FIRESTORE QUERIES

What is our GOAL for this MODULE?

In this class, we learned how to make queries to a Firebase Database and check for student eligibility and book eligibility before issuing/returning a book using firebase queries.

What did we ACHIEVE in the class TODAY?

- Made a firebase query to check if the book is eligible to be issued/returned.
- Made a firebase query to check if the student is eligible for the transaction.
- Displayed a message to the user for a successful/unsuccessful transaction.

Which CONCEPTS/CODING BLOCKS did we cover today?

- Writing firebase queries.

How did we DO the activities?

1. Make a firebase query to check if the book and student ID exist in the database.

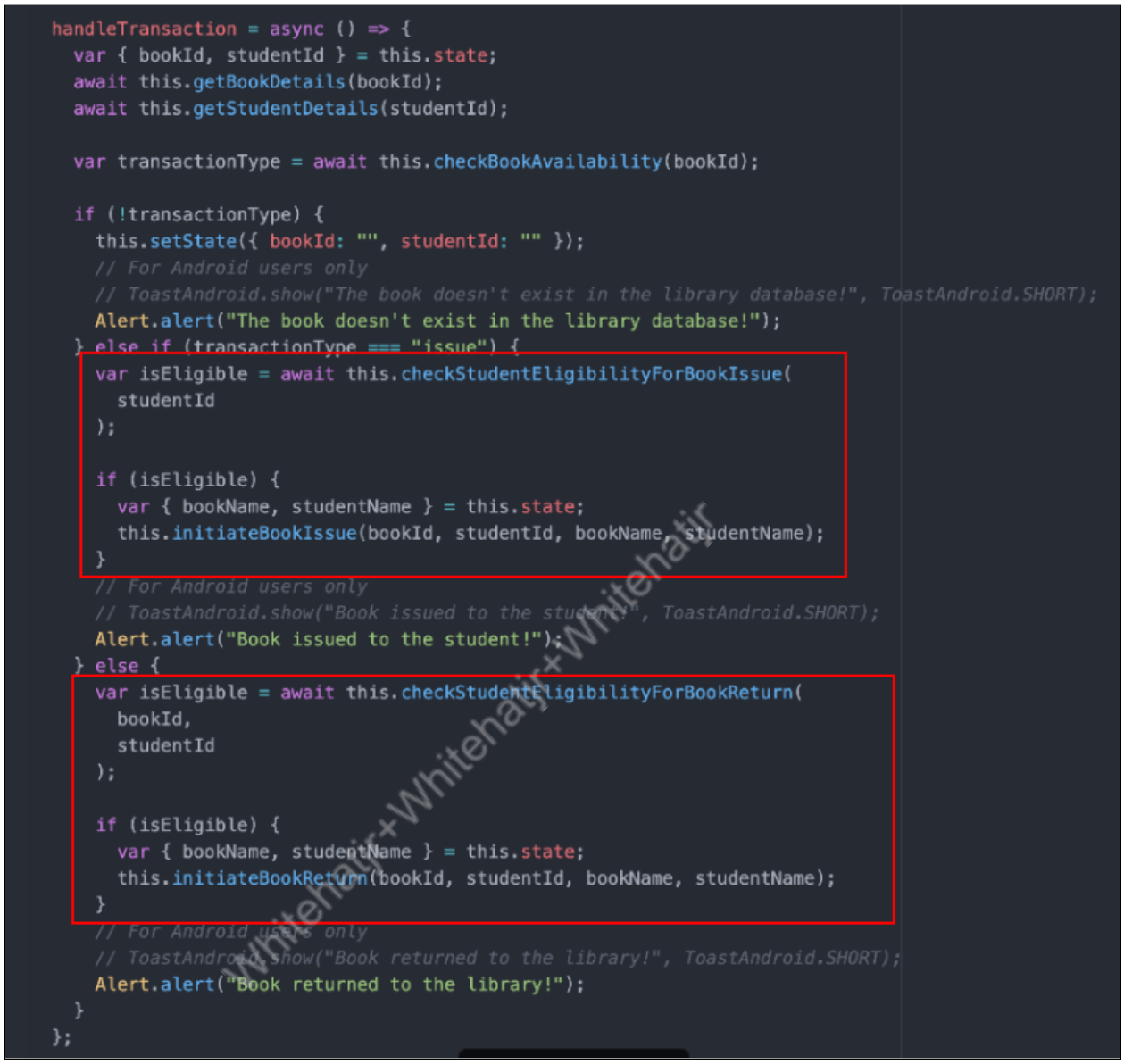
    - Write a query on the books' collection to check if any of the book ID matches our given **bookId**.
    - If the query doesn't return anything then we'll return the transaction type as false, else using the **ternary** operator we'll check the **is_book_available** flag to **return** the issue if the book is present or return if the book is not available. And then return the transaction type.

```
checkBookAvailability = async bookId => {
  const bookRef = await db
    .collection("books")
    .where("book_id", "==", bookId)
    .get();

  var transactionType = "";
  if (bookRef.docs.length == 0) {
    transactionType = false;
  } else {
    bookRef.docs.map(doc => {
      //if the book is available then transaction type will be issue
      // otherwise it will be return
      transactionType = doc.data().is_book_available ? "issue" : "return";
    });
  }

  return transactionType;
};
```

2. Show the alert that the book doesn't exist in the library, if the transaction type is **Issue** then we check if the student is eligible for issuing the book. If the student is eligible, then we call the **initiateBookIssue** function and give an alert that the book is issued to the student.

```
handleTransaction = async () => {
  var { bookId, studentId } = this.state;
  await this.getBookDetails(bookId);
  await this.getStudentDetails(studentId);

  var transactionType = await this.checkBookAvailability(bookId);

  if (!transactionType) {
    this.setState({ bookId: "", studentId: "" });
    // For Android users only
    // ToastAndroid.show("The book doesn't exist in the library database!", ToastAndroid.SHORT);
    Alert.alert("The book doesn't exist in the library database!");
  } else if (transactionType === "issue") {

      var { bookName, studentName } = this.state;
      this.initiateBookIssue(bookId, studentId, bookName, studentName);

    // For Android users only
    // ToastAndroid.show("Book issued to the student!", ToastAndroid.SHORT);
    Alert.alert("Book issued to the student!");
  } else {

      var { bookName, studentName } = this.state;
      this.initiateBookReturn(bookId, studentId, bookName, studentName);

    // For Android users only
    // ToastAndroid.show("Book returned to the library!", ToastAndroid.SHORT);
    Alert.alert("Book returned to the library!");
  }
};
```

3. Write the **checkStudentEligibilityForBookIssue()** function to check for student eligibility.
    - It returns **true** if the student is eligible and **false** if the student is not eligible.
    - If the student is eligible, Call the **initiateBookIssue()** function and issue an alert that the book has been issued.
    - Empty the **TextInputs** after the books have been issued.



```
handleTransaction = async () => {
  var { bookId, studentId } = this.state;
  await this.getBookDetails(bookId);
  await this.getStudentDetails(studentId);

  var transactionType = await this.checkBookAvailability(bookId);

  if (!transactionType) {
    this.setState({ bookId: "", studentId: "" });
    // For Android users only
    // ToastAndroid.show("The book doesn't exist in the library database!", ToastAndroid.SHORT);
    Alert.alert("The book doesn't exist in the library database!");
  } else if (transactionType === "issue") {
    var isEligible = await this.checkStudentEligibilityForBookIssue(
      studentId
    );

    if (isEligible) {
      var { bookName, studentName } = this.state;
      this.initiateBookIssue(bookId, studentId, bookName, studentName);
    }
    // For Android users only
    // ToastAndroid.show("Book issued to the student!", ToastAndroid.SHORT);
    Alert.alert("Book issued to the student!");
  } else {
    var isEligible = await this.checkStudentEligibilityForBookReturn(
      bookId,
      studentId
    );

    if (isEligible) {
      var { bookName, studentName } = this.state;
      this.initiateBookReturn(bookId, studentId, bookName, studentName);
    }
    // For Android users only
    // ToastAndroid.show("Book returned to the library!", ToastAndroid.SHORT);
    Alert.alert("Book returned to the library!");
  }
};
```

4. The **handleTransactions** function is almost ready. Now check if the student is eligible to issue or return a book.

```
handleTransaction = async () => {
  var { bookId, studentId } = this.state;
  await this.getBookDetails(bookId);
  await this.getStudentDetails(studentId);

  var transactionType = await this.checkBookAvailability(bookId);

  if (!transactionType) {
    this.setState({ bookId: "", studentId: "" });
    // For Android users only
    // ToastAndroid.show("The book doesn't exist in the library database!", ToastAndroid.SHORT);
    Alert.alert("The book doesn't exist in the library database!");
  } else if (transactionType === "issue") {
    var isEligible = await this.checkStudentEligibilityForBookIssue(
      studentId
    );

    if (isEligible) {
      var { bookName, studentName } = this.state;
      this.initiateBookIssue(bookId, studentId, bookName, studentName);
    }
    // For Android users only
    // ToastAndroid.show("Book issued to the student!", ToastAndroid.SHORT);
    Alert.alert("Book issued to the student!");
  } else {
    var isEligible = await this.checkStudentEligibilityForBookReturn(
      bookId,
      studentId
    );

    if (isEligible) {
      var { bookName, studentName } = this.state;
      this.initiateBookReturn(bookId, studentId, bookName, studentName);
    }
    // For Android users only
    // ToastAndroid.show("Book returned to the library!", ToastAndroid.SHORT);
    Alert.alert("Book returned to the library!");
  }
};
```

5. Write a query to the student collection to check if the student with the scanned student ID exists and make changes in function **checkStudentEligibilityForBookIssue()**.

```
checkStudentEligibilityForBookIssue = async studentId => {
  const studentRef = await db
    .collection("students")
    .where("student_id", "==", studentId)
    .get();

  var isStudentEligible = "";
  if (studentRef.docs.length == 0) {
    this.setState({
      bookId: "",
      studentId: ""
    });
    isStudentEligible = false;
    Alert.alert("The student id doesn't exist in the database!");
  } else {
    studentRef.docs.map(doc => {
      if (doc.data().number_of_books_issued < 2) {
        isStudentEligible = true;
      } else {
        isStudentEligible = false;
        Alert.alert("The student has already issued 2 books!");
        this.setState({
          bookId: "",
          studentId: ""
        });
      }
    });
  }

  return isStudentEligible;
};
```

6. Write a query to the transactions collection to check the last transaction for the book and make changes in the function **checkStudentEligibilityForReturn()**.

```
checkStudentEligibilityForBookReturn = async (bookId, studentId) => {
  const transactionRef = await db
    .collection("transactions")
    .where("book_id", "==", bookId)
    .limit(1)
    .get();
  var isStudentEligible = "";
  transactionRef.docs.map(doc => {
    var lastBookTransaction = doc.data();
    if (lastBookTransaction.student_id === studentId) {
      isStudentEligible = true;
    } else {
      isStudentEligible = false;
      Alert.alert("The book wasn't issued by this student!");
      this.setState({
        bookId: "",
        studentId: ""
      });
    }
  });
  return isStudentEligible;
};
```


What's NEXT?

In the next class, we will learn how to display items in a list using the FlatList component. And also learn to build a search bar in the search screen to display the list of transactions queried by the user.

EXTEND YOUR KNOWLEDGE

1. Cloud Firestore Documentation: https://firebase.google.com/docs/firestore