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## Karl Dicks

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 1 PROG 3B POE Documentation

Application:  1 Dewey Training Application ID: DT1.20

Version:  1.20 Student Name: Karl Dicks Student Number: 17667327 Course: BCAD3 Subject: PROG7312 Lecturer:  1 Nirasha Ramckurran Assignment: POE Due Date: 04/11/2020

1

 2 Contents Change Log..... 2

Introduction..... 2

 2 Task 1 Improvements..... 5

 2 Task 2 Improvements..... 6

Conclusion..... 7

Introduction..... 8

Help File..... 10

Readme..... 16

Screenshots..... 20

Database Entities..... 40

 3 Tree Data Structure..... 41

 1 Use Case Diagram..... 42

Conclusion..... 43

References..... 44

2

#### Change Log

- ① Introduction As part of our PROG7312 (3B) module, we were tasked with developing a Dewey Decimal training application. My application has been built in Windows Presentation Foundation (WPF) in .Net Core 3.1. There were a number of requirements that the application had to perform, which have been implemented in my Task 1, Task 2, and POE project, in accordance with our set question paper.

Task 1 consisted of two parts: research into gamification features to be implemented in the practical part of the assignment, and the practical part of the assignment, being the reordering of Dewey Decimal books on a virtual shelf.

The requirements of the practical part of Task 1 is described below:

1. ④ On start-up, the application shall allow the user to choose between three tasks:
  - a. Replacing books.
  - b. Identifying areas.
  - c. ④ Finding call numbers.
2. ④ For this first task, only Replacing books will be implemented – disable the other two options for now.
3. ④ When the user selects Replacing books, the application shall randomly generate ten different call numbers, and display them to the user.
4. ⑤ The application shall allow the user to reorder the call numbers, and the application shall check whether the user got the ordering right.
5. ④ Implement the gamification feature that you identified to motivate users to keep learning.

Technical requirements:

1. ④ Make use of a list to store the generated call numbers.
2. ④ Choose an appropriate sorting algorithm to sort the call numbers to check the order that the user put them in.

These criteria were met for my Task 1 submission, and I have received feedback for this task, as detailed in the following section.

Task 2 only had an implementation component to it, which had the following functions / criteria:

1. ④ Enable the Identifying areas task.
2. ④ When the user chooses the Identifying areas task, they should be presented with a user interface where they will match two columns: call number (top level only) and description.
3. ④ A question in this context is defined as the whole matching set, including both columns.
4. ④ The user shall be allowed to answer as many questions as they want to.

3

5. ④ The questions should alternate between matching descriptions to call numbers and call numbers to descriptions.

6. ④ Each question should have four randomly selected items in the first column, and

seven possible answers (three of which are incorrect) in the second column.

7. (4) Implement a gamification feature to motivate users to keep using the application.

You may use the same one as before or choose to implement a different one.

Technical requirements:

1. (4) Store the call numbers and their descriptions in a dictionary.

These criteria were met for my Task 2 submission, and I have received feedback for this task, as detailed in the following section.

- (2) For our POE submission, we were tasked with improving our Task 1 and 2 submission, along with completing theory and practical parts as follows:

- (4) In a Word document, create a multilevel list showing the call numbers, for example:

(3) • 700 Arts & Recreation

o 750 Painting

▪ 751 Techniques, procedures, apparatus, equipment, materials, forms

▪ 752 Color

This was completed for 160 unique entries, and has been submitted in my Portfolio of

Evidence. The references for this information were included.

The practical component of this assignment has been detailed below:

2. (4) Create a file containing the data that was gathered in the research part of this task in a format that can be read by your application.

3. (4) Enable the Finding call numbers task.

4. (4) When the user chooses Finding call numbers, the application must load the Dewey Decimal classification data into memory from the file created in step 1.

5. (4) The quiz must work as follows:

- a. (4) For each question, randomly select a third level entry from the data, for

(5) example 752 Color. (4) Display only the description, not the call number.

- b. (4) Display four top level options to the user to choose between, one of which

must be the correct one and the other three randomly selected incorrect

answers. For example:

000 General Knowledge

400 Language

(3) 700 Arts & Recreation

800 Literature

- c. (4) For the options, display both the call number and description. Display the

(4) options in numerical order by call number.

- d. (4) If the user selects the correct option, show them four options from the next

level, until the most detailed level is reached.

4

- e. (4) If the user selects the wrong option anywhere along the way, indicate this

and then ask the next question.

Technical requirements:

1. (4) Make use of a tree to store the data in memory.

These criteria have been met, by implementing the complete solution for the POE submission, as well as the research document.

Certain aspects of my Task 1 and 2 were improved, and have been detailed in the next section, in accordance with feedback received for both Task 1 and Task 2.

5

② Task 1 Improvements The following feedback was received for my Task 1 submission:

I have made the following changes to my Task 1 assignment:

- Introduction and conclusion have been improved in my Task 1 assignment.
- ④ • Motivation for choice of gamification feature has been expanded upon.
- Additional gamification features have been included in my Task 1 research.
- Gamification feature implementation has been improved by making it more clear to the user (background included for the timer).
- Coding standards improved by including additional comments.
- Application ease of use improved.
- Readme updated.
- Grammar corrected.

② • Spelling mistakes corrected.

- In text references updated, for additional information included.
- Reference list updated.

② The above changes have been made to my Task 1 assignment, in order to update its content

and improve it based on lecturer feedback.

6

② Task 2 Improvements The following changes have been made to my Task 2 assignment, in order to improve on the original design, and functionality for the POE submission:

The following feedback was received for my Task 2 submission:

- Readme updated.
- Application ease of use improved (timer easier to see).
- Coding standards improved by including additional comments and breaking the application into more methods.
- Changelog included in the final POE.

② The above changes have been made to my Task 2 assignment, in order to update its design and functionality based on lecturer feedback.

7

② Conclusion In conclusion, the above-mentioned changes have been implemented in my Task 1 and Task 2 assignments, in order to improve their quality. Additional design improvements have been included in the practical submission, in order to improve its design, and make it look more professional and attractive for its users.

② Debugging has been carried out, in order to address application bugs and issues which were not obvious in Task 2. These issues have since been resolved, and changes have been made for the final POE submission.

In addition to the above, the POE has included additional functionality as set out by the question paper, and the research has been completed.

8

① Introduction As part of our PROG7312 (3B) module, we were tasked with developing a Dewey Decimal

training application. (1) I chose to develop the application in C#, using the Visual Studio 2019 IDE, as we were familiar with this IDE from other programming modules. My application has been built in Windows Presentation Foundation (WPF) in .Net Core 3.1. There were a number of requirements that the application had to perform, which have been implemented in my Task 1, Task 2, and POE project, in accordance with our set question paper. (1) (The Independent Institute of Education, 2020)

The training application allows users to perform multiple actions, including:

- Register and login

The training application allows the user to register an account with their own preferences, and log in. User profiles are stored in a local MSSQL MDF file, along with their scores used by the application. This database can easily be migrated to an online Azure database, so that high scores are accessible by everyone in the library or elsewhere.

- Replace Books

(1) The application will allow users to order randomly generated Dewey Decimal Call Numbers (10) – including the decimals and authors into the correct order.

Once the user correctly orders the call numbers, by dragging the books to their correct order, the user will be automatically navigated to a confirmation page.

- Identify Areas

The application allows users to complete match-the-column questions with 4

questions being asked, and 7 potential answers. These questions make up the full

Dewey Decimal area / answer – eg 000 – General Knowledge. (1) The user may select answers to the questions from dropdown menus, and will determine score, time taken, and other such information when the “Next” button is clicked.

- ① • Find Call Numbers

The application will allow users to find call numbers by implementing a tree structure, providing the user with a third level entry description – eg Color, and then allowing the user to drill down from first, to second, to third level Dewey Decimal. (3) For example, 700 Arts & Recreation -> 750 Painting -> 752 Color.

9

- Gamification Techniques

(1) A number of gamification techniques have been implemented, including all those described in the research document.

These include:

- o Leaderboards

(1) The user will be able to see the top ten scores (game completion times), as these are saved for signed-in users and stored in the database file. These

(1) scores are then retrieved and displayed on the home screen when the user first loads the application. (Quicksprout, 2016)

- o Challenges

(1) The application has implemented a timer, and difficulty levels. For example,

① the user can set the difficulty to "Easy" which allows the user 60 seconds to complete the ordering / test process. They can set it to "Medium" for 40 seconds, and "Hard" for 30 seconds. This provides different levels of difficulty for the user to complete the ordering in set timeframes. (Quicksprout, 2016)

- o Feedback

① The application displays a timer, and once the timer reaches 10 seconds, it will start to alternate between red and white text color, to indicate that the time is almost finished for the user to complete the ordering. (Laja, n.d.)

- o Rewards

① The application shows the top ten scores on the home screen, and these scores are for logged in users only, as the score is linked to their user account. ① Anonymous users can still use the application without logging in, and will receive their time, however it will not be logged and displayed on the home screen.

① The top three scores will have different colours, much like a podium system, where the top scorer gets their row in gold, second in silver, and third in bronze. ① (Laja, n.d.)

- o Progress

① In addition to the above gamification techniques, the user will be able to view all their personal scores on a grid view, and this will be displayed by highest score first (lowest time taken to complete the ordering). This allows the user to track their progress over time, if they are logged in. (Quicksprout, 2016)

- Restart Training

① Finally, the user will be able to restart their game by pressing the "Restart" button on the "Replace Books" page. This will reset the timer, replace the books with new auto-generated call numbers and authors, and allow them to start the game again.

(The Independent Institute of Education, 2020)

10

① Help File The training application provides numerous functions, which will be described in depth in the following section. The help file has been broken up into multiple sections, describing each page of the desktop application.

#### Home Page

① The application will first load to the home page, as an "Anonymous User". An anonymous user can view all high scores, set difficulty of the game, login, register, and access the "Replace Books" function required for Task 1.

- The high scores will be displayed in a data grid on the right-hand side of the home screen, with scores (time taken to complete the ordering of the books, or categorize the books), usernames, and the date and time that the user took the test.
- The user can access the "Replace Books", "Identify Areas", or "Find Call Numbers" functions, however they will not be able to save their high scores or access their score log without signing in. Therefore, their high score will not be displayed on the home screen.

① • In addition to this, the top three scores are displayed with different background

colours, in order to create a podium-like system. For example, the highest score will be displayed with a gold background, second highest will be displayed with a silver background, and the third will be displayed with a bronze background.

- The user may use button click events to complete the following actions:

- Navigate to the login / registration page,
  - Navigate to the replace books page,
  - Navigate to the identify areas page,
  - Navigate to the view all scores page,
  - Exit the training application,
  - Minimize the window.
- Once the user has logged in, and is no longer an anonymous user, they may select a "View All Scores" button on the home screen, which will display their score log on a data grid.

- ① • The user may select the different score views by selecting the "Set Score View" combo box and choosing a test type.

- The user may also set the game difficulty by selecting the combo box at the bottom of the main page, and from there they can select either "Easy", "Medium", or "Hard", which will set the time limit for the various games.

The login functionality will be described next.

11

#### Login Page

- ① Once the user selects the "Login" button on the home screen, they will be brought to a page

- ① where they can log into an existing account, or register a new account on the system.

The login page provides a number of buttons, and input, including:

- Username input,
  - Password input,
- ① • Register button – brings the user to a registration page,
- Login button – logs the user in,
  - Back button (left arrow at the top left of the screen).

The user can enter their unique credentials, and log into their account. The logged in username at the top left of the screen will be changed to "User: <username>", eg "User: Karl".

- ① Once the user has logged in successfully, they will be brought back to the home page, where they can navigate to all functionality of the application.

The login page validates user accounts, and therefore if the user credentials are incorrect, they will not be logged in, and a generic "Username / Password Incorrect" message will be displayed.

- ① This is a generic message, as to not encourage username harvesting, whereby users attempt to determine valid usernames, if only the password is incorrect – eg the message does not display "Password Incorrect", when a username is in fact valid, however a password is incorrect.

## Register Page

- ① The user can navigate to the register page, once they press the "Register" button on the login page. ① This page allows new users to sign up an account with the system.

A number of buttons and input boxes are displayed on the register page, including:

- Username input,
- Password input,
- ① • Confirm password input,
- Register Account button,
- Back button (left arrow at the top left of the screen).

The user can enter unique credentials on this page, and create a new account with the system. ① If the user enters a username already in use, an error message will be displayed, and password validation ensures both the confirm password and password input boxes contain the same password values.

Once the user enters valid credentials, they can press the "Register Account" button, which will create the account in the database, and navigate the user back to the login page, where they can login with their new details.

12

## Replace Books

- ① This page provides functionality required for replacing books, where the user can:

- View auto-generated Dewey Decimal Call Numbers, which are shown on a data grid on the right of the page. These Dewey Decimal's show the decimal as well as the author.

① Both of these values (decimal, and author) are automatically generated using a custom random generator.

- Re-order the books into their correct order, as the application randomly places books on the "shelf", for example, the Dewey Decimal system requires that all books are ordered by numerical order as well as alphabetically – eg "035.8605 NVG" comes before "035.8605 ZAK" or "035.8605 NVG" comes before "125.8605 ABC".

The user can simply drag and drop rows (books) into the correct order on the "shelf", once they press the "Start" button.

- Start the game by pressing the "Start" button on the bottom left of the page. Once ① started, the timer will start to tick down to show the time remaining. The difficulty ① setting will determine how long the user has to correctly order the books.

In addition to this, the Call Numbers will be generated again, so users cannot determine where the books should be before starting the game, and have the timer tick down.

① • The user may return to the main page by pressing the "Return" button. This will ① cancel the current training session or "game". This score will not be logged, and the user will have to restart the game to start again.

Once the user re-orders all books, they will be navigated to a confirmation page, where they can view time taken to order the books (score in seconds). If they are logged in, this score will be saved in the database, along with the logged in user and time taken of the test.

## Replace Books Confirmation Page

Once the books have been ordered, or the time has run out, the user will be navigated to a

confirmation page, which will either display "The books have been successfully ordered" or "The books have not been successfully ordered".

When the user orders the books in the correct order within the specified timeframe (eg 30 seconds), the time taken to complete the ordering of the books will be displayed.

In addition to showing this information, the following actions can be completed on this page:

- ① • Finish – navigates the user back to the home page.
- View Order – navigates the user to a page where the correct order of the books is displayed, according to the Dewey Decimal System – in numerical and alphabetical order.

13

#### Identify Areas

① This page provides functionality required for identifying areas, where the user can:

- View match the column questions, which have top level (category) call numbers and their descriptions in two list boxes. One list box has the questions, which can contain both descriptions or top-level call numbers. There are 4 questions, and 7 possible answers (4 of which are correct), and are displayed in the second list box.
- The user may start the game, which will allow them to select items from the drop-down lists. ① Once the user presses the "Start" button, they can select a possible

① answer from the right-hand column by selecting the letter associated with the answer (eg A. General Knowledge). ① The questions and answers will be automatically shuffled once the user starts a new game, however there will be 4 correct answers to the questions within the second list box.

• Once all answers have been selected from the drop-down lists, the user may proceed to click "Next", which will check their answers against the model answer. It

① will navigate the user to a confirmation page that will show the time taken to complete the test, how many questions were correctly answered, and also whether the test was completed successfully (whether all answers were correct). This

① information will be stored in a database, which is shown on the leaderboard.

• The user can continue to play another game, with another set of questions and randomly generated answers (with 4 being correct), view the model answer, or finish the game. ① On the confirmation page their score will be presented, along with the time taken to complete the test.

Once the user correctly assigns the descriptions to the categories or vice versa, they will be navigated to the confirmation page described above. If they are logged in, this score will be saved in the database, along with the logged in user, score, and time taken of the test.

#### Identify Areas Confirmation Page

Once the descriptions have been categorized, or the time has run out, the user will be navigated to a confirmation page, which will either display a successful message or unsuccessful message.

- ① In addition to showing this information, the following actions can be completed on this

page:

- ① • Finish – navigates the user back to the home page.
- View Answers – navigates the user to a page where the correct answers can be viewed. ① If the user has not categorized the top-level call numbers correctly, they can then view this model answer after the test has been completed.
- Next – Navigates the user to a new test, so they can continue to play the game until such time as they press the "Finish" button.

14

#### ① Find Call Numbers

This page provides functionality required for finding call numbers, where the user can:

- View the third level description – eg Color, and a set of three incorrect first level call numbers and descriptions, and a further correct call number and description – in this ③ case 700 Arts & Recreation. These four items are displayed in a list box, with their call number followed by their description. A timer will start to tick down from 60, 40, or 30 seconds based on the difficulty setting (which can be set on the home page).
- The game will automatically start when the user presses the "Find Call Numbers" button on the home screen, which will tick the timer down from the defined time limit (according to the difficulty setting, either 60, 30, or 20 seconds). ② The user may select their answer (which at first will be the first level call number and description), ⑥ and then click "Next". If their selection was correct, it will allow them to continue to select the second level call number and description, else it will redirect the user to a page which will show a message indicating that the answer was incorrect. They may click "Next" to continue to a new question, view the correct answers (model ① answer), or click "Finish" to navigate back to the main menu.

If the question was correctly answered (the top-level Dewey Decimal was selected), then the user may continue to select the second and then third level answer, just as they did for the first question. The questions in the list box will be changed to the second level and third level entries as the user progresses through the test.

- ① • Once all answers have been selected from the list box, the user may proceed to click "Finish", which will check their answers against the model answer. It will navigate ① the user to a confirmation page that will show the time taken to complete the test, how many questions were correctly answered, and also whether the test was completed successfully (whether all answers were correct). ② This information will be ① stored in a database, which is shown on the leaderboard.

- The user can continue to play another game, with another set of questions (call numbers / descriptions) and randomly generated answers (with 3 being correct), ① view the model answer, or finish the game. On the confirmation page their score will be presented, along with the time taken to complete the test.

Once the user correctly selects all level one, two, and three call numbers and descriptions,

- ① they will be navigated to the confirmation page described above. If they are logged in, this score will be saved in the database, along with the logged in user, score, and time taken of the test.

#### Find Call Numbers Confirmation Page

① Once all levels have been selected correctly, the time has run out the user will be

Once all levels have been selected correctly, or the time has run out, the user will be navigated to a confirmation page, which will either display a successful message or unsuccessful message.

15

In addition to showing this information, the following actions can be completed on this

page:

• Finish – navigates the user back to the home page.

• View Answers – navigates the user to a page where the correct answers can be viewed. If the user has not selected any level answers correctly, then they can view

this model answer after the test has been completed.

• Next – Navigates the user to a new test, so they can continue to play the game until such time as they press the "Finish" button.

16

Readme Project Title: Dewey Training

Welcome to Dewey Training. This desktop application has been developed for librarians and other users to learn the Dewey Decimal ordering system. The aim of this application is to get librarians and other users of the system to order and manage books efficiently at libraries.

This will improve efficiency, and accuracy of these users, when they replace books on the numerous shelves in a library. In addition to this, the categories of these books can be learnt by taking "Identifying Areas" tests on the application. The application has also made provision for finding specific books on shelves, by implementing a tree structure where a certain number of book categories have been collected and populated into the application, and the user must select the correct call numbers / descriptions for level 1, 2, and 3 of these books by "drilling down" from level 1 through 3.

This application encourages users to improve their book replacement and categorization efficiency, and by extension the learning of the Dewey Decimal system. By implementing

gamification techniques, such as leaderboards, challenges, feedback, rewards, and progress, the user is encouraged to compete with one another, and learn in the process. By tracking

and displaying this information, the user is more likely to see the training software as a game, and therefore compete with one another.

In addition to this, the database will eventually be deployed to an online hosting platform (eg Azure SQL database), so that users on different devices may be able to compete with one another – they will be able to see one single leaderboard across multiple devices.

#### Getting Started

The following steps are required to get the Dewey Training software running on the development environment:

• Open the application source code in Visual Studio

• Set the start-up project to "Dewey Training"

• Run the application on any Windows PC

• Ensure the system is using the dot "." Delimiter for decimals (EN-US)

#### Prerequisites

① There are a few prerequisites required to run the application, including:

- Install the \*latest Visual Studio
- Install prerequisites to run .Net Core 3.1 WPF desktop applications

\*latest Visual Studio as of when the application was developed is: Visual Studio 2019

17

① More detailed specifications are included below

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① Microsoft Visual Studio Enterprise 2019

Version 16.7.2

VisualStudio.16.Release/16.7.2+30413.136

Microsoft .NET Framework

Version 4.8.04084

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Installing

- ①
- Open the application source code in Visual Studio
  - Set the start-up project to "Dewey Training"
  - Run the application on any Windows PC

The development test system has been detailed on the following page.

18

Test System

Development PC

19

Built With

① Visual Studio – The IDE used to develop the desktop application

.NET Core 3.1 – Framework

WPF – Windows Presentation Foundation – Used to design the application in C# and XAML

Models – Used to structure data within the application.

Data Access Layer (DAL) – Assembly used to access the database.

Versioning

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Version 20

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① Authors Karl Dicks – 17667327

Acknowledgments Inspiration: ① Programming 3B POE Question Paper

Demo Video link: <https://youtu.be/FA9n4CgVHz0>

<https://youtu.be/FA9n4CgVHz0>

20

① Screenshots The user interface for Dewey Training desktop application has been designed, and all functionality has been implemented. Below is the interface for my application:

Home Page

① Once the user loads the application for

the first time, they will be presented

with the home screen, and will not be

logged in.

① The user can navigate to the login page, or complete training "games" anonymously, which will not save their scores to the database.

If the user would like to log in, and save their scores to the database, they can log into their account by pressing the "Login" button.

① This action will bring them to the page provided on the following page.

21

### Login

① Once the user navigates to the login page, they can either log in with their previously created account, or register a new account by pressing the "Register" button.

① Once the user registers a new account, they are brought back to the login page, and can enter their account details.

Once the user has pressed login, and the account is valid, they are brought back to the home page.

The register page is shown on the following page.

22

### Register

① Once the user navigates to the register page, they can enter their account details, and press the "Register Account" button to create a new account on the system.

Once the user registers a new account, they are brought back to the login page,

① and can enter their account details.

The register page has input validation, so the passwords must match, and the username cannot be in use by another account.

23

### Replace Books

① The “Replace Books” page can be accessed by pressing the “Replace Books” button on the main menu, which opens a new “game” or training session.

① The replace books training session

works by getting users to re-order the randomly generated call numbers, in numeric and alphabetic order – just like the Dewey Decimal system describes.

Once the user is ready to start the training session, they can press the “Start” button, which will refresh the call numbers and enable dragging of the Dewey decimals on the data grid. Once the order is correct, the user will immediately be navigated to a confirmation page, where they can view the model answer, or return to the main menu.

24

Replace Books

① The user may re-order the books by dragging them across the page (clicking, holding, and moving them), which will allow the books to be re-ordered.

As can be seen on the provided image, the books have been partially ordered, and the timer is ticking down from 60 seconds, as the difficulty level has been set to “Easy” on the home page.

25

Confirmation Page

① As soon as the correct order has been reached (once the call numbers are in their correct order), the user will be navigated to a confirmation page.

Firstly, this page will show whether the user has successfully ordered the books, with a confirmation message, and the time it took them to complete the session.

① This confirmation page also provides

the user with the ability to “View

the user will be able to view.

Order", which allows them to access the model answer for the training session. ① Users can press the "View Order" to view this page.

It also allows them to return to the main menu by pressing the "Finish" button.

① The "View Order" model answer page is shown on the following page.

26

① Correct Book Order

The "View Order" page is provided on the left, which shows the correct order of the Dewey decimal call numbers.

The user may press the "Finish" button to navigate back to the main menu after they have viewed the correct order for the call numbers.

27

Identify Areas

① The identification of areas can be accessed by pressing the "Identify Areas" button on the main menu, which will navigate the user to the provided page.

① This match-the-column training exercise provides the user with 4 randomly picked categories within the Dewey decimal system, and 7 potential answers on the right-hand side.

The user can press "Start", which will randomize the questions and answers again, and will allow the user to select the correct answers from the dropdown boxes in the middle of the page – shown on the following page.

28

Identify Areas

① The user may select the "Start" button, and select all their answers from the dropdown boxes next to each question. For example, the image provided shows the answers to the provided training

session.

① This training system also has gamification techniques implemented, in the form of a countdown timer, and logging of scores, much like the "Replace Books" exercise.

Once columns have been matched, by selecting an answer for each question from the dropdown boxes, the user can select "Next" to navigate the user to the confirmation page.

Input validation has been implemented on this page, so all inputs have to be valid.

① Shown next is the confirmation page.

29

#### Confirmation Page

① Once the user has selected "Next" or the timer has run out, the user will be navigated to a confirmation page, where it will be determined if all answers were correctly answered (the columns were matched correctly).

The user will be presented with the number of correct answers, and time taken to complete the test.

The user can navigate back to the main menu by pressing the "Finish" button, view the model answer by pressing "View Answers", or press "Next" for another "Identifying Areas" training session.

① The model answer page is provided on the following page, where the answers for all questions are provided.

30

#### ① Correct Book Areas

If the user presses the "View Answers"

button, a page with the model answer will be provided, so that the students and librarians can learn from the system, and not only test their knowledge of the Dewey decimal system.

(1) If the user presses the "Return" button, they will be brought back to the confirmation page, where they can continue with another identifying areas session, or finish the game.

31

(1) Find Call Numbers – Level One  
(4) The finding call numbers feature can be accessed by pressing the "Find Call Numbers" button on the main menu, which will navigate the user to the provided page.

A tree data structure allows the user to drill down from level one call number / description to the third level call number / description. The quiz allows users to view a third level description and first level, second level, and then

(1) third level call numbers / descriptions.

Three of which will be incorrect, with one being correct.

(1) The user can press "Next", which will bring the user to the next level, and so forth until the third level has been reached. At any stage if the question is incorrectly answered, then they will be

navigated to a page where a message will be displayed (incorrect selection), and they can start a new test from this

(1) page or view the model answer.

32

(1) Find Call Numbers – Level Two

Once the user has selected the correct first level Dewey Decimal / description, they can then view the second level answer and press "Next", until they reach the third level decimal / description.

If at any point they select an incorrect first / second / third level decimal / description combination, they will be

① navigated to a confirmation page,

where a suitable message will be

displayed for the incorrect selection.

The timer will tick down until the user

has selected an entry and clicked the

"Next" or "Finish" button.

33

① Find Call Numbers – Level Three

Once the user has selected the correct

second level Dewey Decimal /

description, they can then view the

third level answer and press "Finish" to

① complete the test.

If at any point they select an incorrect

first / second / third level decimal /

description combination, they will be

① navigated to a confirmation page,

where a suitable message will be

displayed for the incorrect selection.

The timer will tick down until the user

has selected an entry and clicked the

"Finish" button.

Once finished, the user can view the

model answer, navigate to the home

page, or continue to another question,

which will start a new finding call

numbers test.

34

Confirmation Page

① Once the user has selected "Finish", the

user will be navigated to a confirmation

page, where it will be determined if all

answers were correctly answered (the

levels were correctly selected).

① The user will be presented with the

number of correct answers, and time

taken to complete the test.

The user can navigate back to the main

menu by pressing the "Finish" button,

view the model answer by pressing

"View Answers", or press "Next" for

④ another "Finding Call Numbers"

training session.

① The model answer page is provided on the following page, where the answers for all questions (descriptions) are provided.

35

Correctly Found Call Number

① If the user presses the "View Answers" button, a page with the model answer will be provided, so that the students and librarians can learn from the system, and not only test their knowledge of the Dewey decimal system.

① If the user presses the "Return" button, they will be brought back to the confirmation page, where they can continue with another finding call

① numbers session, or finish the game.

36

① View All Scores – Replacing Books

If the user presses the "View All Scores", a page with all their personal scores will be displayed for both the "Replace Books", and "Identify Areas" training sessions.

① If the user wishes to view scores for the "Identifying Areas" sessions, they can select that option from the dropdown just above the "Return" button, and all their scores for that game / training type will be displayed.

37

① View All Scores – Identifying Areas

If the user selects the dropdown box from above the "Return" button, they are presented with all "game" types, including "Replace Books", "Identify Areas", and "Find Call Numbers".

This can be set on the main menu page as well, where the top ten scores are shown.

① The following image shows the scores for "Identify Areas" training sessions for the logged in user.

This includes the username, score, time taken to complete the test, and the time that the test was taken.

38

④ View All Scores – Finding Call Numbers

① If the user selects the dropdown box from above the "Return" button, they are presented with all "game" types, including "Replace Books", "Identify Areas", and "Find Call Numbers".

This can be set on the main menu page as well, where the top ten scores are shown.

① The following image shows the scores for "Find Call Numbers" training sessions for the logged in user.

This includes the username, score, time taken to complete the test, and the time that the test was taken.

39

① Set Game Difficulty

If the user wishes to change the game difficulty, by reducing the total time that is allowed for each training session, they can set the difficulty – the lowest dropdown element on the provided screenshot.

① This will set the times of the counter to 60 seconds for Easy, 40 seconds for Medium, and 30 seconds for Hard difficulties.

40

① Database Entities The User model defines what is saved for each user in the system. This includes the user id, username, and password.

The Categories model defines what information is stored for each Dewey Decimal category (for Task 2).

The ReplaceScores model defines what is saved for each replace books test score entry in the database, which includes the username of the user who achieved the score, the score value, and the date and

time that the answer was inserted into the

time that the entry was inserted into the

database.

- ① The AreasScores model defines what is saved for each identifying areas test score entry in the database, which includes the username of the user who achieved the score, the time it took to complete the test, the score value, and the date and time that the entry was inserted into the database.

41

**Tree Data Structure** The tree data is stored in a CSV file within the Dewey Training\TreeData directory. This data is pulled into a tree structure within the application, and each delimiter (|, #, etc) denotes a

particular action to take – eg “|” creates a new node, “#” creates a new child node, and so forth.

An example of the contents is provided below:

This data is pulled into

- ③ a tree structure in the application and used to create a multi-level question system.

Each delimiter splits

the string values in a

very specific way as to

create this multi-level

list in the system,

allowing for

comparisons.

42

- ① Use Case Diagram

43

- ① Conclusion In conclusion, this documentation has provided extensive development information in order to detail how and why the Dewey Decimal desktop application was developed in the way

that it was. It described each function of each page within the “Help File” section, and

provided user interface design information within the “Screenshots” section. A “Readme”

- ① section was also included in the document to provide information about the development environment, instructions on how the desktop application should be run, and other such critical information to get the application running on the user’s PC.

Additional information such as all the database entities was provided, in addition to the tree

- ⑦ data file, which detailed how and where data was stored by the application.

- ① In addition to the above, a use case diagram was included, which showed core functionality

or the desktop application from the user's perspective.

During the course of this project, we have learnt how to develop advanced C# desktop applications in the .Net Core 3.1 Framework. We also learnt how to use a Data Access Layer - DAL to access information from a local MDF file, and later on this will be hosted online. In addition to this, we have learnt how to use advanced data structures, including Doubly Linked lists, Dictionaries, Key Value lists, Observable Collections, and Tree Structures, in addition to other datatypes.

This is the final POE project, and therefore feedback has been incorporated into the applications, and research, which can be found in their respective folders in this submission.

44

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Wolfie. (1) (2019, 01 28). Library Background Image by Wolfie. Retrieved from Picsart: <https://picsart.com/i/286394316039201>

#### Source Matches (261)

 My paper	67%
Student paper PROG 3B POE Documentation	Original source PROG 3B TASK 2 Documentation

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 My paper	100%
Student paper Contents Change Log..... .....	Original source Contents Change Log

 My paper	84%
Student paper 1.20 Student Name: Karl Dicks Student Number:	Original source 1.19 Student Name Karl Dicks Student Number

 My paper	100%
Student paper Task 1 Improvements..... .....	Original source Task 1 Improvements

<p><b>(2) My paper</b></p> <p>Student paper Task 2 Improvements..... .....</p> <p>Original source Task 2 Improvements</p>	<p>100%</p> <p>Student paper On start-up, the application shall allow the user to choose between three tasks:</p> <p>Original source On startup, the application shall allow the user to choose between three tasks</p>
<p><b>(3) Student paper</b></p> <p>Student paper Tree Data Structure..... .....</p> <p>Original source a tree structure</p>	<p>72%</p> <p><b>(4) Student paper</b></p> <p>Student paper Finding call numbers.</p> <p>Original source Finding call numbers</p>
<p><b>(1) My paper</b></p> <p>Student paper Use Case Diagram..... .....</p> <p>Original source Use Case Diagram</p>	<p>100%</p> <p><b>(4) Student paper</b></p> <p>Student paper For this first task, only Replacing books will be implemented – disable the other two</p> <p>Original source For this first task, only Replacing books will be implemented – disable the other two options for now</p>
<p><b>(1) My paper</b></p> <p>Student paper Introduction As part of our PROG7312 (3B) module, we were tasked with developing a Dewey Decimal</p> <p>Original source Introduction As part of our PROG7312 (3B) module, we were tasked with developing a Dewey Decimal</p>	<p>100%</p> <p><b>(4) Student paper</b></p> <p>Student paper When the user selects Replacing books, the application shall randomly generate ten</p> <p>Original source When the user selects Replacing books, the application shall randomly generate ten different call numbers, and display them to the user</p>
<p><b>(1) My paper</b></p> <p>Student paper (WPF) in .Net Core 3.1. There were a number of requirements that the application had to perform, which have been implemented in my Task 1, Task 2, and POE project, in accordance with our set question paper.</p> <p>Original source .NET Core 3.1 – Framework number of requirements that the application had to perform, which have been implemented in my Task 1 and 2, and this will be expanded on for the POE project, in accordance with our set question paper</p>	<p>77%</p> <p><b>(5) Student paper</b></p> <p>Student paper The application shall allow the user to reorder the call numbers, and the application shall check whether the user got the ordering right.</p> <p>Original source The application shall allow the user to reorder the call numbers, and the application shall whether the user got the ordering right</p>

<p> Student paper 95%</p> <p>Student paper Implement the gamification feature that you identified to motivate users to keep learning</p> <p>Original source Implement the gamification feature that you identified to motivate users to keep learning</p>	<p> Student paper 94%</p> <p>Student paper A question in this context is defined as the whole matching set, including both columns</p> <p>Original source A question in this context is defined as the whole matching set, including both columns</p>
<p> Student paper 100%</p> <p>Student paper Make use of a list to store the generated call numbers.</p> <p>Original source Make use of a list to store the generated call numbers</p>	<p> Student paper 100%</p> <p>Student paper The user shall be allowed to answer as many questions as they want to.</p> <p>Original source The user shall be allowed to answer as many questions as they want to</p>
<p> Student paper 95%</p> <p>Student paper Choose an appropriate sorting algorithm to sort the call numbers to check the order that the user put them in.</p> <p>Original source Choose an appropriate sorting algorithm to sort the call numbers to check the order that the user put them in</p>	<p> Student paper 88%</p> <p>Student paper The questions should alternate between matching descriptions to call numbers and call numbers to descriptions.</p> <p>Original source The questions should alternate between matching descriptions to call numbers and call numbers to descriptions</p>
<p> Student paper 100%</p> <p>Student paper Enable the Identifying areas task.</p> <p>Original source Enable the Identifying areas task</p>	<p> Student paper 94%</p> <p>Student paper Each question should have four randomly selected items in the first column, and seven possible answers (three of which are incorrect) in the second column.</p> <p>Original source Each question should have four randomly selected items in the first column, and seven possible answers (three of which are incorrect) in the second column</p>
<p> Student paper 92%</p> <p>Student paper When the user chooses the Identifying areas task, they should be presented with a user interface where they will match two columns: call number (top level only) and</p> <p>Original source When the user chooses the Identifying areas task, they should be presented with a user interface where they will match two columns call number (top level only) and description</p>	<p> Student paper 100%</p> <p>Student paper Implement a gamification feature to motivate users to keep using the application. You may use the same one as before or choose to implement a different one.</p> <p>Original source Implement a gamification feature to motivate users to keep using the application You may use the same one as before or choose to implement a different one</p>

<p><b>④ Student paper</b></p> <p>Student paper Store the call numbers and their descriptions in a dictionary.</p> <p>Original source Store the call numbers and their descriptions in a dictionary</p>	<p><b>④ Student paper</b></p> <p>Student paper Enable the Finding call numbers task.</p> <p>Original source Enable the Finding call numbers task</p>
<p><b>② My paper</b></p> <p>Student paper For our POE submission, we were tasked with improving our Task 1 and 2 submission, along</p> <p>Original source For our POE submission, we were tasked with improving our Task 1 research document, and</p>	<p><b>④ Student paper</b></p> <p>Student paper When the user chooses Finding call numbers, the application must load the Dewey Decimal classification data into memory from the file created in step 1.</p> <p>Original source When the user chooses Finding call numbers, the application must load the Dewey Decimal classification data into memory from the file created in step 1</p>
<p><b>④ Student paper</b></p> <p>Student paper In a Word document, create a multilevel list showing the call numbers, for example:</p> <p>Original source In a Word document, create a multilevel list showing the call numbers, for example</p>	<p><b>④ Student paper</b></p> <p>Student paper The quiz must work as follows:</p> <p>Original source The quiz must work as follows</p>
<p><b>③ Student paper</b></p> <p>Student paper • 700 Arts &amp; Recreation o 750 Painting • 751 Techniques, procedures, apparatus, equipment, materials, forms</p> <p>Original source Class 700 – Arts &amp; recreation o 750 Painting - 751 Techniques, procedures, apparatus, equipment, materials, forms</p>	<p><b>④ Student paper</b></p> <p>Student paper For each question, randomly select a third level entry from the data, for</p> <p>Original source For each question, randomly select a third level entry from the data, for example 752 Color</p>
<p><b>④ Student paper</b></p> <p>Student paper Create a file containing the data that was gathered in the research part of this task in</p> <p>Original source Create a file containing the data that was gathered in the research part of this task in a format that can be read by your application</p>	<p><b>⑤ Student paper</b></p> <p>Student paper example 752 Color.</p> <p>Original source Eg) 752 Color</p>
<p><b>④ Student paper</b></p> <p>Student paper Display only the description, not the call number.</p>	<p><b>④ Student paper</b></p> <p>Student paper Display only the description, not the call number</p>

<p><b>4</b> Student paper 66%</p> <p>Student paper</p> <p>Display four top level options to the user to choose between, one of which must be the correct one and the other three randomly selected incorrect</p> <p>Original source</p> <p>Display four top level options to the user to choose between, one of which must be the correct one and the other three randomly selected incorrect answers</p>	<p><b>4</b> Student paper 83%</p> <p>Student paper</p> <p>If the user selects the wrong option anywhere along the way, indicate this</p> <p>Original source</p> <p>If the user selects the wrong option anywhere along the way, indicate this and then ask the next question</p>
<p><b>3</b> Student paper 87%</p> <p>Student paper</p> <p>700 Arts &amp; Recreation</p> <p>Original source</p> <p>Class 700 – Arts &amp; recreation</p>	<p><b>4</b> Student paper 100%</p> <p>Student paper</p> <p>Make use of a tree to store the data in memory.</p> <p>Original source</p> <p>Make use of a tree to store the data in memory</p>
<p><b>4</b> Student paper 100%</p> <p>Student paper</p> <p>For the options, display both the call number and description.</p> <p>Original source</p> <p>For the options, display both the call number and description</p>	<p><b>2</b> My paper 100%</p> <p>Student paper</p> <p>Task 1 Improvements The following feedback was received for my Task 1 submission: I have made the following changes to my Task 1 assignment:</p> <p>Original source</p> <p>Task 1 Improvements The following feedback was received for my Task 1 submission I have made the following changes to my Task 1 assignment</p>
<p><b>4</b> Student paper 91%</p> <p>Student paper</p> <p>options in numerical order by call number.</p> <p>Original source</p> <p>Display the options in numerical order by call number</p>	<p><b>4</b> Student paper 74%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>Motivation for choice of gamification feature has been expanded upon.</li> </ul> <p>Original source</p> <p>Motivation for choice of gamification feature</p>
<p><b>4</b> Student paper 77%</p> <p>Student paper</p> <p>If the user selects the correct option, show them four options from the next</p> <p>Original source</p> <p>If the user selects the correct option, show them four options from the next level, until the most detailed level is reached</p>	<p><b>2</b> My paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>Spelling mistakes corrected.</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>Spelling mistakes corrected</li> </ul>

<p> My paper 100%</p> <p>Student paper</p> <p>The above changes have been made to my Task 1 assignment, in order to update its content and improve it based on lecturer feedback.</p> <p>Original source</p> <p>The above changes have been made to my Task 1 assignment, in order to update its content and improve it based on lecturer feedback</p>	<p> My paper 100%</p> <p>Student paper</p> <p>Debugging has been carried out, in order to address application bugs and issues which were not obvious in Task 2. These issues have since been resolved, and changes have been made for the final POE submission.</p> <p>Original source</p> <p>Debugging has been carried out, in order to address application bugs and issues which were not obvious in Task 2. These issues have since been resolved, and changes have been made for the final POE submission</p>
<p> My paper 74%</p> <p>Student paper</p> <p>Task 2 Improvements The following changes have been made to my Task 2 assignment, in order to improve on the original design, and functionality for the POE submission: The following feedback was received for my Task 2 submission:</p> <p>Original source</p> <p>The following changes have been made to my Task 2 assignment (practical), in order to improve on the original design, and include required features for the POE submission Task 2 Improvements The following feedback was received for my Task 2 submission</p>	<p> My paper 100%</p> <p>Student paper</p> <p>Introduction As part of our PROG7312 (3B) module, we were tasked with developing a Dewey Decimal</p> <p>Original source</p> <p>Introduction As part of our PROG7312 (3B) module, we were tasked with developing a Dewey Decimal</p>
<p> My paper 100%</p> <p>Student paper</p> <p>The above changes have been made to my Task 2 assignment, in order to update its design and functionality based on lecturer feedback.</p> <p>Original source</p> <p>The above changes have been made to my Task 2 assignment, in order to update its design and functionality based on lecturer feedback</p>	<p> My paper 100%</p> <p>Student paper</p> <p>I chose to develop the application in C#, using the Visual Studio 2019 IDE, as we were familiar with this IDE from other programming modules. My application has been built in Windows Presentation Foundation (WPF) in .Net Core 3.1.</p> <p>Original source</p> <p>I chose to develop the application in C#, using the Visual Studio 2019 IDE, as we were familiar with this IDE from other programming modules My application has been built in Windows Presentation Foundation (WPF) in .Net Core 3.1</p>
<p> My paper 100%</p> <p>Student paper</p> <p>Conclusion In conclusion, the above-mentioned changes have been implemented in my Task 1 and Task 2 assignments, in order to improve their quality.</p> <p>Original source</p> <p>Conclusion In conclusion, the above-mentioned changes have been implemented in my Task 1 and Task 2 assignments, in order to improve their quality</p>	<p> My paper 88%</p> <p>Student paper</p> <p>There were a number of requirements that the application had to perform, which have been implemented in my Task 1, Task 2, and POE project, in accordance with our set question</p> <p>Original source</p> <p>There were a number of requirements that the application had to perform, which have been implemented in my Task 1 and 2, and this will be expanded on for the POE project, in</p>

<p> My paper 100%</p> <p>Student paper (The Independent Institute of Education, 2020) The training application allows users to perform multiple actions, including: • Register and login The training application allows the user to register an account with their own</p> <p>Original source (The Independent Institute of Education, 2020) The training application allows users to perform multiple actions, including • Register and login The training application allows the user to register an account with their own</p>	<p> My paper 100%</p> <p>Student paper The application will allow users to order randomly generated Dewey Decimal Call Numbers (10) – including the decimals and authors into the correct order. Once the user correctly orders the call numbers, by dragging the books to their correct order, the user will be automatically navigated to a confirmation page.</p> <p>Original source The application will allow users to order randomly generated Dewey Decimal Call Numbers (10) – including the decimals and authors into the correct order Once the user correctly orders the call numbers, by dragging the books to their correct order, the user will be automatically navigated to a confirmation page</p>
<p> My paper 100%</p> <p>Student paper preferences, and log in. User profiles are stored in a local MSSQL MDF file, along with their scores used by the application. This database can easily be migrated to an</p> <p>Original source preferences, and log in User profiles are stored in a local MSSQL MDF file, along with their scores used by the application This database can easily be migrated to an</p>	<p> My paper 71%</p> <p>Student paper The user may select</p> <p>Original source The user may select the "Start" button,</p>
<p> My paper 100%</p> <p>Student paper online Azure database, so that high scores are accessible by everyone in the library</p> <p>Original source online Azure database, so that high scores are accessible by everyone in the library</p>	<p> My paper 80%</p> <p>Student paper • Find Call Numbers</p> <p>Original source Areas", and "Find Call Numbers"</p>
<p> Student paper 66%</p> <p>Student paper For example, 700 Arts &amp; Recreation -&gt; 750 Painting -&gt;</p>	<p>Original source Class 700 – Arts &amp; recreation o 750 Painting</p>
<p> My paper 100%</p> <p>Student paper A number of gamification techniques have been implemented, including all those described in the research document.</p>	<p>Original source A number of gamification techniques have been implemented, including all those described in the research document</p>

<p> My paper 100%</p> <p>Student paper</p> <p>The user will be able to see the top ten scores (game completion times), as these are saved for signed-in users and stored in the database file.</p> <p>Original source</p> <p>The user will be able to see the top ten scores (game completion times), as these are saved for signed-in users and stored in the database file</p>	<p> My paper 100%</p> <p>Student paper</p> <p>The application displays a timer, and once the timer reaches 10 seconds, it will start to alternate between red and white text color, to indicate that the time is almost finished for the user to complete the ordering. (Laja, n.d.)</p> <p>Original source</p> <p>The application displays a timer, and once the timer reaches 10 seconds, it will start to alternate between red and white text color, to indicate that the time is almost finished for the user to complete the ordering (Laja, n.d.)</p>
<p> My paper 100%</p> <p>Student paper</p> <p>scores are then retrieved and displayed on the home screen when the user first loads the application.</p> <p>Original source</p> <p>scores are then retrieved and displayed on the home screen when the user first loads the application</p>	<p> My paper 100%</p> <p>Student paper</p> <p>The application shows the top ten scores on the home screen, and these scores are for logged in users only, as the score is linked to their user</p> <p>Original source</p> <p>The application shows the top ten scores on the home screen, and these scores are for logged in users only, as the score is linked to their user</p>
<p> My paper 100%</p> <p>Student paper</p> <p>The application has implemented a timer, and difficulty levels.</p> <p>Original source</p> <p>The application has implemented a timer, and difficulty levels</p>	<p> My paper 100%</p> <p>Student paper</p> <p>Anonymous users can still use the application without logging in, and will receive their time, however it will not be logged and displayed on the</p> <p>Original source</p> <p>Anonymous users can still use the application without logging in, and will receive their time, however it will not be logged and displayed on the</p>
<p> My paper 100%</p> <p>Student paper</p> <p>the user can set the difficulty to "Easy" which allows the user 60 seconds to complete the ordering / test process. They can set it to "Medium" for 40 seconds, and "Hard" for 30 seconds.</p> <p>Original source</p> <p>the user can set the difficulty to "Easy" which allows the user 60 seconds to complete the ordering / test process They can set it to "Medium" for 40 seconds, and "Hard" for 30 seconds</p>	<p> My paper 100%</p> <p>Student paper</p> <p>The top three scores will have different colours, much like a podium system, where the top scorer gets their row in gold, second in silver, and third in</p> <p>Original source</p> <p>The top three scores will have different colours, much like a podium system, where the top scorer gets their row in gold, second in silver, and third in</p>
<p> My paper 100%</p> <p>Student paper</p> <p>This provides different levels of difficulty for the user to complete the ordering in set timeframes.</p> <p>Original source</p> <p>This provides different levels of difficulty for the user to complete the ordering in set timeframes</p>	<p> My paper 100%</p> <p>Student paper</p> <p>The top three scores will have different colours, much like a podium system, where the top scorer gets their row in gold, second in silver, and third in</p> <p>Original source</p> <p>The top three scores will have different colours, much like a podium system, where the top scorer gets their row in gold, second in silver, and third in</p>

 My paper	100%
Student paper (Laja, n.d.)	Original source (Laja, n.d.)

 My paper	100%
Student paper (The Independent Institute of Education, 2020)	Original source (The Independent Institute of Education, 2020)

 My paper	100%
Student paper  In addition to the above gamification techniques, the user will be able to view all their personal scores on a grid view, and this will be displayed by highest score first (lowest time taken to complete the ordering). This allows the user	Original source  In addition to the above gamification techniques, the user will be able to view all their personal scores on a grid view, and this will be displayed by highest score first (lowest time taken to complete the ordering) This allows the user

 My paper	100%
Student paper  Help File The training application provides numerous functions, which will be described in depth in the following section. The help file has been broken up into multiple sections, describing each page of the desktop application.	Original source  Help File The training application provides numerous functions, which will be described in depth in the following section The help file has been broken up into multiple sections, describing each page of the desktop application

 My paper	100%
Student paper  to track their progress over time, if they are logged in.	Original source  to track their progress over time, if they are logged in

 My paper	100%
Student paper  The application will first load to the home page, as an "Anonymous User".	Original source  The application will first load to the home page, as an "Anonymous User"

 My paper	100%
Student paper  Finally, the user will be able to restart their game by pressing the "Restart" button on the "Replace Books" page. This will reset the timer, replace the books with new auto-generated call numbers and authors, and allow them to start the game again.	Original source  Finally, the user will be able to restart their game by pressing the "Restart" button on the "Replace Books" page This will reset the timer, replace the books with new auto-generated call numbers and authors, and allow them to start the game again

 My paper	100%
Student paper  user can view all high scores, set difficulty of the game, login, register, and access the "Replace Books" function required for Task 1. • The high scores will be displayed in a data grid on the right-hand side of the home screen, with scores (time taken to complete the ordering of the books, or categorize	Original source  user can view all high scores, set difficulty of the game, login, register, and access the "Replace Books" function required for Task 1 • The high scores will be displayed in a data grid on the right-hand side of the home screen, with scores (time taken to complete the ordering of the books, or categorize

 My paper	100%
Student paper  the books), usernames, and the date and time that the user took the test. • The user can access the "Replace Books", "Identify Areas", or "Find Call Numbers" functions, however they will not be able to save their high scores or access their score log without signing in.	Original source  the books), usernames, and the date and time that the user took the test • The user can access the "Replace Books", "Identify Areas", or "Find Call Numbers" functions, however they will not be able to save their high scores or access their score log without signing in

 My paper	100%
Student paper  o Navigate to the identify areas page, o Navigate to the view all scores page, o Exit the training application, o Minimize the window.	Original source  o Navigate to the identify areas page, o Navigate to the view all scores page, o Exit the training application, o Minimize the window

 My paper	100%
Student paper  Therefore, their high score will not be displayed on the	Original source  Therefore, their high score will not be displayed on the

 My paper	100%
Student paper  • Once the user has logged in, and is no longer an anonymous user, they may select a "View All Scores" button on the home screen, which will display their score log on a	Original source  • Once the user has logged in, and is no longer an anonymous user, they may select a "View All Scores" button on the home screen, which will display their score log on a

 My paper	100%
Student paper  • In addition to this, the top three scores are displayed with different background colours, in order to create a podium-like system. For example, the highest score will be displayed with a gold background, second highest will be displayed with a silver	Original source  • In addition to this, the top three scores are displayed with different background colours, in order to create a podium-like system. For example, the highest score will be displayed with a gold background, second highest will be displayed with a silver

 My paper	100%
Student paper  • The user may select the different score views by selecting the "Set Score View" combo box and choosing a test type. • The user may also set the game difficulty by selecting the combo box at the bottom of the main page, and from there they can select either "Easy", "Medium", or	Original source  • The user may select the different score views by selecting the "Set Score View" combo box and choosing a test type • The user may also set the game difficulty by selecting the combo box at the bottom of the main page, and from there they can select either "Easy", "Medium", or

 My paper	100%
Student paper  background, and the third will be displayed with a bronze background. • The user may use button click events to complete the following actions: o Navigate to the login / registration page, o Navigate to the replace books page,	Original source  background, and the third will be displayed with a bronze background • The user may use button click events to complete the following actions o Navigate to the login / registration page, o Navigate to the replace books page,

 My paper	100%
Student paper  "Hard", which will set the time limit for the various games. The login functionality will be described next.	Original source  "Hard", which will set the time limit for the various games. The login functionality will be described next

<p> My paper 100%</p> <p>Student paper</p> <p>Once the user selects the "Login" button on the home screen, they will be brought to a page where they can log into an existing account, or register a new account on the system. The login page provides a number of buttons, and input, including:</p> <p>Original source</p> <p>Once the user selects the "Login" button on the home screen, they will be brought to a page where they can log into an existing account, or register a new account on the system. The login page provides a number of buttons, and input, including</p>	
<p> My paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• Register button – brings the user to a registration page,</li> <li>• Login button – logs the user in,</li> <li>• Back button (left arrow at the top left of the screen).</li> </ul> <p>The user can enter their unique credentials, and log into their account.</p> <p>Original source</p> <ul style="list-style-type: none"> <li>• Register button – brings the user to a registration page,</li> <li>• Login button – logs the user in,</li> <li>• Back button (left arrow at the top left of the screen)</li> </ul> <p>The user can enter their unique credentials, and log into their account</p>	
<p> My paper 100%</p> <p>Student paper</p> <p>The logged in username at the top left of the screen will be changed to "User: &lt;username&gt;", eg "User:</p> <p>Original source</p> <p>The logged in username at the top left of the screen will be changed to "User &lt;username&gt;", eg "User"</p>	
<p> My paper 100%</p> <p>Student paper</p> <p>The user can navigate to the register page, once they press the "Register" button on the</p> <p>Original source</p> <p>The user can navigate to the register page, once they press the "Register" button on the</p>	

<p> My paper 100%</p> <p>Student paper</p> <p>This page allows new users to sign up an account with the system. A number of buttons and input boxes are displayed on the register page, including:</p> <p>Original source</p> <p>This page allows new users to sign up an account with the system. A number of buttons and input boxes are displayed on the register page, including</p>	<p> My paper 100%</p> <p>Student paper</p> <p>This page provides functionality required for replacing books, where the user can: • View auto-generated Dewey Decimal Call Numbers, which are shown on a data grid on the right of the page. These Dewey Decimal's show the decimal as well as the</p> <p>Original source</p> <p>This page provides functionality required for replacing books, where the user can • View auto-generated Dewey Decimal Call Numbers, which are shown on a data grid on the right of the page. These Dewey Decimal's show the decimal as well as the</p>
<p> My paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• Confirm password input, • Register Account button, • Back button (left arrow at the top left of the screen). The user can enter unique credentials on this page, and create a new account with the</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>• Confirm password input, • Register Account button, • Back button (left arrow at the top left of the screen). The user can enter unique credentials on this page, and create a new account with the</li> </ul>	<p> My paper 100%</p> <p>Student paper</p> <p>Both of these values (decimal, and author) are automatically generated using a custom random generator. • Re-order the books into their correct order, as the application randomly places books on the "shelf", for example, the Dewey Decimal system requires that all books</p> <p>Original source</p> <p>Both of these values (decimal, and author) are automatically generated using a custom random generator • Re-order the books into their correct order, as the application randomly places books on the "shelf", for example, the Dewey Decimal system requires that all books</p>
<p> My paper 100%</p> <p>Student paper</p> <p>If the user enters a username already in use, an error message will be displayed, and password validation ensures both the confirm password and password input boxes contain the same password values. Once the user enters valid credentials, they can press the "Register Account" button, which</p> <p>Original source</p> <p>If the user enters a username already in use, an error message will be displayed, and password validation ensures both the confirm password and password input boxes contain the same password values. Once the user enters valid credentials, they can press the "Register Account" button, which</p>	<p> My paper 100%</p> <p>Student paper</p> <p>are ordered by numerical order as well as alphabetically – eg "035.8605 NVG" comes before "035.8605 ZAK" or "035.8605 NVG" comes before "125.8605 ABC". The user can simply drag and drop rows (books) into the correct order on the "shelf", once they press the "Start" button.</p> <p>Original source</p> <p>are ordered by numerical order as well as alphabetically – eg "035.8605 NVG" comes before "035.8605 ZAK" or "035.8605 NVG" comes before "125.8605 ABC". The user can simply drag and drop rows (books) into the correct order on the "shelf", once they press the "Start" button</p>
<p> My paper 100%</p> <p>Student paper</p> <p>will create the account in the database, and navigate the user back to the login page, where they can login with their new details.</p> <p>Original source</p> <p>will create the account in the database, and navigate the user back to the login page, where they can login with their new details</p>	

<p> My paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>Start the game by pressing the "Start" button on the bottom left of the page.</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>Start the game by pressing the "Start" button on the bottom left of the page</li> </ul>	<p> My paper 100%</p> <p>Student paper</p> <p>cancel the current training session or "game". This score will not be logged, and the user will have to restart the game to start again. Once the user re-orders all books, they will be navigated to a confirmation page, where they</p> <p>Original source</p> <p>cancel the current training session or "game" This score will not be logged, and the user will have to restart the game to start again Once the user re-orders all books, they will be navigated to a confirmation page, where they</p>
<p> My paper 100%</p> <p>Student paper</p> <p>started, the timer will start to tick down to show the time remaining.</p> <p>Original source</p> <p>started, the timer will start to tick down to show the time remaining</p>	
<p> My paper 100%</p> <p>Student paper</p> <p>setting will determine how long the user has to correctly order the books. In addition to this, the Call Numbers will be generated again, so users cannot determine where the books should be before starting the game, and have the timer</p> <p>Original source</p> <p>setting will determine how long the user has to correctly order the books In addition to this, the Call Numbers will be generated again, so users cannot determine where the books should be before starting the game, and have the timer</p>	<p> My paper 100%</p> <p>Student paper</p> <p>can view time taken to order the books (score in seconds). If they are logged in, this score will be saved in the database, along with the logged in user and time taken of the test. Replace Books Confirmation Page</p> <p>Original source</p> <p>can view time taken to order the books (score in seconds) If they are logged in, this score will be saved in the database, along with the logged in user and time taken of the test Replace Books Confirmation Page</p>
<p> My paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>The user may return to the main page by pressing the "Return" button.</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>The user may return to the main page by pressing the "Return" button</li> </ul>	<p> My paper 100%</p> <p>Student paper</p> <p>Once the books have been ordered, or the time has run out, the user will be navigated to a confirmation page, which will either display "The books have been successfully ordered" or "The books have not been successfully ordered". When the user orders the books in the correct order within the specified timeframe (eg 30</p> <p>Original source</p> <p>Once the books have been ordered, or the time has run out, the user will be navigated to a confirmation page, which will either display "The books have been successfully ordered" or "The books have not been successfully ordered" When the user orders the books in the correct order within the specified timeframe (eg 30</p>

<p> My paper 100%</p> <p>Student paper</p> <p>seconds), the time taken to complete the ordering of the books will be displayed. In addition to showing this information, the following actions can be completed on this</p> <p>Original source</p> <p>seconds), the time taken to complete the ordering of the books will be displayed In addition to showing this information, the following actions can be completed on this</p>	<p> My paper 100%</p> <p>Student paper</p> <p>both descriptions or top-level call numbers. There are 4 questions, and 7 possible answers (4 of which are correct), and are displayed in the second list box. • The user may start the game, which will allow them to select items from the drop-</p> <p>Original source</p> <p>both descriptions or top-level call numbers There are 4 questions, and 7 possible answers (4 of which are correct), and are displayed in the second list box • The user may start the game, which will allow them to select items from the drop-</p>
<p> My paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• Finish – navigates the user back to the home page.</li> <li>• View Order – navigates the user to a page where the correct order of the books is displayed, according to the Dewey Decimal System – in numerical and alphabetical</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>• Finish – navigates the user back to the home page</li> <li>• View Order – navigates the user to a page where the correct order of the books is displayed, according to the Dewey Decimal System – in numerical and alphabetical</li> </ul>	<p> My paper 100%</p> <p>Student paper</p> <p>Once the user presses the "Start" button, they can select a possible answer from the right-hand column by selecting the letter associated with the answer (eg A).</p> <p>Original source</p> <p>Once the user presses the "Start" button, they can select a possible answer from the right-hand column by selecting the letter associated with the answer (eg A)</p>
<p> My paper 100%</p> <p>Student paper</p> <p>This page provides functionality required for identifying areas, where the user can:</p> <ul style="list-style-type: none"> <li>• View match the column questions, which have top level (category) call numbers and their descriptions in two list boxes. One list box has the questions, which can contain</li> </ul> <p>Original source</p> <p>This page provides functionality required for identifying areas, where the user can</p> <ul style="list-style-type: none"> <li>• View match the column questions, which have top level (category) call numbers and their descriptions in two list boxes</li> <li>One list box has the questions, which can contain</li> </ul>	<p> My paper 100%</p> <p>Student paper</p> <p>The questions and answers will be automatically shuffled once the user starts a new game, however there will be 4 correct answers to the questions within the second list box.</p> <ul style="list-style-type: none"> <li>• Once all answers have been selected from the drop-down lists, the user may</li> </ul> <p>Original source</p> <p>The questions and answers will be automatically shuffled once the user starts a new game, however there will be 4 correct answers to the questions within the second list box</p> <ul style="list-style-type: none"> <li>• Once all answers have been selected from the drop-down lists, the user may</li> </ul>
<p> My paper 100%</p> <p>Student paper</p> <p>proceed to click "Next", which will check their answers against the model answer.</p>	<p>Original source</p> <p>proceed to click "Next", which will check their answers against the model answer</p>

<p> My paper</p> <p>Student paper</p> <p>will navigate the user to a confirmation page that will show the time taken to complete the test, how many questions were correctly answered, and also whether the test was completed successfully (whether all answers were correct).</p> <p>Original source</p> <p>will navigate the user to a confirmation page that will show the time taken to complete the test, how many questions were correctly answered, and also whether the test was completed successfully (whether all answers were correct)</p>	<p>100%</p> <p>If they are logged in, this score will be saved in the database, along with the logged in user, score, and time taken of the test. Identify Areas Confirmation Page Once the descriptions have been categorized, or the time has run out, the user will be</p> <p>Original source</p> <p>If they are logged in, this score will be saved in the database, along with the logged in user, score, and time taken of the test Identify Areas Confirmation Page Once the descriptions have been categorized, or the time has run out, the user will be</p>
<p> My paper</p> <p>Student paper</p> <p>information will be stored in a database, which is shown on the leaderboard. • The user can continue to play another game, with another set of questions and randomly generated answers (with 4 being correct), view the model answer, or finish</p> <p>Original source</p> <p>information will be stored in a database, which is shown on the leaderboard • The user can continue to play another game, with another set of questions and randomly generated answers (with 4 being correct), view the model answer, or finish</p>	<p>100%</p> <p>navigated to a confirmation page, which will either display a successful message or</p> <p>Original source</p> <p>navigated to a confirmation page, which will either display a successful message or</p>
<p> My paper</p> <p>Student paper</p> <p>On the confirmation page their score will be presented, along with the time taken to complete the test. Once the user correctly assigns the descriptions to the categories or vice versa, they will be navigated to the confirmation page described above.</p> <p>Original source</p> <p>On the confirmation page their score will be presented, along with the time taken to complete the test Once the user correctly assigns the descriptions to the categories or vice versa, they will be navigated to the confirmation page described above</p>	<p>100%</p> <p>In addition to showing this information, the following actions can be completed on this</p> <p>Original source</p> <p>In addition to showing this information, the following actions can be completed on this</p>
<p> My paper</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• Finish – navigates the user back to the home page.</li> <li>• View Answers – navigates the user to a page where the correct answers can be</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>• Finish – navigates the user back to the home page</li> <li>• View Answers – navigates the user to a page where the correct answers can be</li> </ul>	<p>100%</p> <p>Original source</p> <ul style="list-style-type: none"> <li>• Finish – navigates the user back to the home page</li> <li>• View Answers – navigates the user to a page where the correct answers can be</li> </ul>

<p><b>1</b> My paper</p> <p>Student paper</p> <p>If the user has not categorized the top-level call numbers correctly, they can then view this model answer after the test has been completed. • Next – Navigates the user to a new test, so they can continue to play the game until such time as they press the "Finish" button.</p>	<p>Original source</p> <p>If the user has not categorized the top-level call numbers correctly, they can then view this model answer after the test has been completed. • Next – Navigates the user to a new test, so they can continue to play the game until such time as they press the "Finish" button</p>
<p><b>1</b> My paper</p> <p>Student paper</p> <p>Find Call Numbers This page provides functionality required for finding call numbers, where the user can:</p>	<p>Original source</p> <p>Areas", and "Find Call Numbers" This page provides functionality required for identifying areas, where the user can</p>
<p><b>3</b> Student paper</p> <p>Student paper</p> <p>case 700 Arts &amp; Recreation.</p>	<p>Original source</p> <p>Class 700 – Arts &amp; recreation</p>
<p><b>2</b> My paper</p> <p>Student paper</p> <p>The user may</p>	<p>Original source</p> <p>The user may</p>
<p><b>6</b> tutorialspoint</p> <p>Student paper</p> <p>and then click "Next".</p>	<p>Original source</p> <p>Click on Next</p>
	<p>Original source</p> <p>information will be stored in a database, which is shown on the leaderboard. • The user can continue to play another game, with another set of questions (call</p>

<p> My paper</p> <p>Student paper</p> <p>view the model answer, or finish the game. On the confirmation page their score will be presented, along with the time taken to complete the test.</p> <p>Original source</p> <p>view the model answer, or return to On the confirmation page their score will be presented, along with the time taken to complete the test</p>	<p>70%</p> <p> My paper</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• Finish – navigates the user back to the home page.</li> <li>• View Answers – navigates the user to a page where the correct answers can be</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>• Finish – navigates the user back to the home page</li> <li>• View Answers – navigates the user to a page where the correct answers can be</li> </ul>
<p> My paper</p> <p>Student paper</p> <p>they will be navigated to the confirmation page described above. If they are logged in, this score will be saved in the database, along with the logged in user, score, and time taken of</p> <p>Original source</p> <p>navigated to the confirmation page described above If they are logged in, this score will be saved in the database, along with the logged in user and time taken of the test</p>	<p>85%</p> <p> My paper</p> <p>Student paper</p> <p>this model answer after the test has been completed.</p> <ul style="list-style-type: none"> <li>• Next – Navigates the user to a new test, so they can continue to play the game until such time as they press the "Finish" button.</li> </ul> <p>Original source</p> <p>then view this model answer after the test has been completed</p> <ul style="list-style-type: none"> <li>• Next – Navigates the user to a new test, so they can continue to play the game until such time as they press the "Finish" button</li> </ul>
<p> My paper</p> <p>Student paper</p> <p>Once all levels have been selected correctly, or the time has run out, the user will be navigated to a confirmation page, which will either display a successful message or</p> <p>Original source</p> <p>Once the descriptions have been categorized, or the time has run out, the user will be navigated to a confirmation page, which will either display a successful message or</p>	<p>86%</p> <p> My paper</p> <p>Student paper</p> <p>Readme Project Title:</p> <p>Original source</p> <p>Readme Project Title</p>
<p> My paper</p> <p>Student paper</p> <p>In addition to showing this information, the following actions can be completed on this</p> <p>Original source</p> <p>In addition to showing this information, the following actions can be completed on this</p>	<p>100%</p> <p> My paper</p> <p>Student paper</p> <p>Welcome to Dewey Training. This desktop application has been developed for librarians and other users to learn the Dewey Decimal ordering system. The aim of this application is to get</p> <p>Original source</p> <p>Welcome to Dewey Training This new desktop application has been developed for librarians and other users to learn the Dewey Decimal ordering system The aim of this application is</p>

<p> My paper</p> <p>Student paper</p> <p>librarians and other users of the system to order and manage books efficiently at libraries. This will improve efficiency, and accuracy of these users, when they replace books on the numerous shelves in a library. In addition to this, the categories of these books can be learnt</p> <p>Original source</p> <p>to get librarians and other users of the system to order and manage books efficiently at This would improve efficiency, and accuracy of these users, when they replace books on the numerous shelves in a library In addition to this, the categories of these books</p>	<p>84%</p>	<p> My paper</p> <p>Student paper</p> <p>and displaying this information, the user is more likely to see the training software as a game, and therefore compete with one another. In addition to this, the database will eventually be deployed to an online hosting platform (eg Azure SQL database), so that users on different devices may be able to compete with</p> <p>Original source</p> <p>and displaying this information, the user is more likely to see the training software as a game, and therefore compete with one another In addition to this, the database will eventually be deployed to an online hosting platform (eg Azure SQL database), so that users on different devices may be able to compete with</p>	<p>100%</p>
<p> My paper</p> <p>Student paper</p> <p>by taking "Identifying Areas" tests on the application.</p> <p>Original source</p> <p>can be learnt by taking "Identifying Areas" tests on the application</p>	<p>83%</p>	<p> My paper</p> <p>Student paper</p> <p>one another - they will be able to see one single leaderboard across multiple devices.</p> <p>Original source</p> <p>one another - they will be able to see one single leaderboard across multiple devices</p>	<p>100%</p>
<p> My paper</p> <p>Student paper</p> <p>This application encourages users to improve their book replacement and categorization efficiency, and by extension the learning of the Dewey Decimal system.</p> <p>Original source</p> <p>This application encourages users to improve their book replacement and categorization efficiency, and by extension the learning of the Dewey Decimal system</p>	<p>100%</p>	<p> My paper</p> <p>Student paper</p> <p>The following steps are required to get the Dewey Training software running on the</p> <p>Original source</p> <p>The following steps are required to get the Dewey Training software running on the</p>	<p>100%</p>
<p> My paper</p> <p>Student paper</p> <p>gamification techniques, such as leaderboards, challenges, feedback, rewards, and progress, the user is encouraged to compete with one another, and learn in the process.</p> <p>Original source</p> <p>gamification techniques, such as leaderboards, challenges, feedback, rewards, and progress, the user is encouraged to compete with one another, and learn in the process</p>	<p>100%</p>	<p> My paper</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• Open the application source code in Visual Studio • Set the start-up project to "Dewey Training" • Run the application on any Windows PC • Ensure the system is using the dot "." Delimiter for decimals (EN-US)</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>• Open the application source code in Visual Studio • Set the start-up project to "Dewey Training" • Run the application on any Windows PC • Ensure the system is using the dot "." Delimiter for decimals (EN-US)</li> </ul>	<p>100%</p>

 My paper	100%
<p>Student paper</p> <p>There are a few prerequisites required to run the application, including:</p> <ul style="list-style-type: none"> <li>• Install the *latest Visual Studio • Install prerequisites to run .Net Core 3.1 WPF desktop applications</li> <li>*latest Visual Studio as of when the application was developed is:</li> </ul>	<p>Original source</p> <p>There are a few prerequisites required to run the application, including</p> <ul style="list-style-type: none"> <li>• Install the *latest Visual Studio • Install prerequisites to run .Net Core 3.1 WPF desktop applications</li> <li>*latest Visual Studio as of when the application was developed is</li> </ul>

 My paper	100%
<p>Student paper</p> <ul style="list-style-type: none"> <li>• Open the application source code in Visual Studio • Set the start-up project to "Dewey Training" • Run the application on any Windows PC The development test system has been detailed on the following page.</li> </ul>	<p>Original source</p> <ul style="list-style-type: none"> <li>• Open the application source code in Visual Studio • Set the start-up project to "Dewey Training" • Run the application on any Windows PC The development test system has been detailed on the following page</li> </ul>

 My paper	100%
<p>Student paper</p> <p>Visual Studio 2019</p>	<p>Original source</p> <p>Visual Studio 2019</p>

 My paper	100%
<p>Student paper</p> <p>Visual Studio – The IDE used to develop the desktop application .NET Core 3.1 – Framework WPF – Windows Presentation Foundation – Used to design the application in C# and XAML Models – Used to structure data within the application.</p>	<p>Original source</p> <p>Visual Studio – The IDE used to develop the desktop application .NET Core 3.1 – Framework WPF – Windows Presentation Foundation – Used to design the application in C# and XAML Models – Used to structure data within the application</p>

 My paper	100%
<p>Student paper</p> <p>More detailed specifications are included below</p>	<p>Original source</p> <p>More detailed specifications are included below</p>

 My paper	100%
<p>Student paper</p> <p>Data Access Layer (DAL) – Assembly used to access the database.</p>	<p>Original source</p> <p>Data Access Layer (DAL) – Assembly used to access the database</p>

 My paper	100%
<p>Student paper</p> <p>Microsoft Visual Studio Enterprise 2019 Version 16.7.2 VisualStudio.16.Release/16.7.2+30413.1 36 Microsoft .NET Framework</p>	<p>Original source</p> <p>Microsoft Visual Studio Enterprise 2019 Version 16.7.2 VisualStudio.16.Release/16.7.2+30413.1 36 Microsoft .NET Framework</p>

 My paper	100%
<p>Student paper</p> <p>Authors Karl Dicks – 17667327</p>	<p>Original source</p> <p>Authors Karl Dicks – 17667327</p>

 My paper	100%
<p>Student paper</p> <p>Version 4.8.04084</p>	<p>Original source</p> <p>Version 4.8.04084</p>

<p> My paper 84%</p> <p>Student paper Programming 3B POE Question Paper Demo Video link: <a href="https://youtu.be/FA9n4CgVHz0">https://youtu.be/FA9n4CgVHz0</a> <a href="https://youtu.be/FA9n4CgVHz0">https://youtu.be/FA9n4CgVHz0</a></p> <p>Original source Programming 3B POE Question Paper Demo Video link <a href="https://youtu.be/LSJ31PAsVko">https://youtu.be/LSJ31PAsVko</a> <a href="https://youtu.be/LSJ31PAsVko">https://youtu.be/LSJ31PAsVko</a></p>	<p> My paper 100%</p> <p>Student paper If the user would like to log in, and save their scores to the database, they can log into their account by pressing the</p> <p>Original source If the user would like to log in, and save their scores to the database, they can log into their account by pressing the</p>
<p> My paper 100%</p> <p>Student paper Screenshots The user interface for Dewey Training desktop application has been designed, and all functionality has been implemented. Below is the interface for my application:</p> <p>Original source Screenshots The user interface for Dewey Training desktop application has been designed, and all functionality has been implemented. Below is the interface for my application</p>	<p> My paper 100%</p> <p>Student paper This action will bring them to the page provided on the following page.</p> <p>Original source This action will bring them to the page provided on the following page</p>
<p> My paper 100%</p> <p>Student paper Once the user loads the application for the first time, they will be presented with the home screen, and will not be</p> <p>Original source Once the user loads the application for the first time, they will be presented with the home screen, and will not be</p>	<p> My paper 100%</p> <p>Student paper Once the user navigates to the login page, they can either log in with their previously created account, or register a new account by pressing the</p> <p>Original source Once the user navigates to the login page, they can either log in with their previously created account, or register a new account by pressing the</p>
<p> My paper 100%</p> <p>Student paper The user can navigate to the login page, or complete training "games" anonymously, which will not save their scores to the database.</p> <p>Original source The user can navigate to the login page, or complete training "games" anonymously, which will not save their scores to the database</p>	<p> My paper 100%</p> <p>Student paper Once the user registers a new account, they are brought back to the login page, and can enter their account details. Once the user has pressed login, and</p> <p>Original source Once the user registers a new account, they are brought back to the login page, and can enter their account details Once the user has pressed login, and</p>
<p> My paper 100%</p> <p>Student paper the account is valid, they are brought back to the home page. The register page is shown on the</p> <p>Original source the account is valid, they are brought back to the home page. The register page is shown on the</p>	<p> My paper 100%</p> <p>Student paper the account is valid, they are brought back to the home page. The register page is shown on the</p> <p>Original source the account is valid, they are brought back to the home page. The register page is shown on the</p>

<p> My paper 100%</p> <p>Student paper</p> <p>Once the user navigates to the register page, they can enter their account details, and press the "Register Account" button to create a new</p> <p>Original source</p> <p>Once the user navigates to the register page, they can enter their account details, and press the "Register Account" button to create a new</p>	<p> My paper 100%</p> <p>Student paper</p> <p>The replace books training session works by getting users to re-order the randomly generated call numbers, in numeric and alphabetic order – just like</p> <p>Original source</p> <p>The replace books training session works by getting users to re-order the randomly generated call numbers, in numeric and alphabetic order – just like</p>
<p> My paper 100%</p> <p>Student paper</p> <p>account on the system. Once the user registers a new account, they are brought back to the login page, and can enter their account details.</p> <p>Original source</p> <p>account on the system Once the user registers a new account, they are brought back to the login page, and can enter their account details</p>	<p> My paper 100%</p> <p>Student paper</p> <p>the Dewey Decimal system describes. Once the user is ready to start the training session, they can press the "Start" button, which will refresh the</p> <p>Original source</p> <p>the Dewey Decimal system describes Once the user is ready to start the training session, they can press the "Start" button, which will refresh the</p>
<p> My paper 100%</p> <p>Student paper</p> <p>The register page has input validation, so the passwords must match, and the username cannot be in use by another</p> <p>Original source</p> <p>The register page has input validation, so the passwords must match, and the username cannot be in use by another</p>	<p> My paper 100%</p> <p>Student paper</p> <p>call numbers and enable dragging of the Dewey decimals on the data grid. Once the order is correct, the user will immediately be navigated to a</p> <p>Original source</p> <p>call numbers and enable dragging of the Dewey decimals on the data grid Once the order is correct, the user will immediately be navigated to a</p>
<p> My paper 100%</p> <p>Student paper</p> <p>The "Replace Books" page can be accessed by pressing the "Replace Books" button on the main menu, which opens a new "game" or training</p> <p>Original source</p> <p>The "Replace Books" page can be accessed by pressing the "Replace Books" button on the main menu, which opens a new "game" or training</p>	<p> My paper 100%</p> <p>Student paper</p> <p>confirmation page, where they can view the model answer, or return to the main menu.</p> <p>Original source</p> <p>confirmation page, where they can view the model answer, or return to the main menu</p>

<p> My paper 100%</p> <p>Student paper</p> <p>The user may re-order the books by dragging them across the page (clicking, holding, and moving them), which will allow the books to be re-ordered.</p> <p>Original source</p> <p>The user may re-order the books by dragging them across the page (clicking, holding, and moving them), which will allow the books to be re-ordered</p>	<p> My paper 100%</p> <p>Student paper</p> <p>This confirmation page also provides the user with the ability to "View Order", which allows them to access the model answer for the training</p> <p>Original source</p> <p>This confirmation page also provides the user with the ability to "View Order", which allows them to access the model answer for the training</p>
<p> My paper 100%</p> <p>Student paper</p> <p>As can be seen on the provided image, the books have been partially ordered, and the timer is ticking down from 60 seconds, as the difficulty level has been</p> <p>Original source</p> <p>As can be seen on the provided image, the books have been partially ordered, and the timer is ticking down from 60 seconds, as the difficulty level has been</p>	<p> My paper 100%</p> <p>Student paper</p> <p>Users can press the "View Order" to view this page. It also allows them to return to the main menu by pressing the "Finish"</p> <p>Original source</p> <p>Users can press the "View Order" to view this page. It also allows them to return to the main menu by pressing the "Finish"</p>
<p> My paper 100%</p> <p>Student paper</p> <p>set to "Easy" on the home page.</p> <p>Original source</p> <p>set to "Easy" on the home page</p>	<p> My paper 100%</p> <p>Student paper</p> <p>The "View Order" model answer page is shown on the following page.</p> <p>Original source</p> <p>The "View Order" model answer page is shown on the following page</p>
<p> My paper 100%</p> <p>Student paper</p> <p>As soon as the correct order has been reached (once the call numbers are in their correct order), the user will be navigated to a confirmation page.</p> <p>Original source</p> <p>As soon as the correct order has been reached (once the call numbers are in their correct order), the user will be navigated to a confirmation page</p>	<p> My paper 100%</p> <p>Student paper</p> <p>Correct Book Order The "View Order" page is provided on the left, which shows the correct order of the Dewey decimal call numbers.</p> <p>Original source</p> <p>Correct Book Order The "View Order" page is provided on the left, which shows the correct order of the Dewey decimal call numbers</p>
<p> My paper 100%</p> <p>Student paper</p> <p>Firstly, this page will show whether the user has successfully ordered the books, with a confirmation message, and the time it took them to complete</p> <p>Original source</p> <p>Firstly, this page will show whether the user has successfully ordered the books, with a confirmation message, and the time it took them to complete</p>	<p> My paper 100%</p> <p>Student paper</p> <p>The user may press the "Finish" button to navigate back to the main menu after they have viewed the correct order for the call numbers.</p> <p>Original source</p> <p>The user may press the "Finish" button to navigate back to the main menu after they have viewed the correct order for the call numbers</p>

<p> My paper 100%</p> <p>Student paper The identification of areas can be accessed by pressing the "Identify Areas" button on the main menu, which will navigate the user to the</p> <p>Original source The identification of areas can be accessed by pressing the "Identify Areas" button on the main menu, which will navigate the user to the</p>	<p> My paper 100%</p> <p>Student paper The user may select the "Start" button, and select all their answers from the dropdown boxes next to each question. For example, the image provided shows</p> <p>Original source The user may select the "Start" button, and select all their answers from the dropdown boxes next to each question. For example, the image provided shows</p>
<p> My paper 100%</p> <p>Student paper This match-the-column training exercise provides the user with 4 randomly picked categories within the Dewey decimal system, and 7 potential</p> <p>Original source This match-the-column training exercise provides the user with 4 randomly picked categories within the Dewey decimal system, and 7 potential</p>	<p> My paper 100%</p> <p>Student paper the answers to the provided training</p> <p>Original source the answers to the provided training</p>
<p> My paper 100%</p> <p>Student paper answers on the right-hand side. The user can press "Start", which will randomize the questions and answers again, and will allow the user to select</p> <p>Original source answers on the right-hand side. The user can press "Start", which will randomize the questions and answers again, and will allow the user to select</p>	<p> My paper 100%</p> <p>Student paper This training system also has gamification techniques implemented, in the form of a countdown timer, and logging of scores, much like the</p> <p>Original source This training system also has gamification techniques implemented, in the form of a countdown timer, and logging of scores, much like the</p>
<p> My paper 100%</p> <p>Student paper the correct answers from the dropdown boxes in the middle of the page – shown on the following page.</p> <p>Original source the correct answers from the dropdown boxes in the middle of the page – shown on the following page</p>	<p> My paper 100%</p> <p>Student paper "Replace Books" exercise. Once columns have been matched, by selecting an answer for each question from the dropdown boxes, the user can</p> <p>Original source "Replace Books" exercise Once columns have been matched, by selecting an answer for each question from the dropdown boxes, the user can</p>
<p> My paper 100%</p> <p>Student paper select "Next" to navigate the user to the confirmation page. Input validation has been implemented on this page, so all inputs have to be</p> <p>Original source select "Next" to navigate the user to the confirmation page. Input validation has been implemented on this page, so all inputs have to be</p>	

 My paper	100%
Student paper Shown next is the confirmation page.	Original source Shown next is the confirmation page

 My paper	100%
Student paper The model answer page is provided on the following page, where the answers for all questions are provided.	Original source The model answer page is provided on the following page, where the answers for all questions are provided

 My paper	100%
Student paper Once the user has selected "Next" or the timer has run out, the user will be navigated to a confirmation page, where it will be determined if all	Original source Once the user has selected "Next" or the timer has run out, the user will be navigated to a confirmation page where it will be determined if all

 My paper	100%
Student paper Correct Book Areas If the user presses the "View Answers" button, a page with the model answer will be provided, so that the students	Original source Correct Book Areas If the user presses the "View Answers" button, a page with the model answer will be provided, so that the students

 My paper	100%
Student paper answers were correctly answered (the columns were matched correctly). The user will be presented with the number of correct answers, and time	Original source answers were correctly answered (the columns were matched correctly) The user will be presented with the number of correct answers, and time

 My paper	100%
Student paper and librarians can learn from the system, and not only test their knowledge of the Dewey decimal	Original source and librarians can learn from the system, and not only test their knowledge of the Dewey decimal

 My paper	100%
Student paper taken to complete the test. The user can navigate back to the main menu by pressing the "Finish" button, view the model answer by pressing	Original source taken to complete the test. The user can navigate back to the main menu by pressing the "Finish" button, view the model answer by pressing

 My paper	100%
Student paper If the user presses the "Return" button, they will be brought back to the confirmation page, where they can continue with another identifying areas	Original source If the user presses the "Return" button, they will be brought back to the confirmation page, where they can continue with another identifying areas

 My paper	100%
Student paper "View Answers", or press "Next" for another "Identifying Areas" training	Original source "View Answers", or press "Next" for another "Identifying Areas" training

 My paper	100%
Student paper session, or finish the game.	Original source session, or finish the game

<p> My paper 64%</p> <p>Student paper Find Call Numbers – Level One</p> <p>Original source Areas", and "Find Call Numbers"</p>	<p> My paper 68%</p> <p>Student paper Find Call Numbers – Level Two Once the user has selected the correct</p> <p>Original source Areas", and "Find Call Numbers" Once the user has selected "Next" or</p>
<p> Student paper 68%</p> <p>Student paper The finding call numbers feature can be</p> <p>Original source Finding call numbers</p>	<p> My paper 100%</p> <p>Student paper navigated to a confirmation page,</p> <p>Original source navigated to a confirmation page</p>
<p> My paper 81%</p> <p>Student paper accessed by pressing the "Find Call Numbers" button on the main menu, which will navigate the user to the</p> <p>Original source accessed by pressing the "Identify Areas" button on the main menu, which will navigate the user to the</p>	<p> My paper 68%</p> <p>Student paper Find Call Numbers – Level Three Once the user has selected the correct</p> <p>Original source Areas", and "Find Call Numbers" Once the user has selected "Next" or</p>
<p> My paper 69%</p> <p>Student paper third level call numbers / descriptions.</p> <p>Original source both descriptions or top-level call numbers</p>	<p> My paper 73%</p> <p>Student paper complete the test.</p> <p>Original source taken to complete the test</p>
<p> My paper 79%</p> <p>Student paper The user can press "Next", which will</p> <p>Original source The user can press "Start", which will</p>	<p> My paper 100%</p> <p>Student paper navigated to a confirmation page,</p> <p>Original source navigated to a confirmation page</p>
<p> My paper 78%</p> <p>Student paper page or view the model answer.</p> <p>Original source The "View Order" model answer page is</p>	<p> My paper 83%</p> <p>Student paper Once the user has selected "Finish", the user will be navigated to a confirmation page, where it will be determined if all answers were correctly answered (the</p> <p>Original source Once the user has selected "Next" or correct order, the user will be automatically navigated to a confirmation page where it will be determined if all answers were correctly answered (the</p>

 My paper	100%
Student paper  The user will be presented with the number of correct answers, and time taken to complete the test. The user can navigate back to the main	Original source  The user will be presented with the number of correct answers, and time taken to complete the test. The user can navigate back to the main

 My paper	100%
Student paper  system, and not only test their knowledge of the Dewey decimal	Original source  system, and not only test their knowledge of the Dewey decimal

 My paper	100%
Student paper  menu by pressing the "Finish" button, view the model answer by pressing "View Answers", or press "Next" for	Original source  menu by pressing the "Finish" button, view the model answer by pressing "View Answers", or press "Next" for

 My paper	100%
Student paper  If the user presses the "Return" button, they will be brought back to the confirmation page, where they can	Original source  If the user presses the "Return" button, they will be brought back to the confirmation page, where they can

 Student paper	86%
Student paper  another "Finding Call Numbers"	Original source  Finding call numbers

 My paper	88%
Student paper  numbers session, or finish the game.	Original source  session, or finish the game

 My paper	89%
Student paper  The model answer page is provided on the following page, where the answers for all questions (descriptions) are	Original source  The model answer page is provided on the following page, where the answers for all questions are provided

 My paper	100%
Student paper  View All Scores – Replacing Books If the user presses the "View All Scores", a page with all their personal scores will be displayed for both the	Original source  View All Scores – Replacing Books If the user presses the "View All Scores", a page with all their personal scores will be displayed for both the

 My paper	100%
Student paper  If the user presses the "View Answers" button, a page with the model answer will be provided, so that the students and librarians can learn from the	Original source  If the user presses the "View Answers" button, a page with the model answer will be provided, so that the students and librarians can learn from the

 My paper	100%
Student paper  "Replace Books", and "Identify Areas"	Original source  "Replace Books", and "Identify Areas"

<p><b>1</b> My paper 100%</p> <p>Student paper</p> <p>If the user wishes to view scores for the "Identifying Areas" sessions, they can select that option from the dropdown just above the "Return" button, and all</p> <p>Original source</p> <p>If the user wishes to view scores for the "Identifying Areas" sessions, they can select that option from the dropdown just above the "Return" button, and all</p>	<p><b>1</b> My paper 100%</p> <p>Student paper taken to complete the test, and the time that the test was taken.</p> <p>Original source taken to complete the test, and the time that the test was taken</p>
<p><b>1</b> My paper 100%</p> <p>Student paper their scores for that game / training type will be displayed.</p> <p>Original source their scores for that game / training type will be displayed</p>	<p><b>4</b> Student paper 65%</p> <p>Student paper</p> <p>View All Scores – Finding Call Numbers</p> <p>Original source</p> <p>Finding call numbers</p>
<p><b>1</b> My paper 100%</p> <p>Student paper</p> <p>View All Scores – Identifying Areas If the user selects the dropdown box from above the "Return" button, they are presented with all "game" types, including "Replace Books", "Identify</p> <p>Original source</p> <p>View All Scores – Identifying Areas If the user selects the dropdown box from above the "Return" button, they are presented with all "game" types,</p>	<p><b>1</b> My paper 100%</p> <p>Student paper</p> <p>If the user selects the dropdown box from above the "Return" button, they are presented with all "game" types, including "Replace Books", "Identify</p> <p>Original source</p> <p>If the user selects the dropdown box from above the "Return" button, they are presented with all "game" types, including "Replace Books", "Identify</p>
<p><b>1</b> My paper 100%</p> <p>Student paper including "Replace Books", "Identify Areas", and "Find Call Numbers". This can be set on the main menu page as well, where the top ten scores are</p> <p>Original source including "Replace Books", "Identify Areas", and "Find Call Numbers" This can be set on the main menu page as well, where the top ten scores are</p>	<p><b>1</b> My paper 100%</p> <p>Student paper Areas", and "Find Call Numbers". This can be set on the main menu page as well, where the top ten scores are</p> <p>Original source Areas", and "Find Call Numbers" This can be set on the main menu page as well, where the top ten scores are</p>
<p><b>1</b> My paper 100%</p> <p>Student paper The following image shows the scores for "Identify Areas" training sessions for the logged in user. This includes the username, score, time</p> <p>Original source The following image shows the scores for "Identify Areas" training sessions for the logged in user This includes the username, score, time</p>	<p><b>1</b> My paper 84%</p> <p>Student paper The following image shows the scores for "Find Call Numbers" training sessions for the logged in user. This includes the username, score, time</p> <p>Original source The following image shows the scores for "Find Call Numbers" the logged in user This includes the username, score, time</p>

<p> My paper 100%</p> <p>Student paper taken to complete the test, and the time that the test was taken.</p> <p>Original source taken to complete the test, and the time that the test was taken</p>	<p> My paper 100%</p> <p>Student paper The Categories model defines what information is stored for each Dewey Decimal category (for Task 2). The ReplaceScores model defines what is</p> <p>Original source The Categories model defines what information is stored for each Dewey Decimal category (for Task 2) The ReplaceScores model defines what is</p>
<p> My paper 100%</p> <p>Student paper Set Game Difficulty If the user wishes to change the game difficulty, by reducing the total time that is allowed for each training</p> <p>Original source Set Game Difficulty If the user wishes to change the game difficulty, by reducing the total time that is allowed for each training</p>	<p> My paper 100%</p> <p>Student paper saved for each replace books test score entry in the database, which includes the username of the user who achieved the score, the score value, and the date and</p> <p>Original source saved for each replace books test score entry in the database, which includes the username of the user who achieved the score, the score value, and the date and</p>
<p> My paper 100%</p> <p>Student paper session, they can set the difficulty – the lowest dropdown element on the</p> <p>Original source session, they can set the difficulty – the lowest dropdown element on the</p>	<p> My paper 100%</p> <p>Student paper time that the entry was inserted into the</p> <p>Original source time that the entry was inserted into the</p>
<p> My paper 100%</p> <p>Student paper This will set the times of the counter to 60 seconds for Easy, 40 seconds for Medium, and 30 seconds for Hard</p> <p>Original source This will set the times of the counter to 60 seconds for Easy, 40 seconds for Medium, and 30 seconds for Hard</p>	<p> My paper 100%</p> <p>Student paper The AreasScores model defines what is saved for each identifying areas test score entry in the database, which includes the username of the user who achieved the</p> <p>Original source The AreasScores model defines what is saved for each identifying areas test score entry in the database, which includes the username of the user who achieved the</p>
<p> My paper 100%</p> <p>Student paper Database Entities The User model defines what is saved for each user in the system. This includes the user id, username, and password.</p> <p>Original source Database Entities The User model defines what is saved for each user in the system This includes the user id, username, and password</p>	

<p> My paper</p> <p>Student paper score, the time it took to complete the test, the score value, and the date and time that the entry was inserted into the</p> <p>Original source score, the time it took to complete the test, the score value, and the date and time that the entry was inserted into the</p>	<p>100%</p> <p>Student paper section was also included in the document to provide information about the development environment, instructions on how the desktop application should be run, and other such critical information to get the application running on the user's PC. Additional information such as all the database entities was provided, in addition to the tree</p> <p>Original source section was also included in the document to provide information about the development environment, instructions on how the desktop application should be run, and other such critical information to get the application running on the user's PC. Additional information such as all the database entities was provided, in addition to the tree</p>
<p> Student paper</p> <p>Student paper a tree structure in the</p> <p>Original source a tree structure</p>	<p>92%</p> <p>Student paper a tree structure in the</p> <p>Original source a tree structure</p>
<p> My paper</p> <p>Student paper Use Case Diagram</p> <p>Original source Use Case Diagram</p>	<p>100%</p> <p>Student paper data file, which detailed how and where data was stored by the application.</p> <p>Original source Additional information such as a data listing was provided, which detailed how, where, and why data was stored by the application</p>
<p> My paper</p> <p>Student paper Conclusion In conclusion, this documentation has provided extensive development information in order to detail how and why the Dewey Decimal desktop application was developed in the way that it was. It described each function of each page within the "Help File" section, and</p> <p>Original source Conclusion In conclusion, this documentation has provided extensive development information in order to detail how and why the Dewey Decimal desktop application was developed in the way that it was. It described each function of each page within the "Help File" section, and</p>	<p>100%</p> <p>Student paper In addition to the above, a use case diagram was included, which showed core functionality of the desktop application from the user's perspective. During the course of this project, we have learnt how to develop advanced C# desktop applications in the .Net Core 3.1 Framework.</p> <p>Original source In addition to the above, a use case diagram was included, which showed core functionality of the desktop application from the user's perspective. During the course of this project, we have learnt how to develop advanced C# desktop applications in the .Net Core 3.1 Framework</p>
<p> My paper</p> <p>Student paper provided user interface design information within the "Screenshots" section.</p> <p>Original source provided user interface design information within the "Screenshots" section</p>	<p>100%</p>

 My paper	100%
<p>Student paper</p> <p>We also learnt how to use a Data Access Layer – DAL to access information from a local MDF file, and later on this will be hosted online.</p>	<p>Original source</p> <p>We also learnt how to use a Data Access Layer – DAL to access information from a local MDF file, and later on this will be hosted online</p>

 My paper	100%
<p>Student paper</p> <p>(2016, 07 15). How to Easily Add Gamification Techniques to Your Content.</p>	<p>Original source</p> <p>(2016, 07 15) How to Easily Add Gamification Techniques to Your Content</p>

 My paper	91%
<p>Student paper</p> <p>addition to this, we have learnt how to use advanced data structures, including Doubly Linked lists, Dictionaries, Key Value lists, Observable Collections, and Tree Structures, in</p>	<p>Original source</p> <p>addition to this, we have learnt how to use advanced data structures, including Doubly Linked lists, Dictionaries, Key Value lists, and Observable Collections in addition to other</p>

 My paper	100%
<p>Student paper</p> <p><a href="https://www.quicksprout.com/how-to-easily-add-gamification-techniques-to-your-content/">https://www.quicksprout.com/how-to-easily-add-gamification-techniques-to-your-content/</a> The Independent Institute of Education.</p>	<p>Original source</p> <p><a href="https://www.quicksprout.com/how-to-easily-add-gamification-techniques-to-your-content/">https://www.quicksprout.com/how-to-easily-add-gamification-techniques-to-your-content/</a> The Independent Institute of Education</p>

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 Attachment 2 92 %Word Count: 1,531  
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## PROG 3B POE Research

Application: Dewey Training Application ID: DT1.20

Version: 1.20 Student Name: Karl Dicks Student Number: 17667327 Course: BCAD3 Subject: PROG7312 Lecturer: Nirasha Ramckurran Assignment: POE Due Date: 04/11/2020

1

Contents Introduction..... 2

Dewey Decimals..... 3

Conclusion..... 9

References..... 10

2

Introduction As part of our PROG 3B POE, we are to research and detail a multi-level Dewey Decimal call

number list to the third level. This list will be incorporated into the application, in a way that

it can be read by the application tree structure. The application will use this information to

provide questions for the "Find Call Numbers" task. This allows users to view a randomly

selected third level call number description, and then be provided with each level call

number and description until the user reaches the final third level call number and

description. The user can "drill down" this hierarchical tree structure until they reach the

second and then final (3rd) level Dewey Decimal record.

The following section provides all information which will be used by the system, and this will

be converted to a Comma Separated Value (CSV) file, which will be read into the application

at runtime. I have used a CSV file as it is easier to visualize than if it is stored in an MDF or

similar database file. A CSV provides a multi-level appearance, and this information is read

into the tree structure within the application.

This research has been carried out to identify suitable Dewey Decimal call numbers which

can be used as questions / answers in the application. I have identified 160 unique entries,

as the question paper has stipulated that the application provide four possible answers for

each level (4x4) and there is a total of ten categories (000 through 900). Therefore, 160

entries have been identified and included in the following section and then converted to

CSV for the application.

A single source has been used to find these call numbers and descriptions: A book which was created by Melvin Dewey, the developer of the Dewey Decimal classification system. The book is free to use, and is accessible on Gutenberg, and the reference has been included in the reference list at the end of this document.

3

① Dewey Decimals The below examples of Dewey Decimals are stored in a way that the application can read the data

into a tree structure, from level one to level three.

② • 000 Computer science, information & general works

o 000 Computer science, knowledge & systems

• 001 Knowledge

• 003 Systems

③ • 004 Data processing & computer science

• 005 Computer programming, programs & data

② o 010 Bibliographies

• 012 Bibliographies of individuals

• 015 Bibliographies of works from specific places

• 017 General subject catalogs

• 019 Dictionary catalogs

o 020 Library & information sciences

③ • 023 Personnel management

② • 025 Library operations

• 026 Libraries for specific subjects

• 028 Reading & use of other information media

③ o 030 Encyclopedias & books of facts

② • 031 Encyclopedias in American English

• 032 Encyclopedias in English

• 034 Encyclopedias in French, Occitan, and Catalan

• 035 Encyclopedias in Italian, Romanian, and related languages

• 100 Philosophy & psychology

o 100 Philosophy

• 101 Theory of philosophy

• 103 Dictionaries & encyclopedias

• 107 Education, research, related topics of philosophy

• 109 History & collected biography

o 110 Metaphysics

• 111 Ontology

② • 113 Cosmology (Philosophy of nature)

• 117 Structure

② • 118 Force and energy

o 140 Philosophical schools of thought

• 141 Idealism & related systems & doctrines

• 142 Critical philosophy

- 143 Perennialism & intuitionism

- 145 Bergsonism & intuitionism

- 145 Sensationalism

4

(2) o 170 Ethics

- 171 Ethical systems

- 172 Political ethics

- 173 Ethics of family relationships

- 174 Occupational ethics

- 200 Religion

(3) o 210 Philosophy & theory of religion

- 211 Concepts of God

- 212 Existence, ways of knowing God, attributes of God

- 214 Theodicy

- 215 Science & religion

(2) o 220 The Bible

- 222 Historical books of Old Testament

- 223 Poetic books of Old Testament

- 224 Prophetic books of Old Testament

- 225 New Testament

o 260 Social & ecclesiastical theology

- 261 Social theology and interreligious relations and attitudes

- 262 Ecclesiology

(2) ▪ 263 Days, times, places of religious observance

- 264 Public worship

o 290 Other religions

- 292 Classical religion (Greek & Roman religion)

- 293 Germanic religion

- 294 Religions of Indic origin

- 295 Zoroastrianism (Mazdaism, Parseeism)

(2) ▪ 300 Social sciences

o 310 Statistics

(3) ▪ 314 General statistics of Europe

- 315 General statistics of Asia

- 316 General statistics of Africa

- 317 General statistics of North America

(2) o 330 Economics

- 331 Labor economics

- 332 Financial economics

- 333 Economics of land & energy

(2) ▪ 337 International economics

o 370 Education

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- 372 Primary education (Elementary education)

- 373 Secondary education

- 378 Higher education (Tertiary education)

- 379 Public policy issues in education

5

- ② o 380 Commerce, communications, & transportation

- 381 Commerce (Trade)

- 382 International commerce (Foreign trade)

- 383 Postal communication

- 384 Communications

- 400 Language

- o 410 Linguistics

- ③ ▪ 411 Writing systems of standard forms of languages

- 412 Etymology of standard forms of languages

- 413 Dictionaries of standard forms of languages

- 414 Phonology & phonetics of standard forms of languages

- ② o 420 English & Old English languages

- 421 Writing system, phonology, phonetics of standard English

- 422 Etymology of standard English

- 423 Dictionaries of standard English

- 425 Grammar of standard English

- o 440 French & related languages

- 441 Writing systems, phonology, phonetics of standard French

- 442 Etymology of standard French

- 443 Dictionaries of standard French

- 445 Grammar of standard French

- o 470 Latin & Italic languages

- 471 Writing systems, phonology, phonetics of classical Latin

- 472 Etymology of classical Latin

- 473 Dictionaries of classical Latin

- 475 Grammar of classical Latin

- 500 Science

- ② o 510 Mathematics

- 511 General principles of mathematics

- 512 Algebra

- 513 Arithmetic

- 514 Topology

- ② o 520 Astronomy

- 521 Celestial mechanics

- 522 Techniques, procedures, apparatus, equipment, materials

- 523 Specific celestial bodies & phenomena

- 525 Earth (Astronomical geography)

- o 540 Chemistry

- 541 Physical chemistry

- 542 Techniques, procedures, apparatus, equipment, materials
- 543 Analytical chemistry
- 547 Organic chemistry

6

- (2) o 570 Biology

- 572 Biochemistry
- (2) ▪ 575 Specific parts of & physiological systems in plants

- 576 Genetics and evolution

- 577 Ecology

- 600 Technology

- (3) o 610 Medicine & health

- 611 Human anatomy, cytology, histology

- 612 Human physiology

- 613 Personal health & safety

- (4) ▪ 615 Pharmacology and therapeutics

- (2) o 620 Engineering

- 621 Applied physics

- 622 Mining & related operations

- 623 Military & nautical engineering

- 624 Civil engineering

- o 630 Agriculture

- 632 Plant injuries, diseases, pests

- 633 Field & plantation crops

- 634 Orchards, fruits, forestry

- 635 Garden crops (Horticulture)

- o 640 Home & family management

- 641 Food & drink

- 642 Meals & table service

- 643 Housing & household equipment

- 644 Household utilities

- (3) ▪ 700 Arts & recreation

- o 720 Architecture

- (3) ▪ 721 Architectural materials & structural elements

- 725 Public structures

- 727 Buildings for educational & research purposes

- 728 Residential & related buildings

- (2) o 750 Painting

- 751 Techniques, procedures, apparatus, equipment, materials, forms

- 752 Color

- (2) ▪ 753 Symbolism, allegory, mythology, legend

- 754 Genre paintings

- o 770 Photography, computer art, film, video

- (2) ▪ 771 Techniques, procedures, apparatus, equipment, materials

- 772 Metallic salt processes

- 773 Pigment processes of printing

- 776 Computer art (Digital art)

7

- o 780 Music

- 781 General principles & musical forms

- 782 Vocal music

- 783 Music for single voices

- 784 Instruments & Instrumental ensembles & their music

- 800 Literature

- (3) o 810 American literature in English

- 811 American poetry in English

- 812 American drama in English

- 813 American fiction in English

- 814 American essays in English

- o 820 English & Old English literatures

- (2) ▪ 821 English Poetry

- 822 English drama

- 823 English fiction

- 824 English essays

- o 840 French & related literatures

- 841 French poetry

- 842 French drama

- 843 French fiction

- 844 French essays

- o 890 Other literatures

- 891 East Indo-European & Celtic literatures

- 892 Afro-Asiatic literatures

- 897 Literatures of North American native languages

- 898 Literatures of South American native languages

- (3) ▪ 900 History & geography

- o 910 Geography & travel

- 911 Historical geography

- 913 Geography of & travel in ancient world

- 914 Geography of & travel in Europe

- 917 Geography of & travel in North America

- (2) o 940 History of Europe

- 942 England & Wales

- 943 Germany & neighboring central European countries

- 944 France & Monaco

- 945 Italy, San Marino, Vatican City, Malta

- o 950 History of Asia

- 951 China & adjacent areas

- 952 Japan

(2) • 953 Arabian Peninsula & adjacent areas

• 954 India & neighboring south Asian countries

8

(2) o 970 History of North America

• 971 Canada

(2) • 972 Mexico, Central America, West Indies, Bermuda

• 973 United States

• 976 South central United States

These Dewey Decimal classes were initially published by Melvil Dewey, who was the

(1) inventor of the Dewey Decimal classification system (Dewey, 2004).

9

Conclusion In conclusion, a three-tiered list of Dewey Decimals was obtained from the author, and

inventor, of the Dewey Decimal system, Melvin Dewey (Dewey, 2004). This list of Dewey

Decimals has been converted to a CSV file, which is read into a tree structure in the Dewey

Decimal application, and used for comparisons to determine if the user has selected the

correct level one, two and three call number and description.

This research has provided the required information to proceed to the implementation

phase of this assignment, which is to develop a feature in the Dewey Training application to

find call numbers, by drilling down from the top level, to the second level, and finally the

(5) third level call number and description. A tree structure is used to store the information pulled in from the CSV file, which determines all possible questions, and therefore all model answers – which are used for comparisons.

10

(2) References Dewey, M., 2004. A Classification and Subject Index for Cataloguing and Arranging the Books and Pamphlets of a Library [Dewey Decimal Classification]. 1 ed. Kingsport: Kingsport Press.

#### Source Matches (64)

Original source	Student paper	Percentage
Student paper  Dewey Decimals The below examples of Dewey Decimals are stored in a way that the application can read the data	Original source  Dewey Decimal Below are examples of Dewey Decimals that are stored into a tree structure, the reason for this is so that the application can read the data from one level to another level i.e	64%
Student paper  • 000 Computer science, information & general works o 000 Computer science, knowledge & systems	Original source  Class 000 – Computer science, information & general works • 000 Computer science, knowledge & systems	91%

<p><b>3</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 004 Data processing &amp; computer science</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>• 004 Data processing &amp; computer science</li> </ul>	<p><b>2</b> Student paper 74%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 031 Encyclopedias in American English</li> <li>• 032 Encyclopedias in English • 034 Encyclopedias in French, Occitan, and Catalan • 035 Encyclopedias in Italian, Romanian, and related languages</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 031 Encyclopaedias in American English</li> <li>- 032 Encyclopaedias in English - 034 Encyclopaedias in French, Occitan, and Catalan - 035 Encyclopaedias in Italian, Romanian, and related languages</li> </ul>
<p><b>2</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>o 010 Bibliographies • 012 Bibliographies of individuals • 015 Bibliographies of works from specific places • 017 General subject catalogs</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>o 010 Bibliographies - 012 Bibliographies of individuals - 015 Bibliographies of works from specific places - 017 General subject catalogs</li> </ul>	<p><b>2</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 100 Philosophy &amp; psychology o 100 Philosophy • 101 Theory of philosophy • 103 Dictionaries &amp; encyclopedias</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>• 100 Philosophy &amp; psychology o 100 Philosophy - 101 Theory of philosophy - 103 Dictionaries &amp; encyclopedias</li> </ul>
<p><b>2</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 019 Dictionary catalogs o 020 Library &amp; information sciences</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 019 Dictionary catalogs o 020 Library &amp; information sciences</li> </ul>	<p><b>2</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 107 Education, research, related topics of philosophy • 109 History &amp; collected biography o 110 Metaphysics</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 107 Education, research, related topics of philosophy - 109 History &amp; collected biography o 110 Metaphysics</li> </ul>
<p><b>3</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 023 Personnel management</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>• 023 Personnel management</li> </ul>	<p><b>2</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 113 Cosmology (Philosophy of nature)</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 113 Cosmology (Philosophy of nature)</li> </ul>
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<p><b>(2)</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 143 Bergsonism &amp; intuitionism</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 143 Bergsonism &amp; intuitionism</li> </ul>	<p><b>(2)</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 225 New Testament o 260 Social &amp; ecclesiastical theology • 261 Social theology and interreligious relations and attitudes</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 225 New Testament o 260 Social &amp; ecclesiastical theology - 261 Social theology and interreligious relations and attitudes</li> </ul>
<p><b>(2)</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>o 170 Ethics • 171 Ethical systems • 172 Political ethics • 173 Ethics of family relationships</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>o 170 Ethics - 171 Ethical systems - 172 Political ethics - 173 Ethics of family relationships</li> </ul>	<p><b>(2)</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 263 Days, times, places of religious observance • 264 Public worship</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 263 Days, times, places of religious observance - 264 Public worship</li> </ul>
<p><b>(2)</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 174 Occupational ethics</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 174 Occupational ethics</li> </ul>	<p><b>(2)</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 300 Social sciences</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 300 Social sciences</li> </ul>
<p><b>(3)</b> Student paper 96%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>o 210 Philosophy &amp; theory of religion • 211 Concepts of God • 212 Existence, ways of knowing God, attributes of God</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>➢ 210 Philosophy &amp; theory of religion • 211 Concepts of God • 212 Existence, ways of knowing God, attributes of God</li> </ul>	<p><b>(3)</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 314 General statistics of Europe • 315 General statistics of Asia • 316 General statistics of Africa • 317 General statistics of North America</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 314 General statistics of Europe • 315 General statistics of Asia • 316 General statistics of Africa • 317 General statistics of North America</li> </ul>
<p><b>(2)</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>o 220 The Bible • 222 Historical books of Old Testament • 223 Poetic books of Old Testament • 224 Prophetic books of Old Testament</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>o 220 Bible - 222 Historical books of Old Testament - 223 Poetic books of Old Testament - 224 Prophetic books of Old Testament</li> </ul>	<p><b>(2)</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>o 330 Economics • 331 Labor economics • 332 Financial economics • 333 Economics of land &amp; energy</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 330 Economics - 331 Labor economics - 332 Financial economics - 333 Economics of land &amp; energy</li> </ul>

<p> Student paper</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 337 International economics o 370 Education • 372 Primary education (elementary education) • 373 Secondary education</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 337 International economics o 370 Education - 372 Primary education (elementary education) - 373 Secondary education</li> </ul>	
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<p> Student paper</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>o 380 Commerce, communications, &amp; transportation • 381 Commerce (Trade)</li> <li>▪ 382 International commerce (Foreign trade) • 383 Postal communication</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>o 380 Commerce, communications, &amp; transportation - 381 Commerce (Trade)</li> <li>- 382 International commerce (Foreign trade) - 383 Postal communication</li> </ul>	
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(2) Student paper	100%
Student paper o 510 Mathematics • 511 General principles of mathematics	Original source o 510 Mathematics - 511 General principles of mathematics

(2) Student paper	100%
Student paper • 575 Specific parts of & physiological systems in plants • 576 Genetics and evolution	Original source - 575 Specific parts of & physiological systems in plants - 576 Genetics and evolution

(2) Student paper	100%
Student paper o 520 Astronomy • 521 Celestial mechanics • 522 Techniques, procedures, apparatus, equipment, materials • 523 Specific celestial bodies & phenomena	Original source o 520 Astronomy - 521 Celestial mechanics - 522 Techniques, procedures, apparatus, equipment, materials - 523 Specific celestial bodies & phenomena

(3) Student paper	96%
Student paper o 610 Medicine & health • 611 Human anatomy, cytology, histology • 612 Human physiology • 613 Personal health & safety	Original source ➤ 610 Medicine & health • 611 Human anatomy, cytology, histology • 612 Human physiology • 613 Personal health & safety

(2) Student paper	100%
Student paper • 525 Earth (Astronomical geography) o 540 Chemistry • 541 Physical chemistry ▪ 542 Techniques, procedures, apparatus, equipment, materials	Original source - 525 Earth (Astronomical geography) o 540 Chemistry - 541 Physical chemistry - 542 Techniques, procedures, apparatus, equipment, materials

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Student paper • 615 Pharmacology and therapeutics	Original source psychiatry) (50) 615 Pharmacology & therapeutics (incl

(2) Student paper	100%
Student paper ▪ 543 Analytical chemistry • 547 Organic chemistry	Original source - 543 Analytical chemistry - 547 Organic chemistry

(2) Student paper	100%
Student paper o 620 Engineering • 621 Applied physics • 622 Mining & related operations • 623 Military & nautical engineering	Original source o 620 Engineering - 621 Applied physics - 622 Mining & related operations - 623 Military & nautical engineering

(2) Student paper	100%
Student paper o 570 Biology	Original source o 570 Biology

(2) Student paper	100%
Student paper • 624 Civil engineering o 630 Agriculture • 632 Plant injuries, diseases, pests • 633 Field & plantation crops	Original source - 624 Civil engineering o 630 Agriculture - 632 Plant injuries, diseases, pests - 633 Field & plantation crops

<p><b>(2) Student paper</b></p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 634 Orchards, fruits, forestry • 635 Garden crops (Horticulture) o 640 Home &amp; family management • 641 Food &amp; drink</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 634 Orchards, fruits, forestry - 635 Garden crops (Horticulture) o 640 Home &amp; family management - 641 Food &amp; drink</li> </ul>	<p><b>(2) Student paper</b></p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 753 Symbolism, allegory, mythology, legend • 754 Genre paintings</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 753 Symbolism, allegory, mythology, legend - 754 Genre paintings</li> </ul>
<p><b>(2) Student paper</b></p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 642 Meals &amp; table service • 643 Housing &amp; household equipment • 644 Household utilities</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 642 Meals &amp; table service - 643 Housing &amp; household equipment - 644 Household utilities</li> </ul>	<p><b>(2) Student paper</b></p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 771 Techniques, procedures, apparatus, equipment, materials</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 522 Techniques, procedures, apparatus, equipment, materials</li> </ul>
<p><b>(3) Student paper</b></p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 700 Arts &amp; recreation</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>❖ 700 – Arts &amp; recreation</li> </ul>	<p><b>(3) Student paper</b></p> <p>Student paper</p> <ul style="list-style-type: none"> <li>o 810 American literature in English • 811 American poetry in English • 812 American drama in English • 813 American fiction in English</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>➤ 810 American literature in English • 811 American poetry in English • 812 American drama in English • 813 American fiction in English</li> </ul>
<p><b>(3) Student paper</b></p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 721 Architectural materials &amp; structural elements</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>• 721 Architectural materials &amp; structural elements</li> </ul>	<p><b>(3) Student paper</b></p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 814 American essays in English o 820 English &amp; Old English literatures</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>• 814 American essays in English ➤ 820 English &amp; Old English literatures</li> </ul>
<p><b>(2) Student paper</b></p> <p>Student paper</p> <ul style="list-style-type: none"> <li>o 750 Painting • 751 Techniques, procedures, apparatus, equipment, materials, forms</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>o 750 Painting - 751 Techniques, procedures, apparatus, equipment, materials, forms</li> </ul>	<p><b>(2) Student paper</b></p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 821 English Poetry • 822 English drama • 823 English fiction • 824 English essays</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 821 English Poetry - 822 English drama - 823 English fiction - 824 English essays</li> </ul>

<p><b>2</b> Student paper 95%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>o 840 French &amp; related literatures • 841 French poetry • 842 French drama • 843 French fiction</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 840 French &amp; related literatures - 841 French poetry - 842 French drama - 843 French fiction</li> </ul>	<p><b>2</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>o 940 History of Europe • 942 England &amp; Wales • 943 Germany &amp; neighboring central European countries • 944 France &amp; Monaco</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 940 History of Europe - 942 England &amp; Wales - 943 Germany &amp; neighboring central European countries - 944 France &amp; Monaco</li> </ul>
<p><b>2</b> Student paper 93%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 844 French essays o 890 Other literatures • 891 East Indo-European &amp; Celtic literatures • 892 Afro-Asiatic literatures</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 844 French essays - 890 Other literatures - 891 East Indo-European &amp; Celtic literatures - 892 Afro-Asiatic literatures</li> </ul>	<p><b>2</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 945 Italy, San Marino, Vatican City, Malta o 950 History of Asia • 951 China &amp; adjacent areas</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 945 Italy, San Marino, Vatican City, Malta o 950 History of Asia - 951 China &amp; adjacent areas</li> </ul>
<p><b>2</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 897 Literatures of North American native languages • 898 Literatures of South American native languages</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 897 Literatures of North American native languages - 898 Literatures of South American native languages</li> </ul>	<p><b>2</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 953 Arabian Peninsula &amp; adjacent areas • 954 India &amp; neighboring south Asian countries</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 953 Arabian Peninsula &amp; adjacent areas - 954 India &amp; neighboring south Asian countries</li> </ul>
<p><b>3</b> Student paper 97%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 900 History &amp; geography o 910 Geography &amp; travel • 911 Historical geography • 913 Geography of &amp; travel in ancient world</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>❖ 900 – History &amp; geography ➤ 910 Geography &amp; travel • 911 Historical geography • 913 Geography of &amp; travel in ancient world</li> </ul>	<p><b>2</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>o 970 History of North America</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 970 History of North America</li> </ul>
<p><b>3</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 914 Geography of &amp; travel in Europe</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 914 Geography of &amp; travel in Europe</li> </ul>	<p><b>2</b> Student paper 100%</p> <p>Student paper</p> <ul style="list-style-type: none"> <li>• 972 Mexico, Central America, West Indies, Bermuda • 973 United States • 976 South central United States</li> </ul> <p>Original source</p> <ul style="list-style-type: none"> <li>- 972 Mexico, Central America, West Indies, Bermuda - 973 United States - 976 South central United States</li> </ul>

<b>1</b>	<i>Student paper</i>	68%
Student paper inventor of the Dewey Decimal classification system (Dewey, 2004).	Original source The Dewey Decimal Classification System	
<b>2</b>	<i>Student paper</i>	89%
Student paper third level call number and description.	Original source call number (top level only) and description	Dewey, M., 2004 A Classification and Subject Index for Cataloguing and Arranging the Books and Pamphlets of a Library [Dewey Decimal Classification].