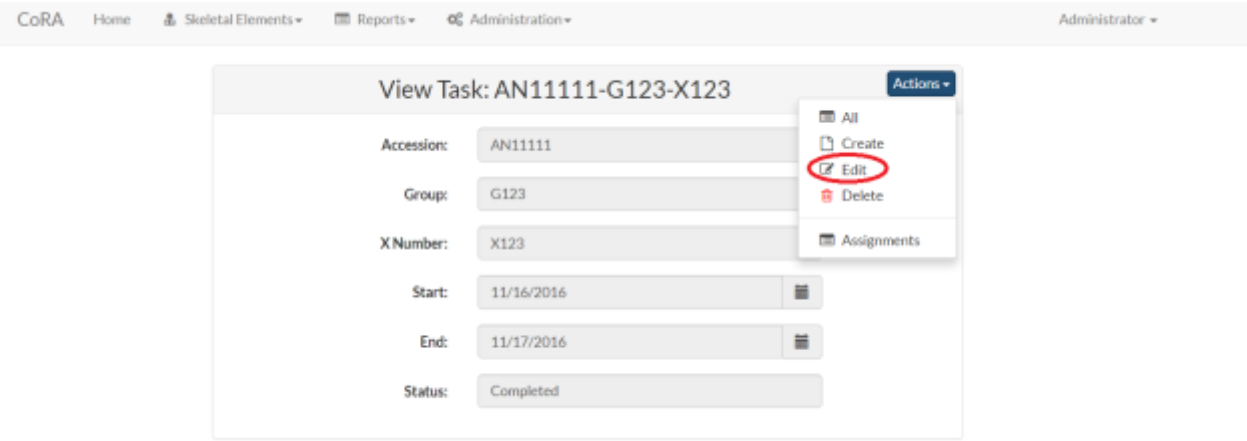


Figure 29: Viewing a Task

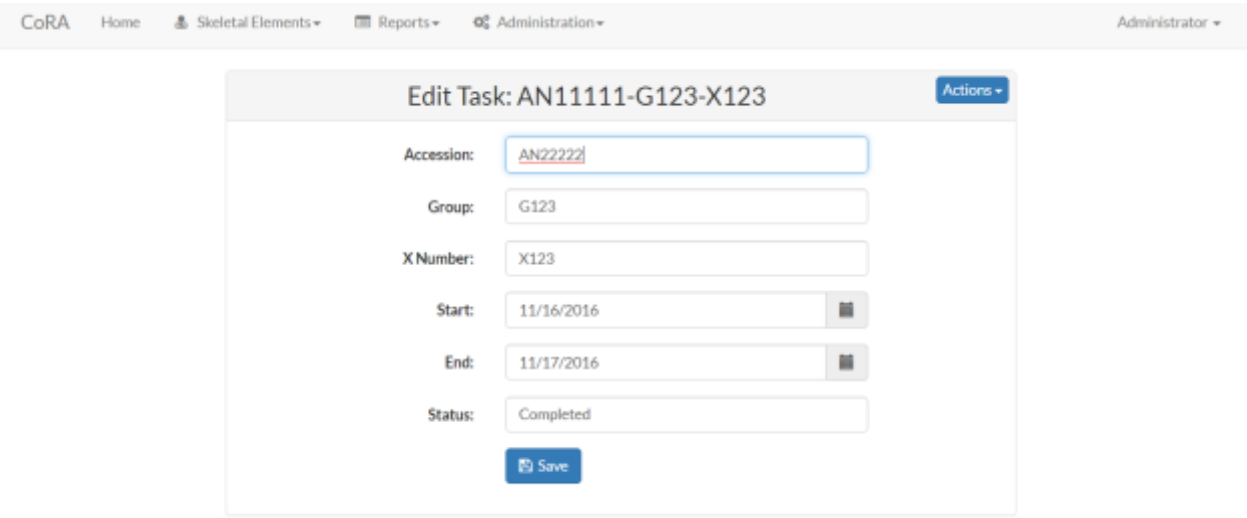


Figure 30: Editing Task

Assigning Task Assignments to user

Each Task can comprise of multiple Task Assignments. These are assigned by a Manager or an Administrator. The steps to create, edit, view and delete the task assignments are same as explained above. The screenshots referred below serve as a reference.

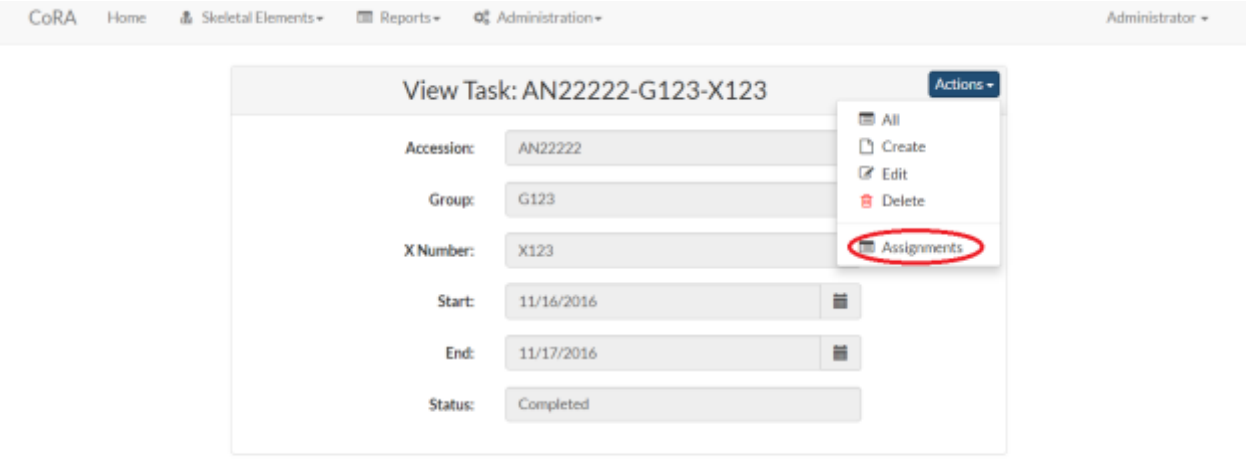
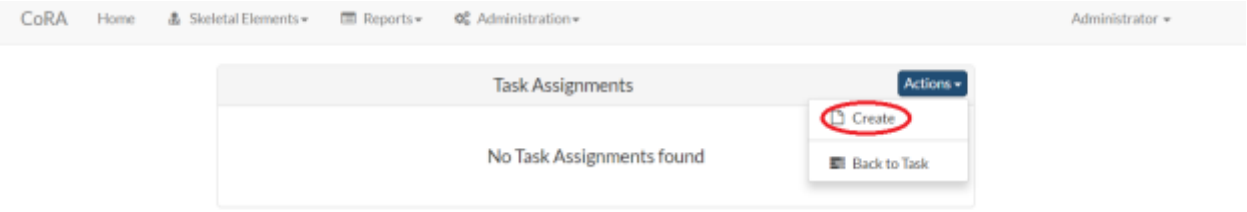


Figure 31: Accessing the Assignments



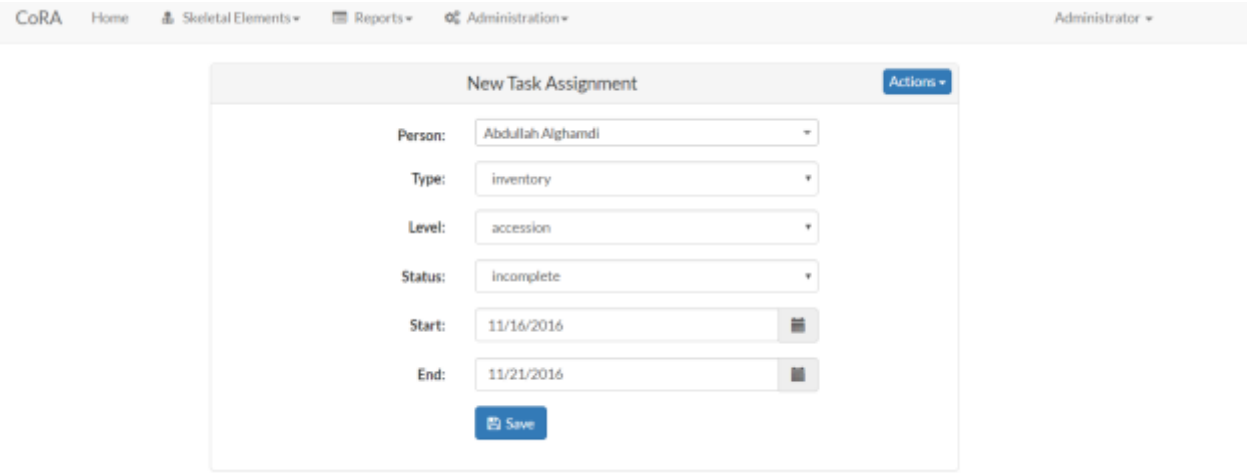


Figure 32: Creating a New Task Assignment

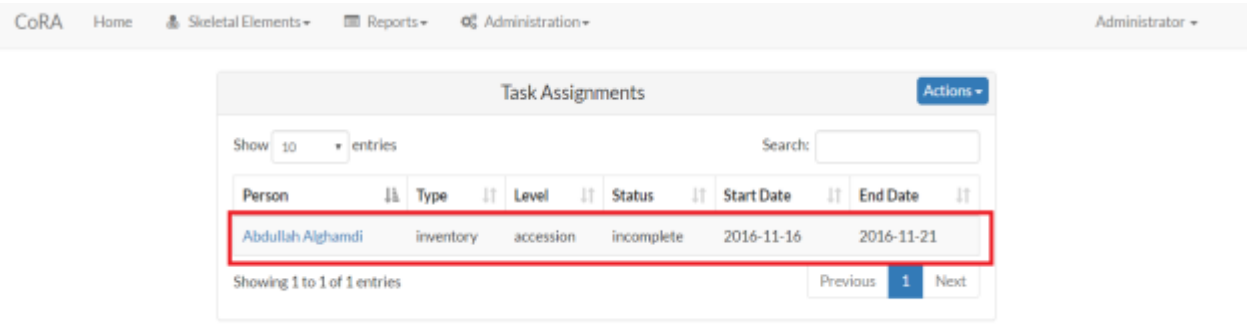


Figure 33: New Task Assignment Created

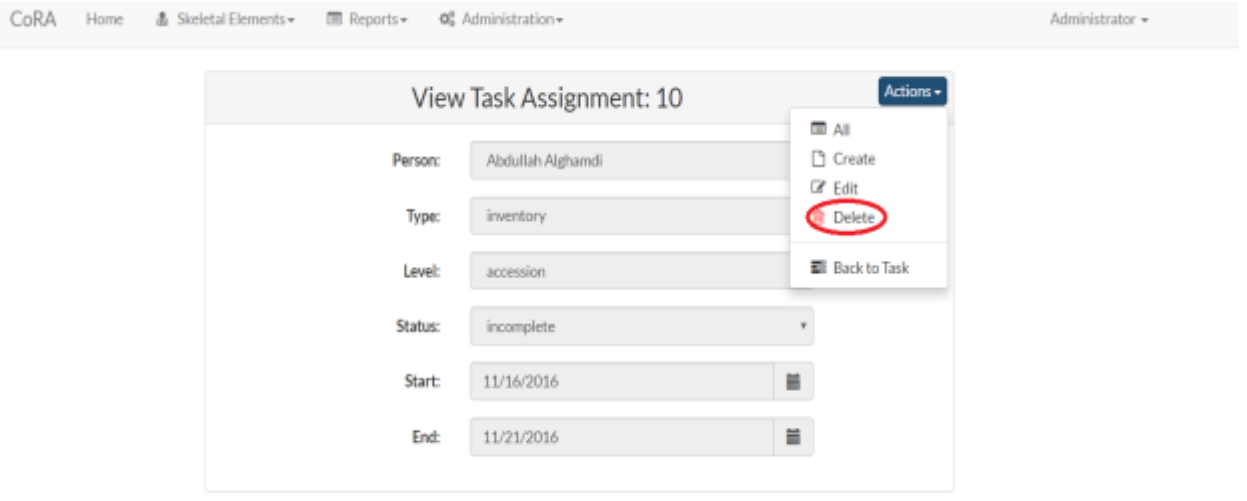


Figure 34: Deleting a Task Assignment

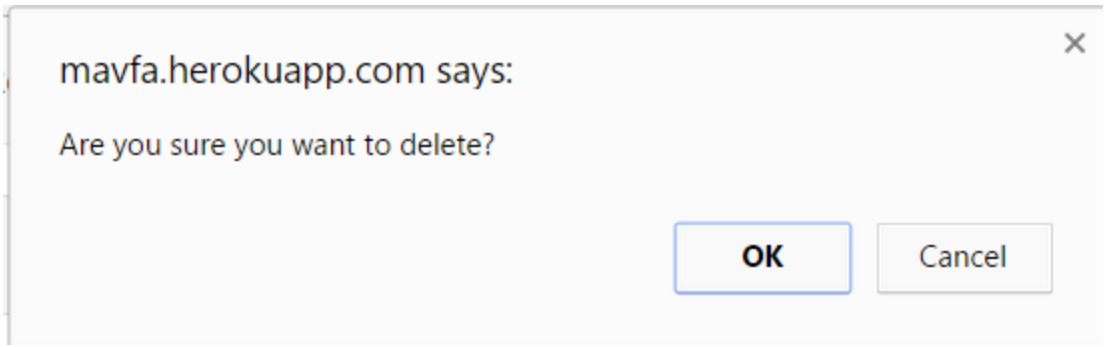


Figure 35: Alert Message upon selecting "Delete"

Email notification

Email notification feature serves as a notification mechanism in the Application. This Feature sends an Email to the Analyst when a new Task Assignment has been assigned by the Manager.

Data Validation

This section emphasizes on below aspects:

- Alert messages for mandatory fields that are left empty
- Alert message for invalid entries

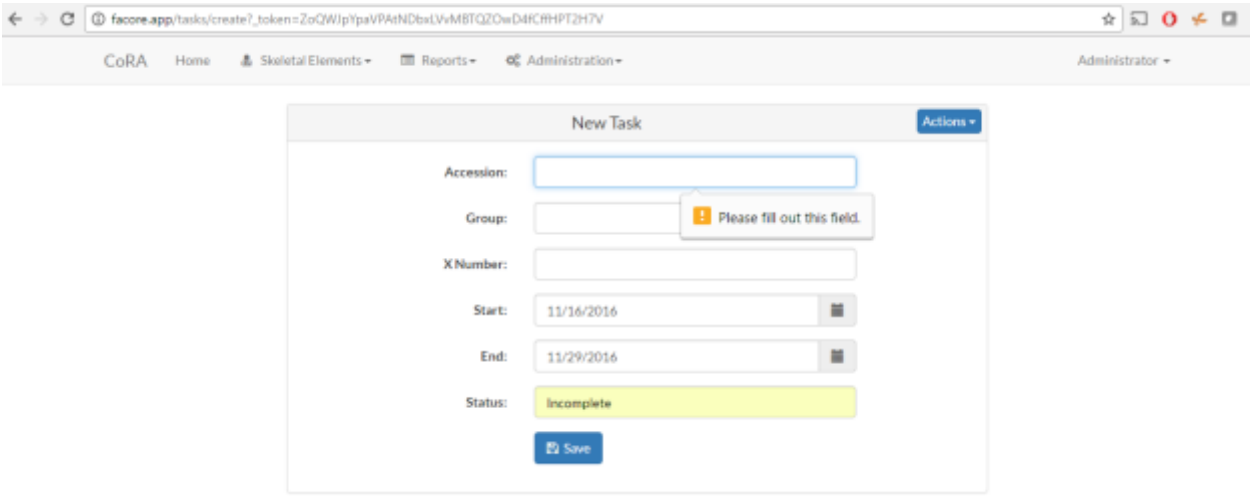


Figure 36: Data Validation in the Application

Application Security

- The Application uses a Role based Authentication in order to authenticate different Users. Further, the level of access within the Application is based on roles assigned to the User.
- Login id and Password enabled user login has been provided.
- Password reset upon request is available in the Application.
- As a Security Measure, a Session time-out has been provided where in a timeout occurs upon inactivity for specific period.

Sign In/Register

Manager and Admin will have the access to Register a New User. To be granted access to the Application user will need to contact the Administrator or the Manager. Figure 37 shows the steps to create a new User.

Manager Registering a new user process:

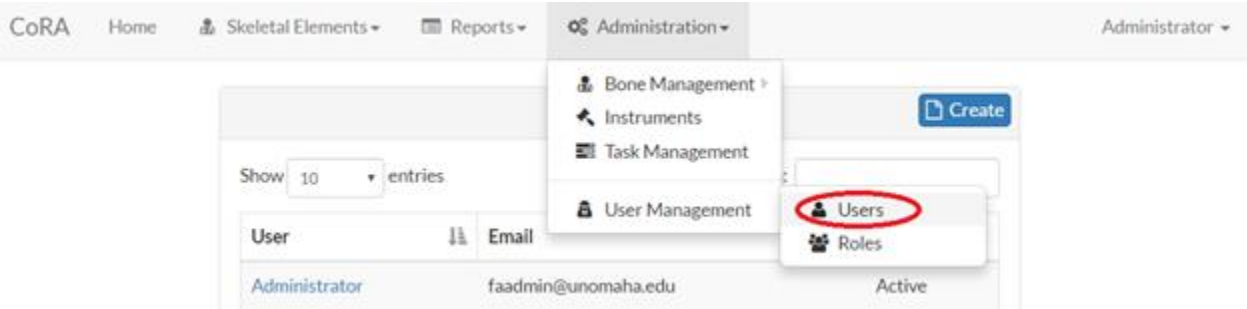


Figure 37: Creating a New User

Creating a New User:

After providing the required information a Manager/Admin should click “Save” to grant an access to the new User.

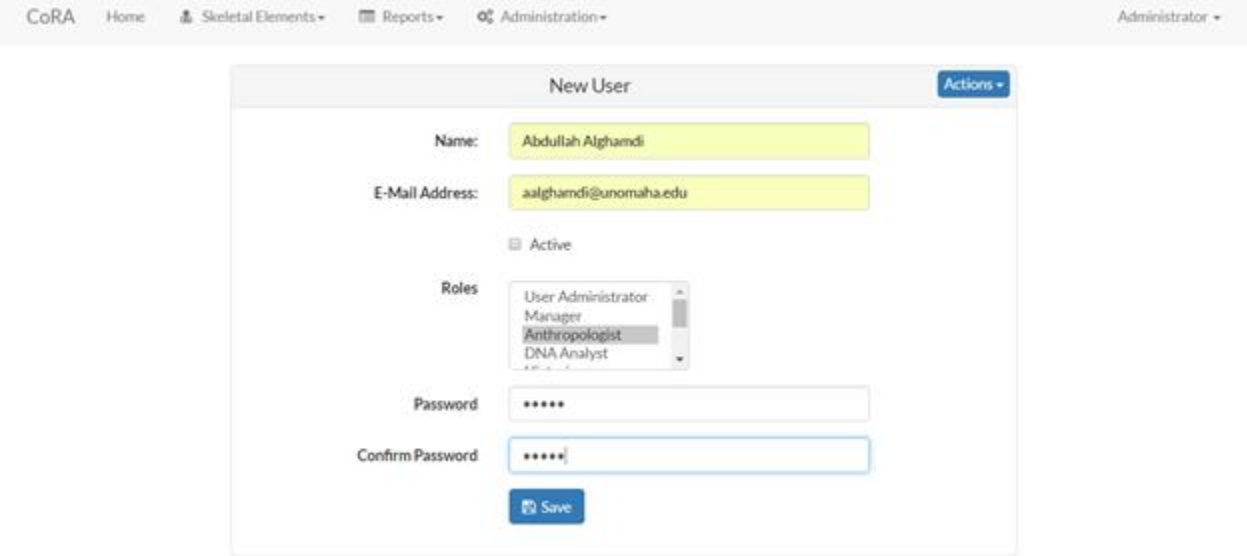


Figure 38: Creating a New User

Login Page

The application link can be access by clicking here. Figure 39 shows the Welcome Page of the Application.

Figure 39: CoRA Welcome Page

To be able to Login to the Application click on “Login” in the right top corner

Login page will open to allow user to enter E-Mail Address and password to be able to use the Application as shown in Figure 40.

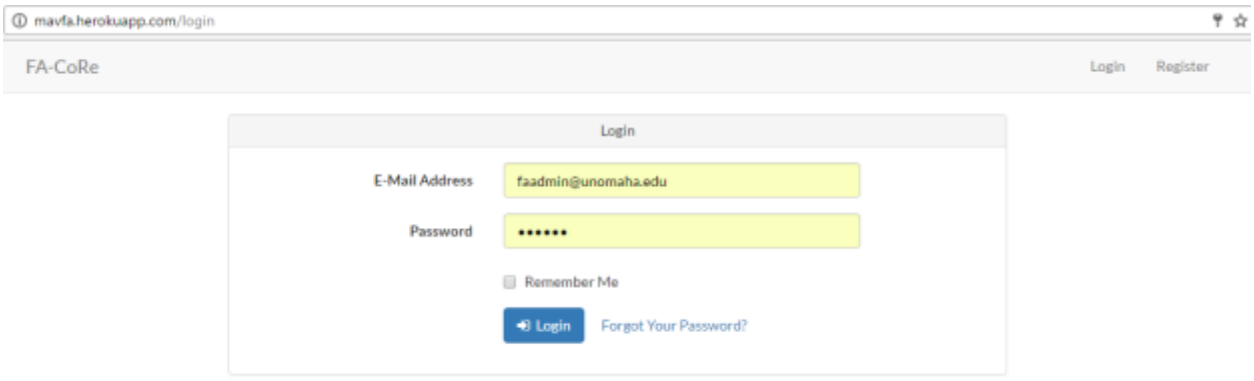


Figure 40: Login Page

Forgot Password/Reset

In order to reset a Password, Click on “Forgot Your Password?” as shown in Figure 41.

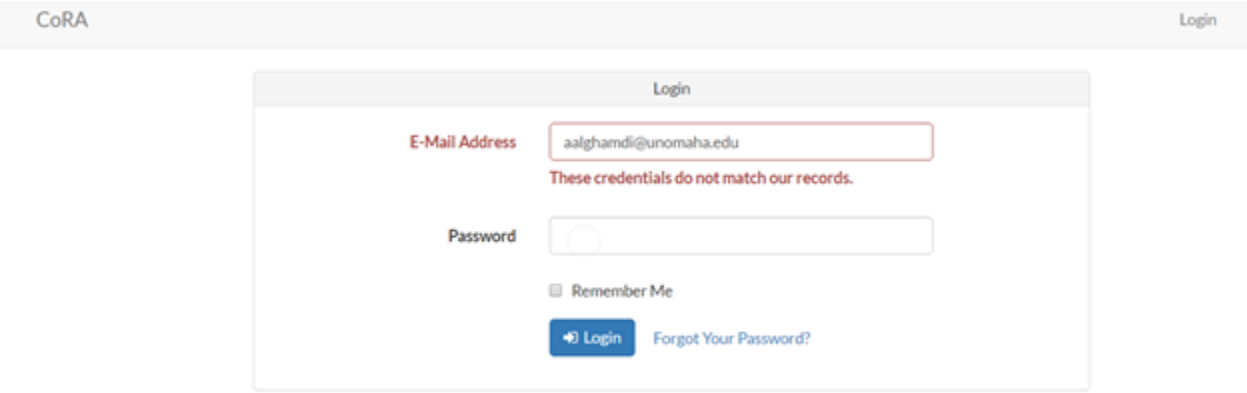


Figure 41: Reset Password

To Reset the Password, provide the E-mail Address that you want to retrieve the forgotten password then click on “Send Password Reset Link” as shown in Figure 42.

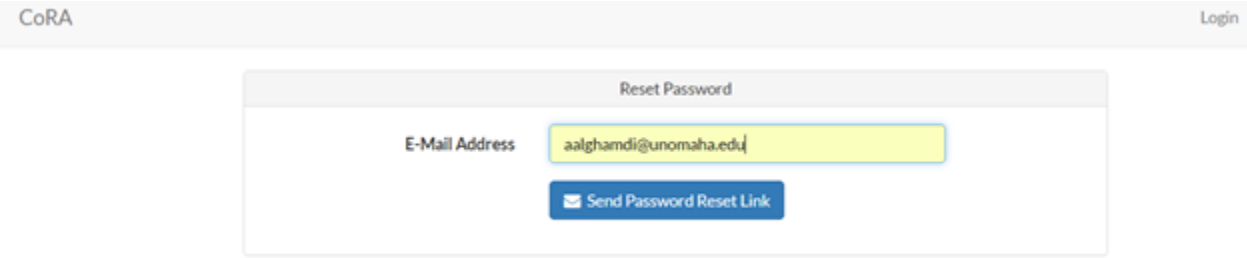


Figure 42: Obtaining Password Reset Link

Logout

For security reasons, a User is automatically logged out of the Application upon 20 minutes of non-use. If the User wishes to Logout from the Application, he/she needs to click on “Logout” button under the “Administration as shown in Figure 43.

Figure 43: Logging out from the Application

Role based Access control

Users and Permissions are controlled only by Administrator. We can define a role to control any particular Admin functionalities as needed. Let us walk through an example together creating a new user who would only able to view users only.

Step 1: To create a Role we can go back to User management under Administration dropdown as shown in Figure 44.

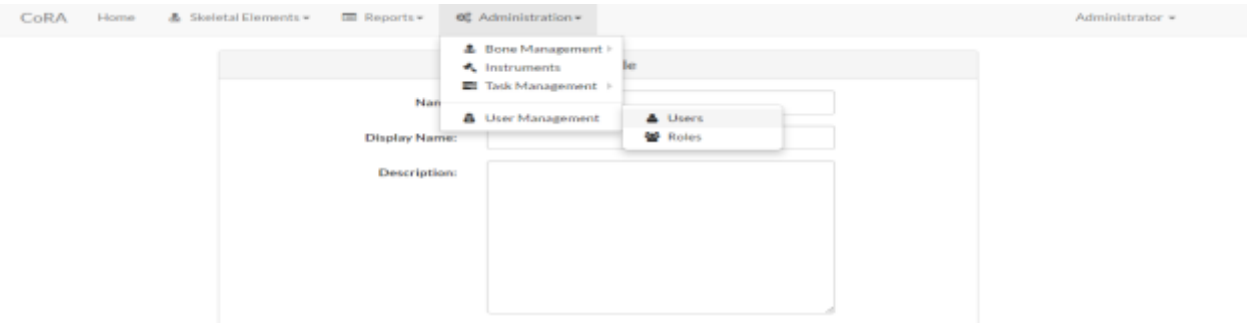


Figure 44: User Management Menu

Step 2: Click on the Roles in order to navigate to the Roles screen. There are seven pre-defined roles already in place on application which are ready to be assigned to any user as shown in Figure 45.

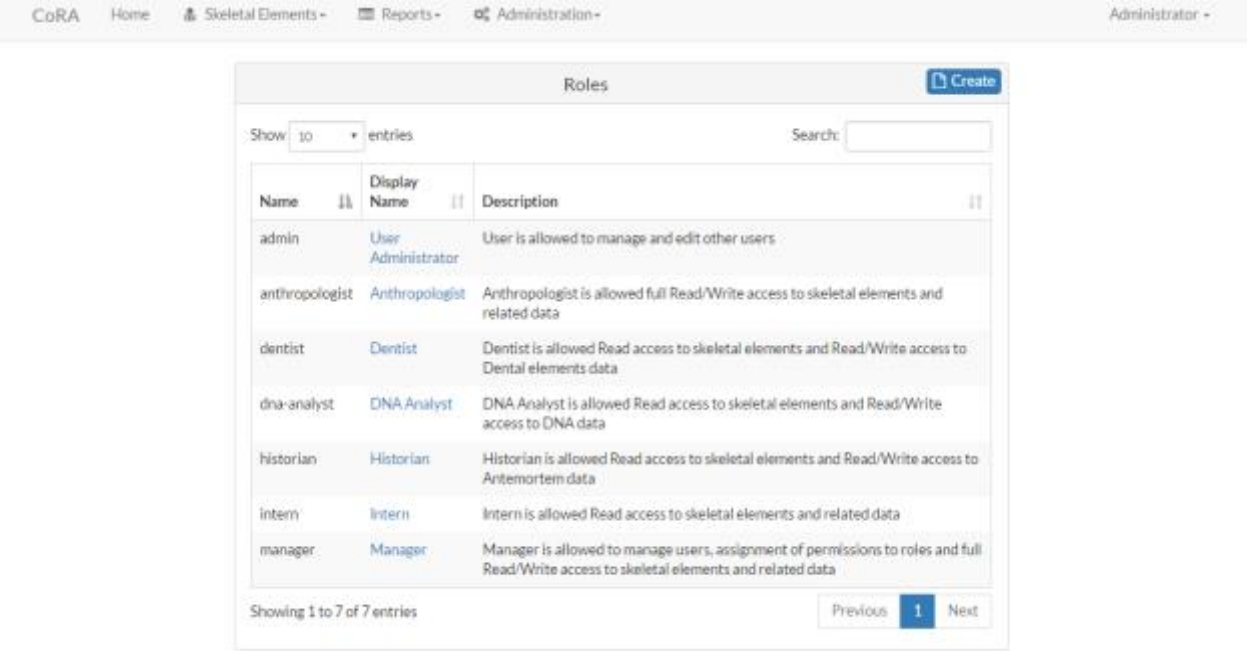


Figure 45: List of Roles in the Application

Step 3: From the Roles screen an Administrator can edit an existing role or create a new customized role.

- Click on the create button would result in New role screen as shown in Figure 46.

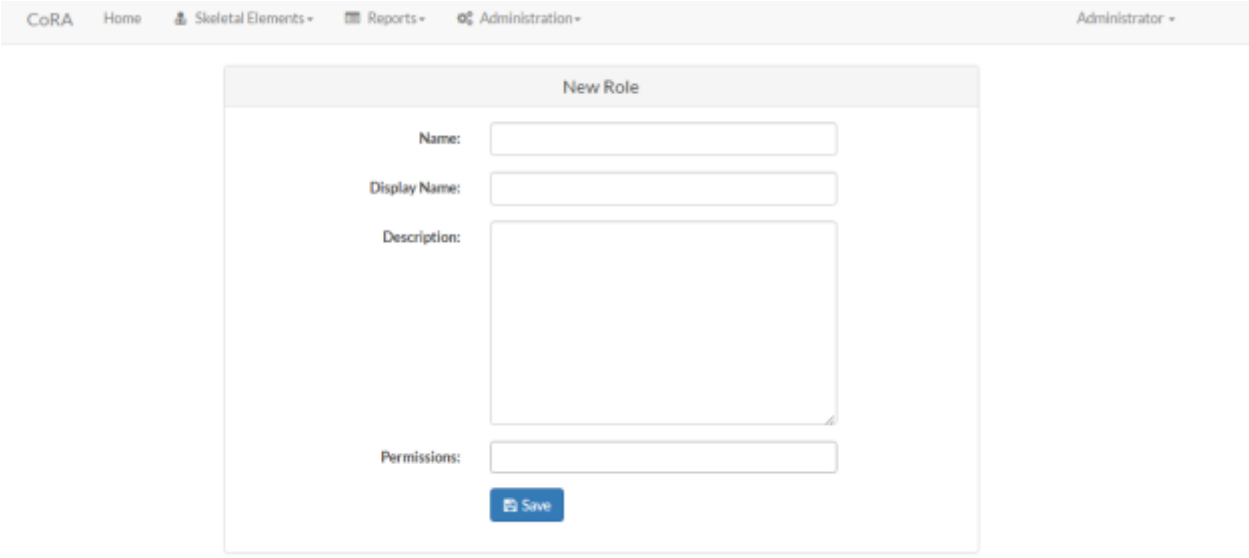


Figure 46: Creating a new Role

Step 4: Creating a new Role with the name 'View Users'. On assigning this role to any user he/she will only have view capabilities within the Application. Figure 47 shows the New Role.

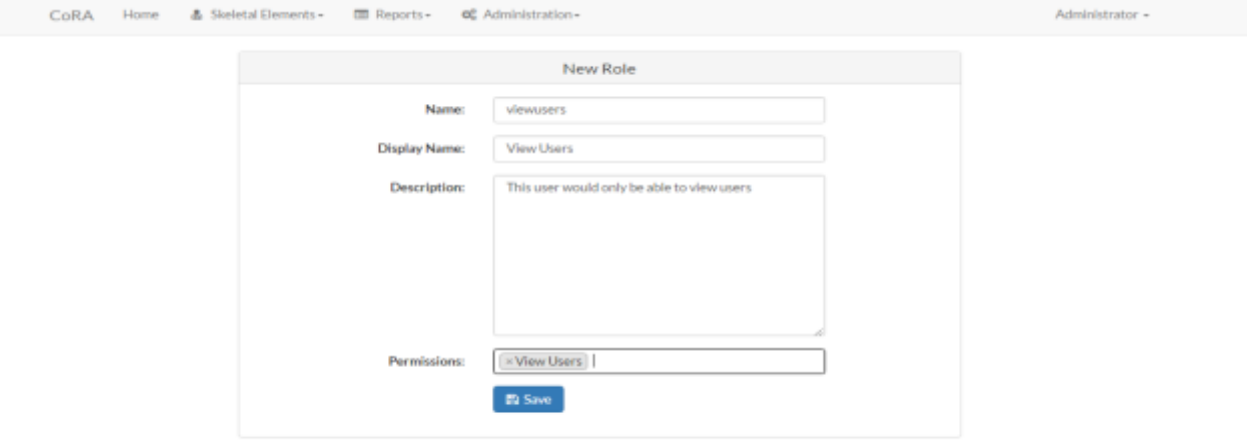


Figure 47: Creating a New Role

Step 5: Upon clicking 'save' the new role saves with a Notification "Role Successfully Added!" on screen as shown in Figure 48.

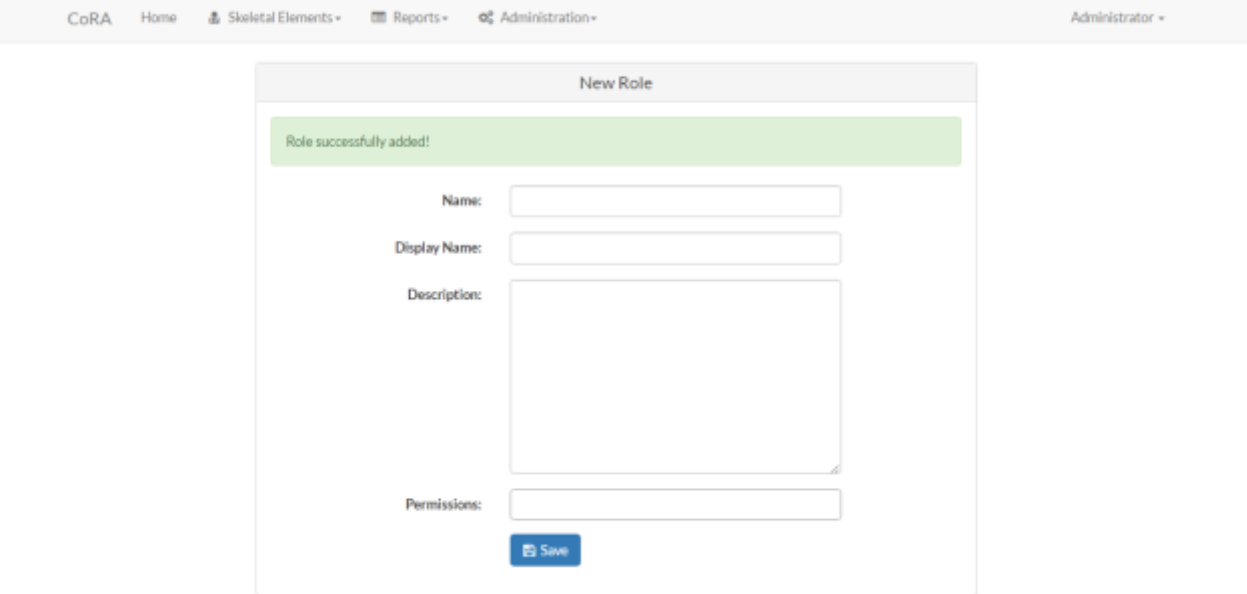


Figure 48: Saving a New Role

Step 6: Next step would be adding new User. Follow the above steps and on step 1 but select 'Users' which would result in Users screen as shown in Figure 48.

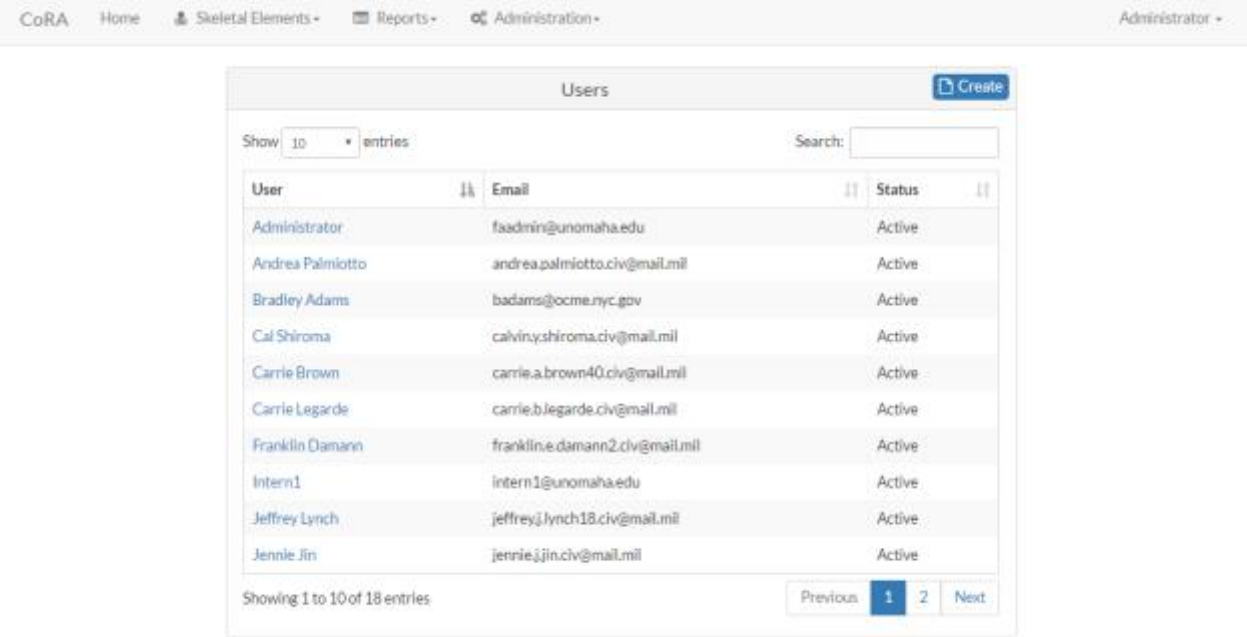


Figure 49: Creating a New user

Step 7: Upon clicking create; a new user page is generated as shown in Figure 50.

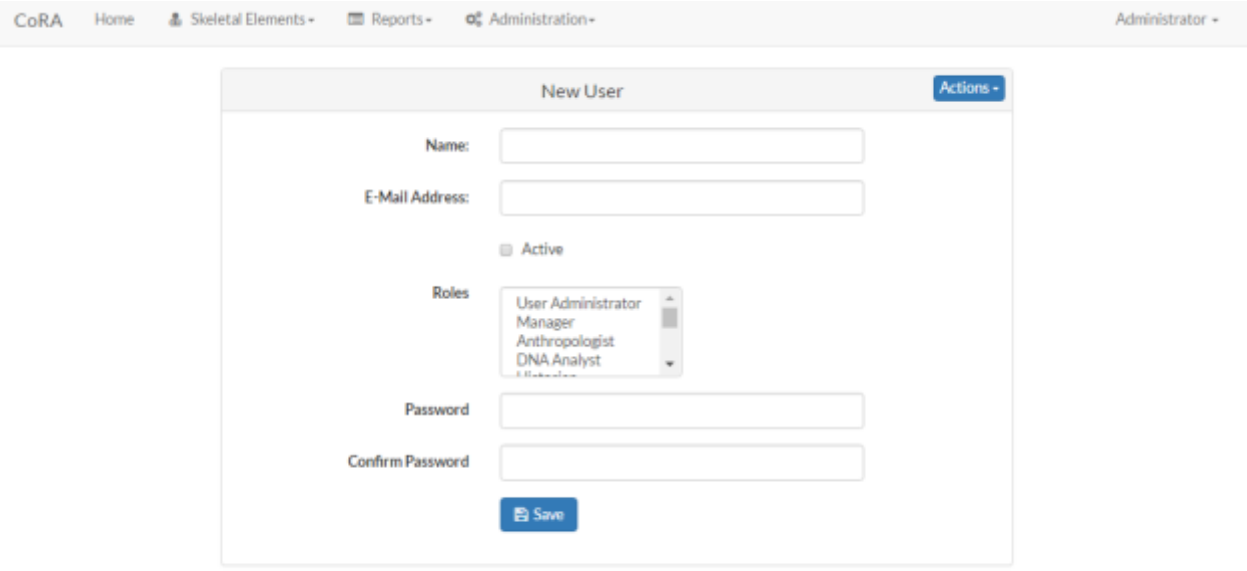


Figure 50: Creating a New User

Step 8: Creating a new user with only view Permissions.

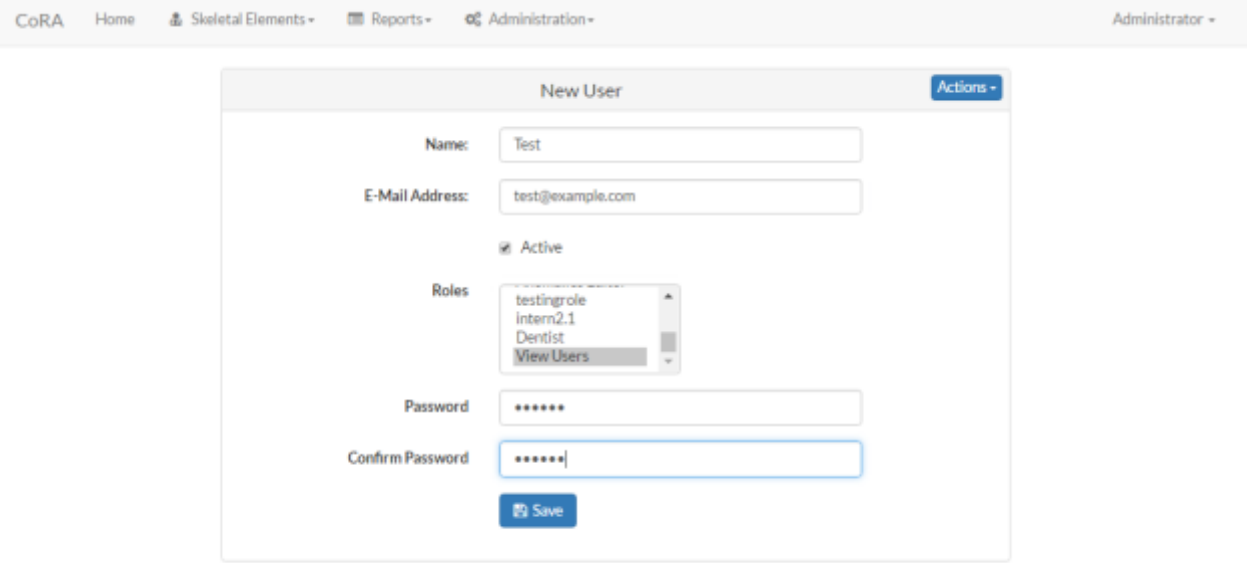


Figure 51: Specifying the Permissions for the New User

Step 9: Click on 'save' and an alert "User Successfully Added!" pops up.

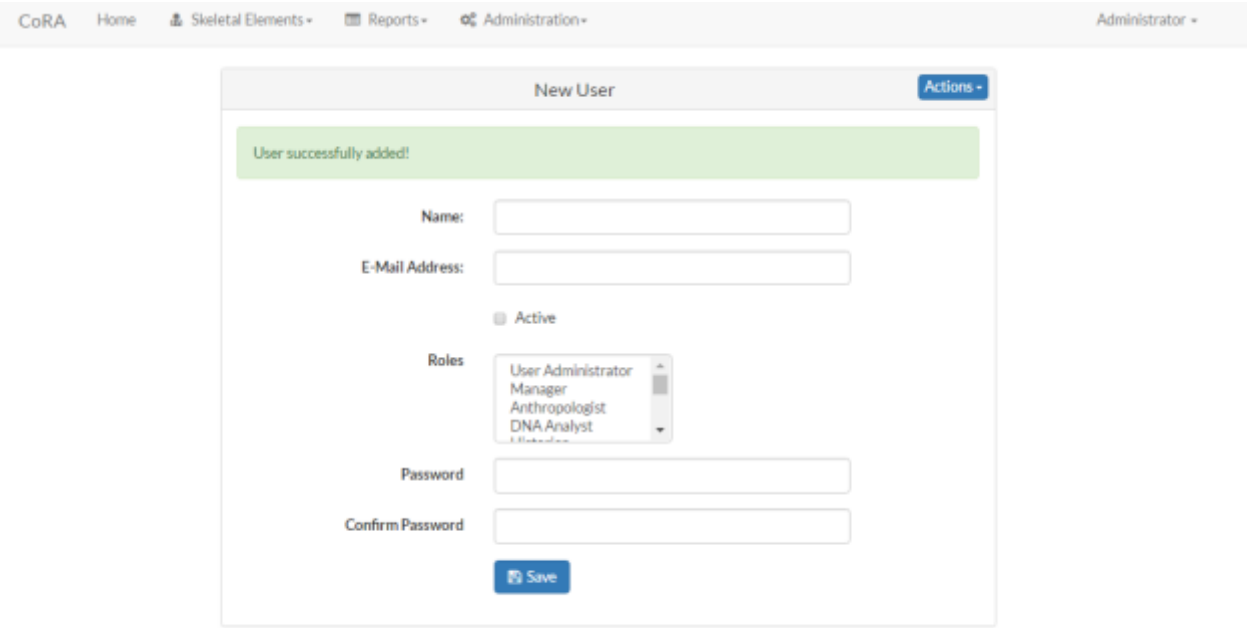


Figure 52: Saving a New User

Step 10: Then, trying to login with the new user credentials that we have just created.

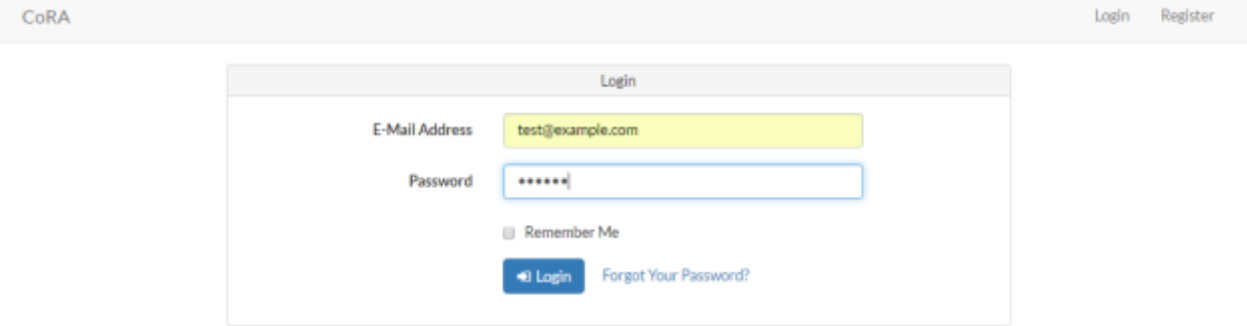


Figure 53: Accessing the Application as a New User

Step 11: Once you login, you will observe that the options available are greatly different than the Administrator's screen

Figure 54: Home page for the New User

Review Screen

This section provides an overview of Review Screen and the way to review a Skeletal Element.

To review a skeletal element, navigate to list of skeletal elements as shown in Figure 55.

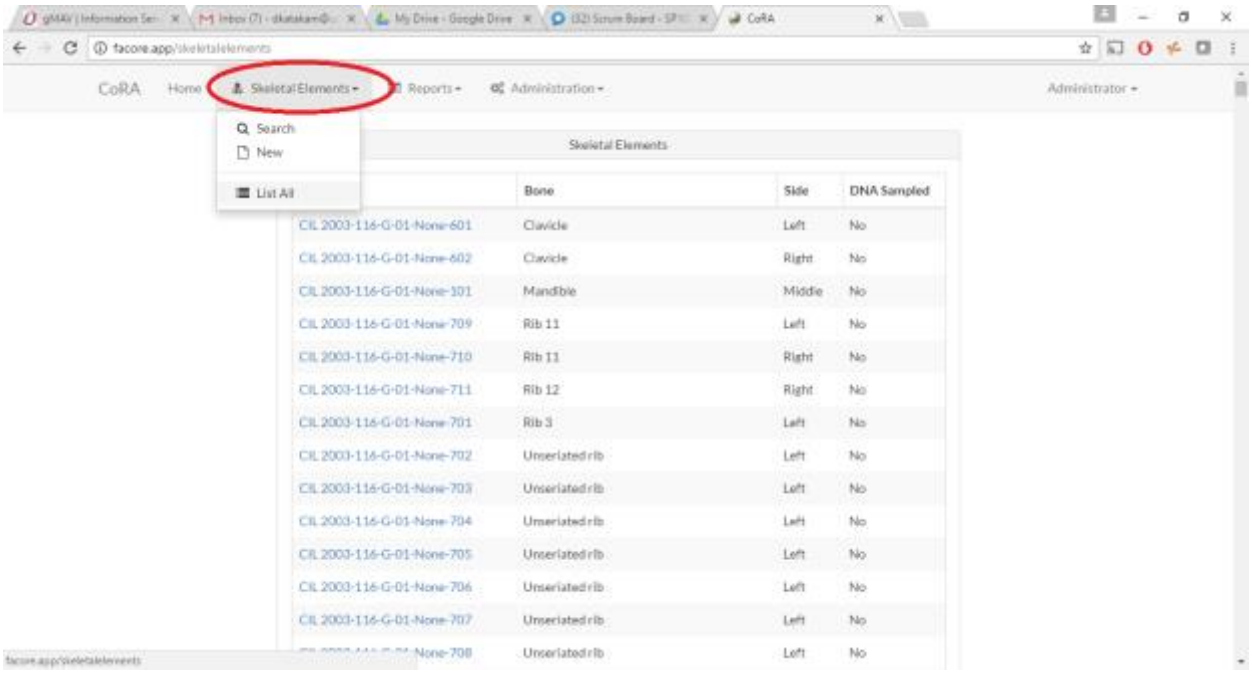


Figure 55: Accessing a Skeletal Element for Review

Select the skeletal element you want to review and select the “Actions” and click on review as shown in Figure 56.

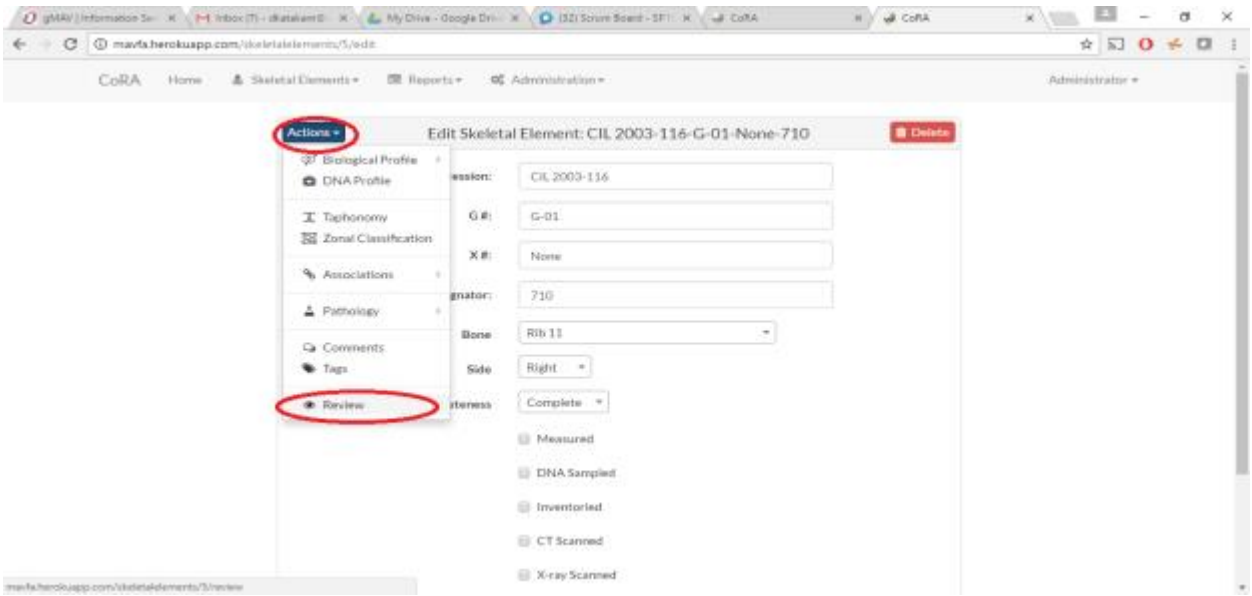


Figure 56: Selecting the Review Option

Upon selection, the user is navigated is this page as shown in Figure 57.

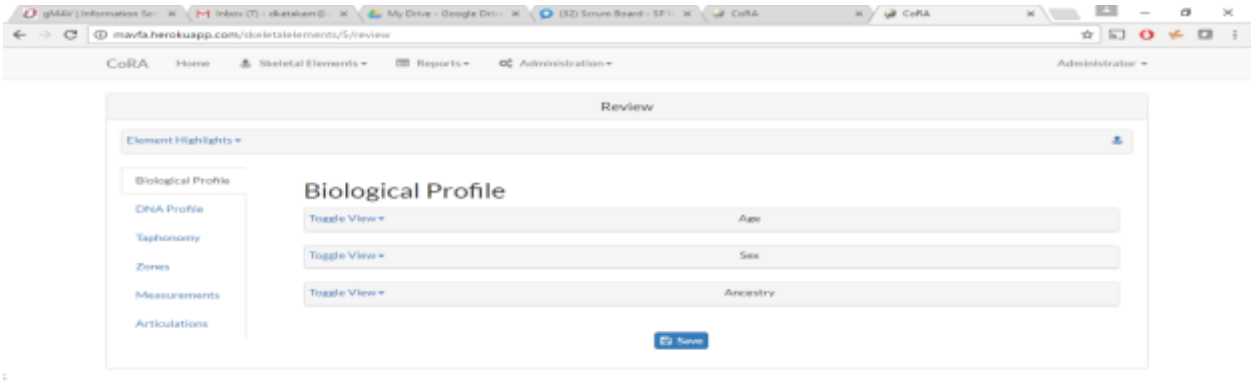


Figure 57: Review Screen

Upon selecting the “arrow” beside the element highlights as shown, below view can be seen by the user as shown in Figure 58.

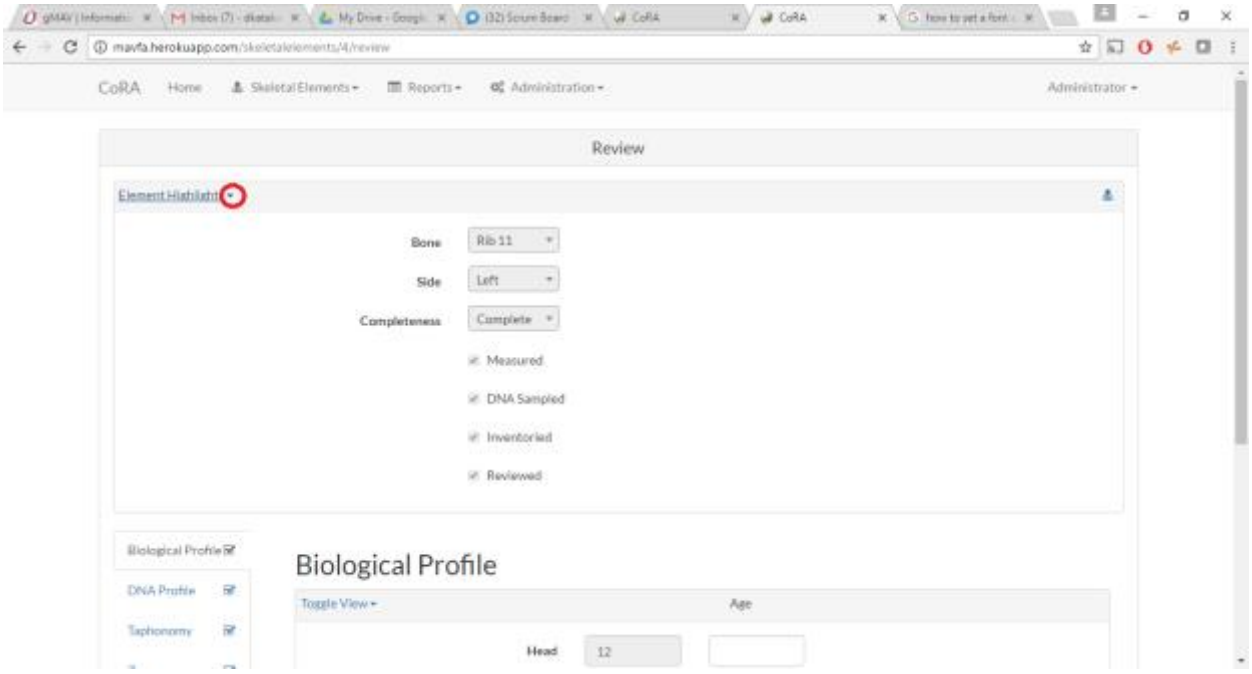


Figure 58: Overview of Biological Profile

Under Biological Profile, upon expansion of toggle view, the user can see below data as shown in Figure 59. In this case, since no data associated with skeletal elements is present in the database, the message “No methods have been entered” is displayed. If data is present, as seen under the Age section, two text

boxes are displayed. The text box grayed out indicates the value entered by the anthropologist who inventoried the skeletal element

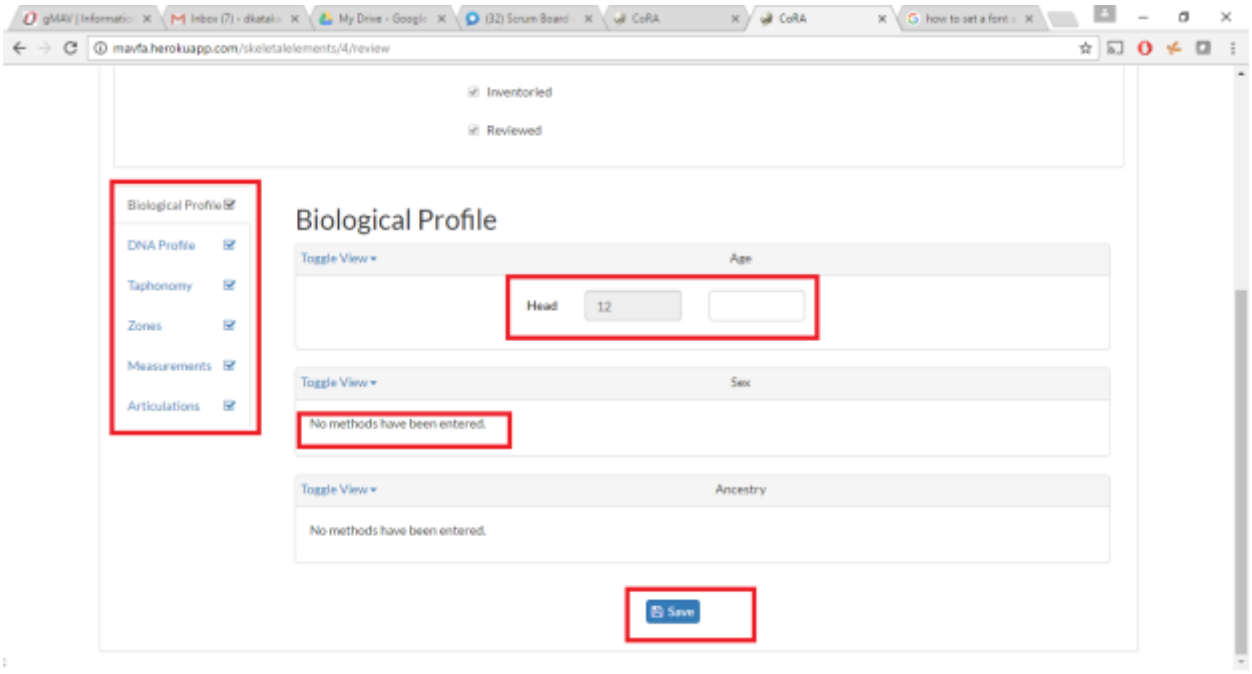


Figure 59: Biological Profile Review Process

In case, a review anthropologist is not in agreement, he/she will have to enter the value they think is appropriate in the review Text box as shown in Figure 60 and click on “Save”.

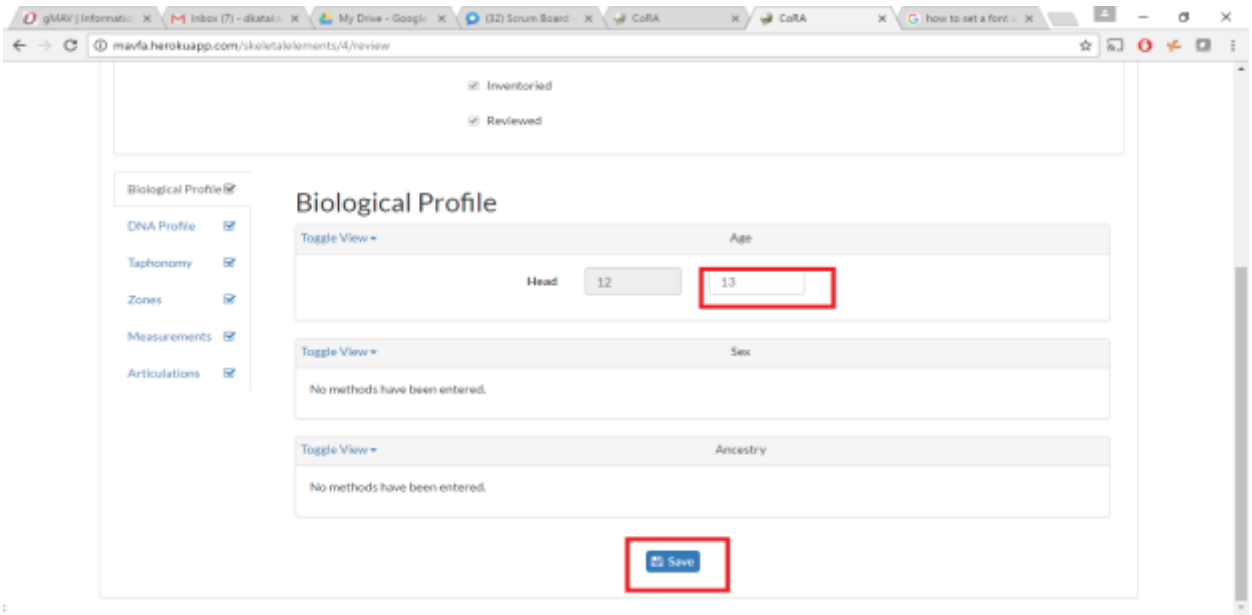


Figure 60: Saving Biological Profile Review

Notice, that the Biological Profile now shows a “1” displayed beside it. This indicates number of changes made by the reviewer as shown in Figure 61.

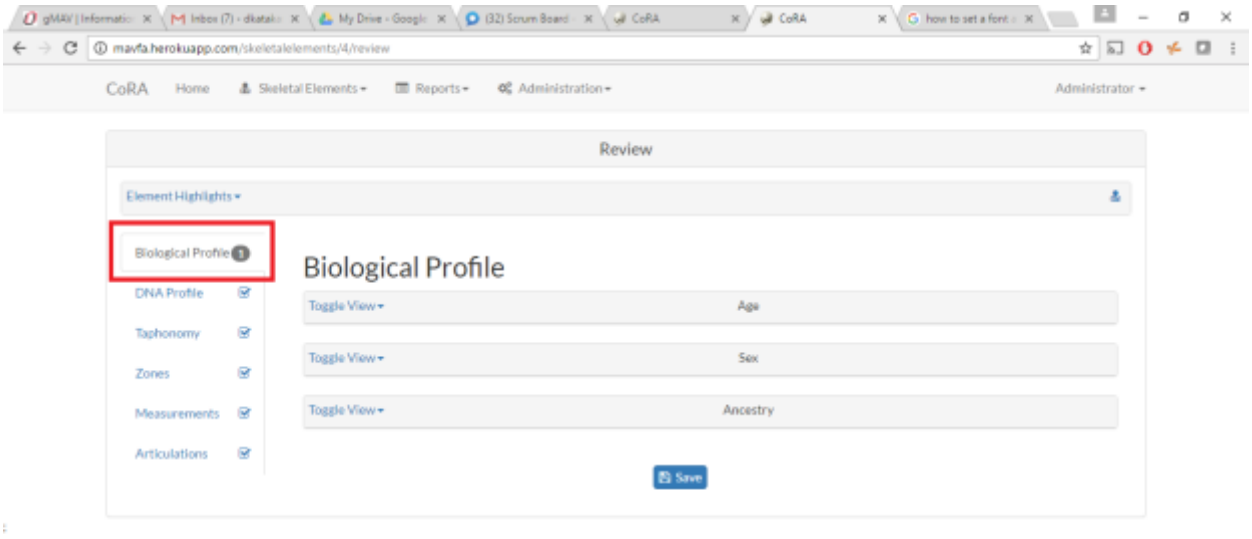


Figure 61: Changes in Biological Profile

Upon selection, the DNA Profile view is displayed:

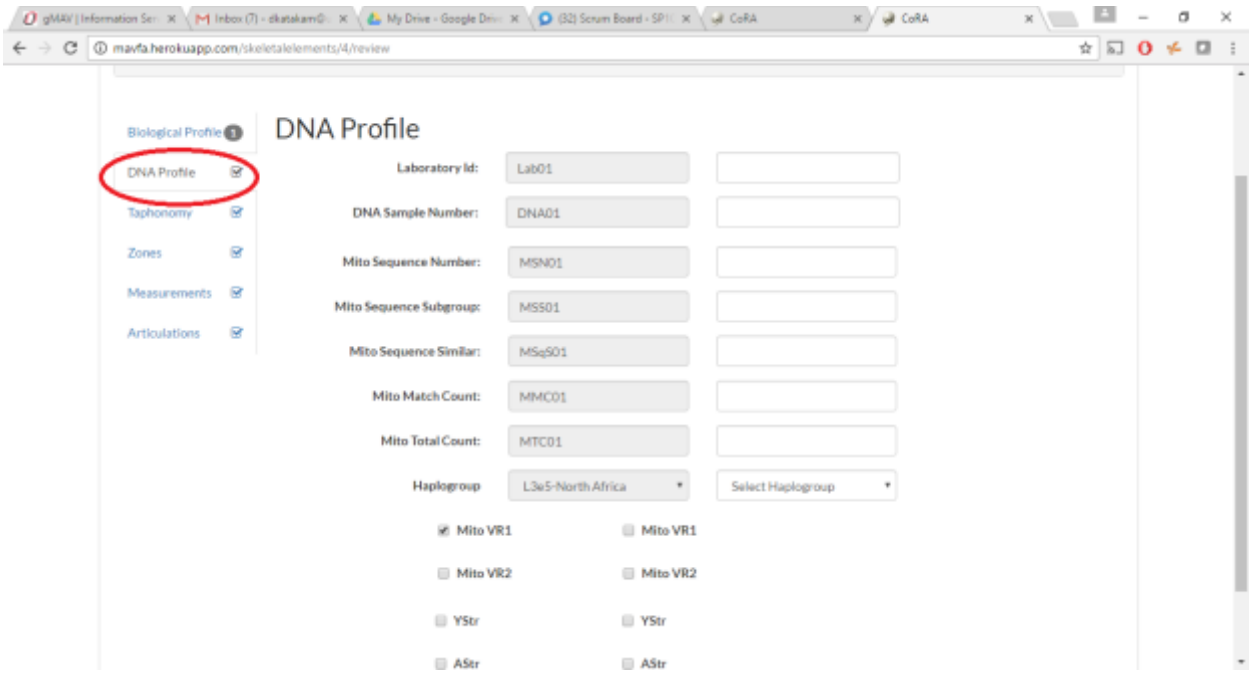


Figure 62 DNA Profile Review Screen

To make changes, the user again inputs the values based on review performed. In this case, three values have been changed as shown in Figure 63.

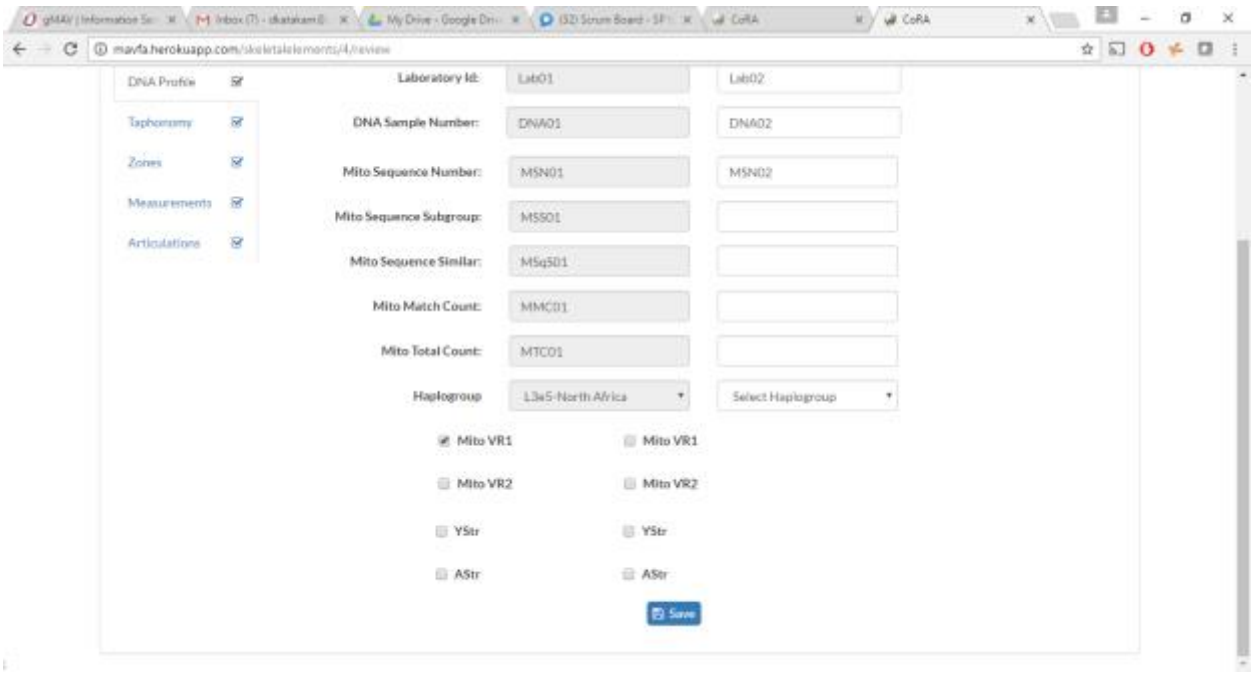


Figure 63 DNA Profile Review Process

In case, a reviewer agrees to values presented by the Anthropologist who inventoried the skeletal elements, he need not enter any value. In case he does, the application doesn't show it as change irrespective of being inventoried in the system. Notice that Mito Sequence number holds the same value based on inventoried values where as others have been changed as shown in Figure 64

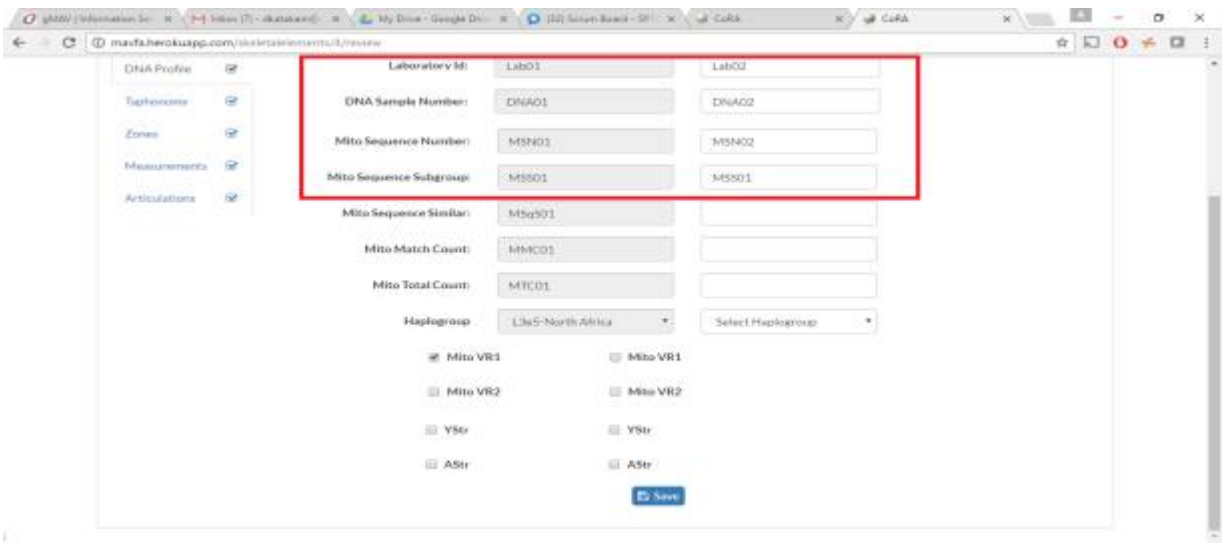


Figure 64 DNA Profile Review

Upon clicking “Save”, below screen is displayed. Under DNA profile, the application shows “3” indicating three values were changed. Since the forth value entered was same as the original value, the change is not reflected as shown in Figure 65.

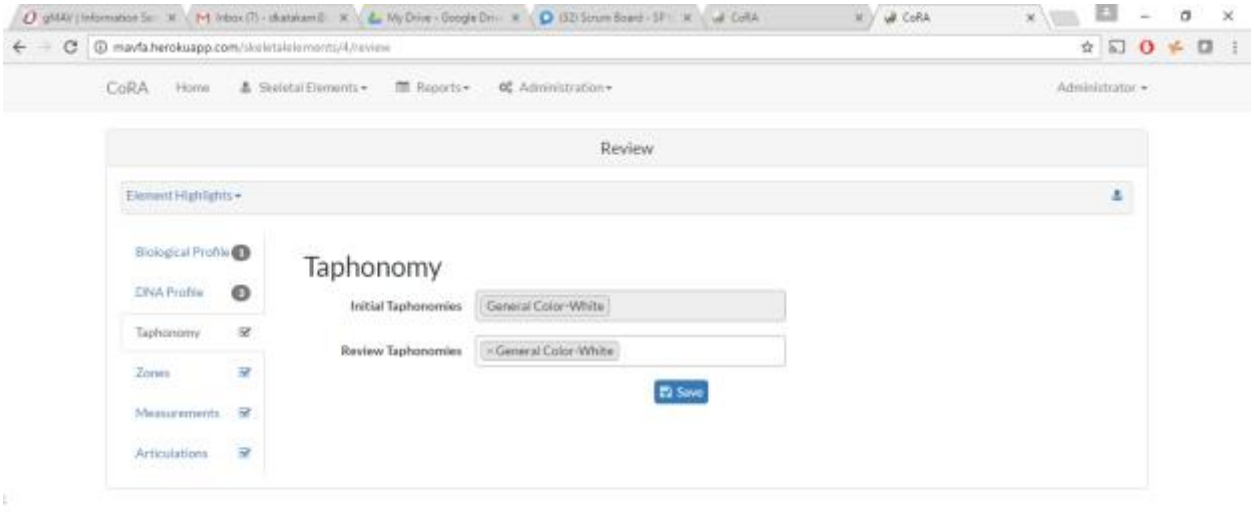


Figure 65: Taphonomy Review Screen

Zones Review Screen:

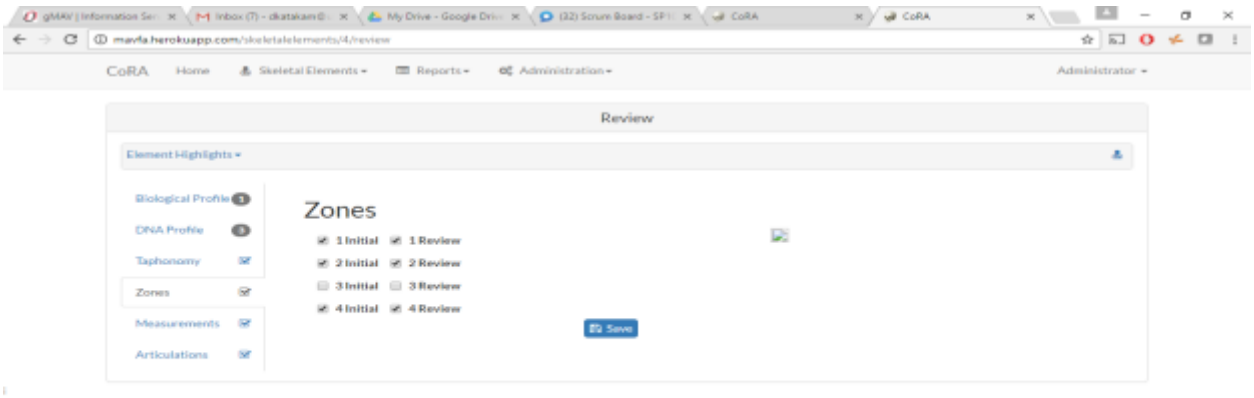


Figure 66: Zones Review Screen

Measurements Review Screen:

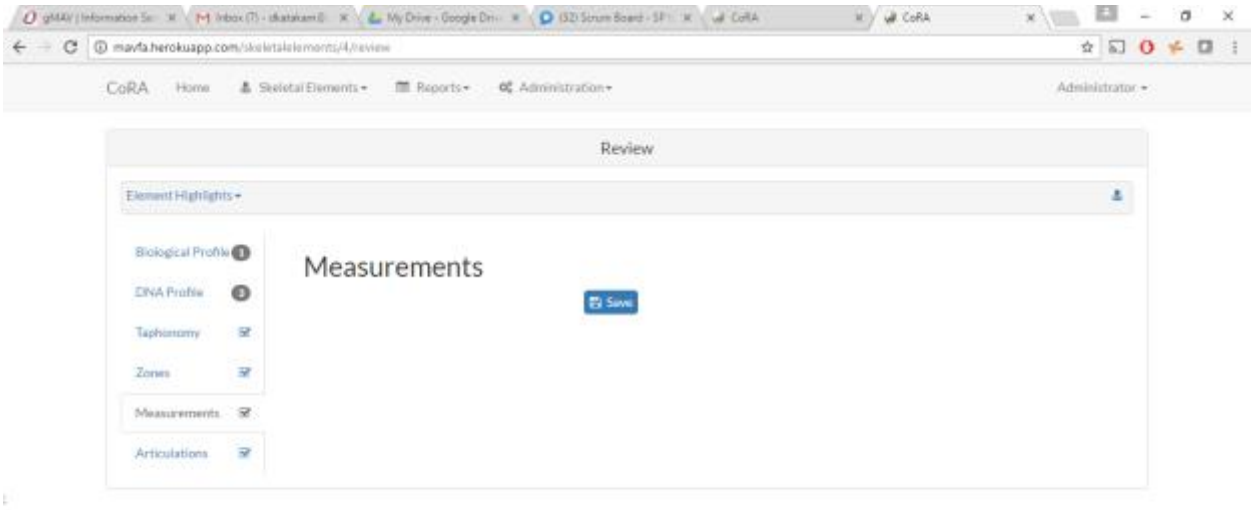


Figure 67: Measurements Review Screen

Articulations Review Screen:

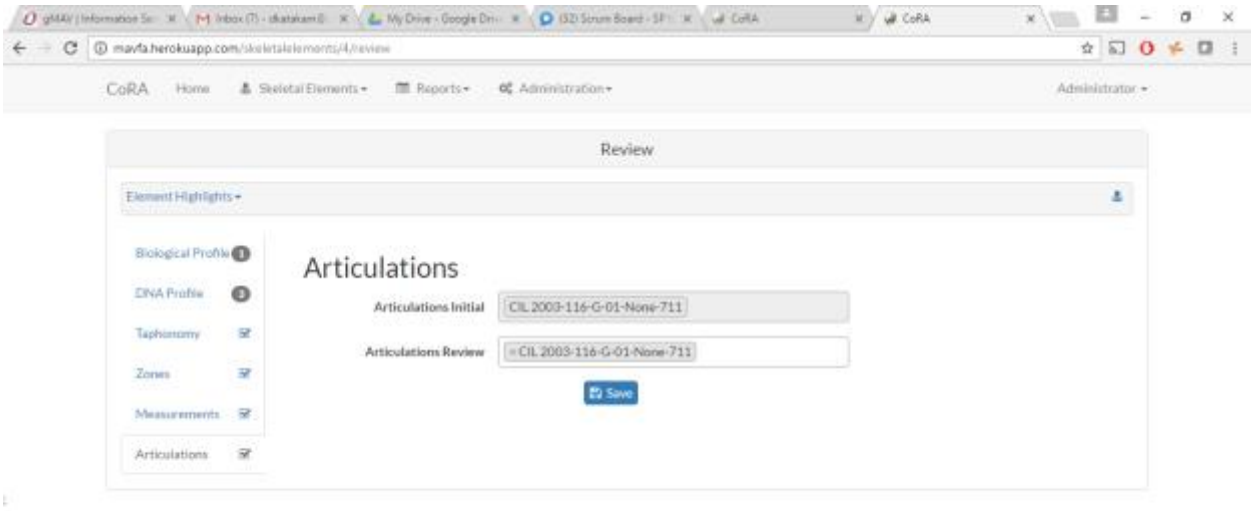


Figure 68: Articulations Review Screen

In all these screens, changes can be made. Upon accessing the same Skeletal Element, the anthropologist supposed to review will get a glimpse of all the changes at one place. To make changes after the review, the reviewer should click on the icon in the top right as shown in Figure 69.

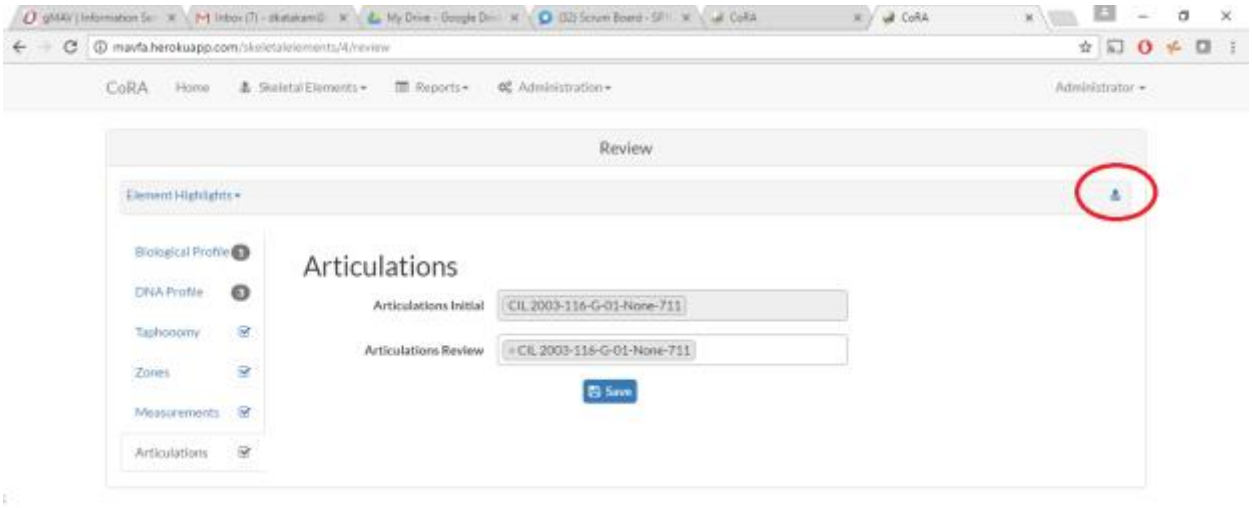


Figure 69: Articulations Review Screen

Upon clicking the icon, the reviewer is navigated to this page. From this page, the necessary changes can be made by the reviewer as shown in Figure 70.

Figure 70: Navigation to Skeletal Element Screen from Review Screen

Glossary:

Term	Meaning
Admin	A super user who can access every function of the application.
CMD/Command Prompt	Command Prompt, also known as cmd.exe or cmd (after its executable file name), is the command-line interpreter on Windows NT, Windows CE, OS/2 and eComStation operating systems.
Demo	A demonstration of the application's features to the client
Developer	A member of the tech team who is responsible for writing the code which makes up the application
Documentation Lead	A person who is responsible to lead the team to complete project documents required by the client
Feature	A user requirement for the application
Git	A version control system
Git Bash	GUI Client for Git
GUI	GUI is a type of user interface that allows users to interact with electronic devices through graphical icons and visual indicators such as secondary notation, instead of text-based user interfaces
Heroku	An open-source application hosting platform
IDE	An integrated development environment (IDE) is a software application that provides comprehensive facilities to computer programmers for software development. An IDE normally consists of a source code editor, build automation tools and a debugger

Iteration/Sprint	A repeatable work cycle which lasts two to three weeks and by the end of which, a number of working features of the application are shown to the client for feedback
Password	A combination of characters and numbers which needs to match a username for a user to enter the application
PHP	A server scripting language
Project Manager	A person who is responsible for managing the project's progress and resources
Scrum Master	A person who facilitates the use of SCRUM in the project
SMTP	Simple Mail Transfer Protocol (SMTP) is an Internet standard for electronic mail (email) transmission.
SSL	SSL (Secure Sockets Layer) is the standard security technology for establishing an encrypted link between a web server and a browser. This link ensures that all data passed between the web server and browsers remain private and integral.
Statement of Work	A document which is signed by the client's representatives and the Client Liaison and which describes important issues such as responsibilities of each party, project deliverables, and a timeline for the project.
System	System refers to the chat application in general.
Tech Lead	A person who is responsible for managing the project's developers and resolve technical issues raised by the QA team

Test Case	A document which includes test data, pre-conditions, post-conditions and expected results, and which is used by a tester to determine whether a feature works as expected
Test Plan	A document which identifies and describes various types of tests to be conducted and their purposes in relation to the development of the application
Tester	A QA team member
URL	A Uniform Resource Locator (URL), commonly informally termed a web address (a term which is not defined identically)[1] is a reference to a web resource that specifies its location on a computer network and a mechanism for retrieving it
User Interface	The means by which the user and a computer system interact, in particular the use of input devices and software.
User Story	A system requirement from a user's point of view
Virtual Host	Virtual hosting is a method for hosting multiple domain names (with separate handling of each name) on a single server (or pool of servers). This allows one server to share its resources, such as memory and processor cycles, without requiring all services provided to use the same host name.
WAMP	An application-server platform which includes Windows, Apache, MySQL and PHP
Yodiz	An online project management software tool for Agile software development projects
User	A person who uses or operates something, especially a computer or other machine. A user must have a name, email address, username, password, and at least one assigned group.