2025

User Manual
Pharmacy Medication Tracking System

SPRINT – SD 13 – SUMMER 2025
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Group: 1 | Version 1.0

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1. Introduction

This project is called the Pharmacy Medication Tracking System. It's a program that our group built to help manage important information in a pharmacy, like patients, doctors, medications, and prescriptions. The system lets users add, search, update, and delete records, accept new prescriptions, and generate reports to keep everything organized.

2. System Requirements

To run this program, you need:

- Java JDK 11 or higher installed
- A computer running Windows, Mac, or Linux
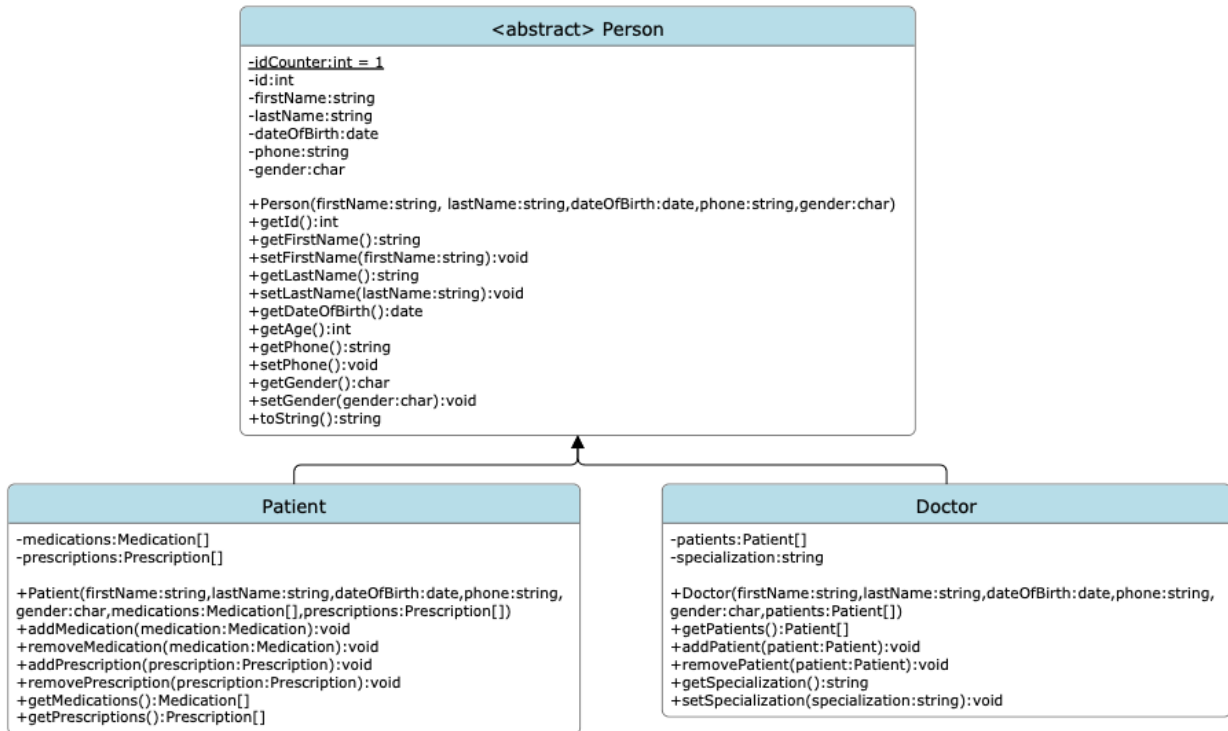- Access to a terminal or command prompt

3. Installation Guide/ Getting Started

- Download the project files from our GitHub repository.
- Open the project folder in Visual Studio Code.
- Make sure Java is installed on your computer.
- Open any Java file in the project.
- Click the Run button or press the play icon at the top to start the program.
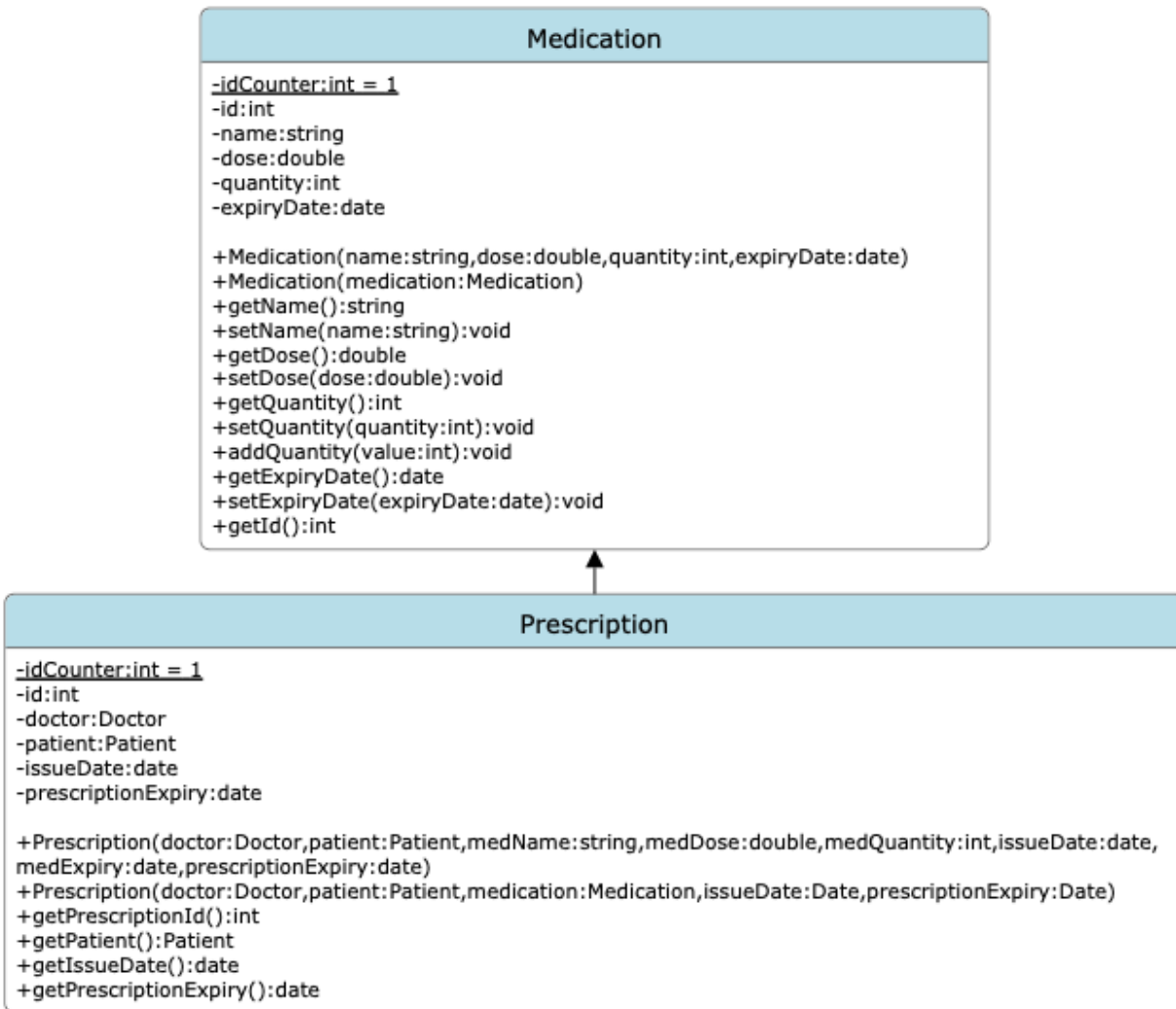- The program will open and show the main menu for you to use.

4. Class Diagrams

4.1 Person, Patient, and Doctor

The following diagram details the relationship between **Person**, **Patient**, and **Doctor**:

```
┌─────────────────────────────────────────────────────────────────────────┐
│                          <abstract> Person                                │
├─────────────────────────────────────────────────────────────────────────┤
│ -idCounter:int = 1                                                        │
│ -id:int                                                                   │
│ -firstName:string                                                         │
│ -lastName:string                                                          │
│ -dateOfBirth:date                                                         │
│ -phone:string                                                             │
│ -gender:char                                                              │
├─────────────────────────────────────────────────────────────────────────┤
│ +Person(firstName:string, lastName:string,dateOfBirth:date,phone:string,gender:char) │
│ +getId():int                                                              │
│ +getFirstName():string                                                    │
│ +setFirstName(firstName:string):void                                      │
│ +getLastName():string                                                     │
│ +setLastName(lastName:string):void                                        │
│ +getDateOfBirth():date                                                    │
│ +getAge():int                                                             │
│ +getPhone():string                                                        │
│ +setPhone():void                                                          │
│ +getGender():char                                                         │
│ +setGender(gender:char):void                                             │
│ +toString():string                                                        │
└─────────────────────────────────────────────────────────────────────────┘
```

```
┌──────────────────────────────────────────────────┐   ┌──────────────────────────────────────────────────┐
│                     Patient                         │   │                     Doctor                          │
├──────────────────────────────────────────────────┤   ├──────────────────────────────────────────────────┤
│ -medications:Medication[]                           │   │ -patients:Patient[]                                 │
│ -prescriptions:Prescription[]                       │   │ -specialization:string                              │
├──────────────────────────────────────────────────┤   ├──────────────────────────────────────────────────┤
│ +Patient(firstName:string,lastName:string,dateOfBirth:date,phone:string, │   │ +Doctor(firstName:string,lastName:string,dateOfBirth:date,phone:string, │
│ gender:char,medications:Medication[],prescriptions:Prescription[]) │   │ gender:char,patients:Patient[])                     │
│ +addMedication(medication:Medication):void          │   │ +getPatients():Patient[]                            │
│ +removeMedication(medication:Medication):void       │   │ +addPatient(patient:Patient):void                   │
│ +addPrescription(prescription:Prescription):void    │   │ +removePatient(patient:Patient):void                │
│ +removePrescription(prescription:Prescription):void │   │ +getSpecialization():string                         │
│ +getMedications():Medication[]                      │   │ +setSpecialization(specialization:string):void      │
│ +getPrescriptions():Prescription[]                  │   │                                                     │
└──────────────────────────────────────────────────┘   └──────────────────────────────────────────────────┘
```

4.2 Medication and Prescription

The following diagram details the relationship between **Medication** and **Prescription**:

```
                        Medication
  -idCounter:int = 1
  -id:int
  -name:string
  -dose:double
  -quantity:int
  -expiryDate:date

  +Medication(name:string,dose:double,quantity:int,expiryDate:date)
  +Medication(medication:Medication)
  +getName():string
  +setName(name:string):void
  +getDose():double
  +setDose(dose:double):void
  +getQuantity():int
  +setQuantity(quantity:int):void
  +addQuantity(value:int):void
  +getExpiryDate():date
  +setExpiryDate(expiryDate:date):void
  +getId():int
```

```
                        Prescription
  -idCounter:int = 1
  -id:int
  -doctor:Doctor
  -patient:Patient
  -issueDate:date
  -prescriptionExpiry:date

  +Prescription(doctor:Doctor,patient:Patient,medName:string,medDose:double,medQuantity:int,issueDate:date,
  medExpiry:date,prescriptionExpiry:date)
  +Prescription(doctor:Doctor,patient:Patient,medication:Medication,issueDate:Date,prescriptionExpiry:Date)
  +getPrescriptionId():int
  +getPatient():Patient
  +getIssueDate():date
  +getPrescriptionExpiry():date
```

5. Main Menu (1–6)

- The Main Menu provides access to all functions of the program. To navigate, simply type the number associated with the function you wish to perform, and press Enter.

```
***** Welcome To The Pharmacy Medication Tracking System *****

Please make a selection:

1. Manage a patient
2. Manage a medication
3. Manage a doctor
4. Accept a prescription
5. Generate a report
6. Exit
**************************************************************
```

6. Manage a patient:

-From the main menu selection screen, type **1**, and press Enter/Return to confirm.

-You will then be greeted with the following sub-menu:

```
***** Patient Management *****

Please make a selection:

1. Add a Patient
2. Find a Patient
3. Edit a Patient
4. Delete a Patient
5. Exit
**********************************************************************
```

-Type the corresponding option between **1** and **5**, and press Enter/Return to confirm.

6.1 Add a patient:

- Type **1**, and press Enter/Return to add a new patient.
- Follow the prompts to enter:
  - First Name: Letters only. To quit, simply type **q**, and press Enter/Return.
  - Last Name: Letters only.
  - Date of Birth: Format must be YYYY-MM-DD. For example, 1980-12-31.
  - Phone Number: Exactly 10 digits, no spaces or special characters.
  - Gender: Enter M for Male, F for Female, or O for Other.

  It should look as follows:

```
Add New Patient Details (q to quit):
First Name: John
Last Name: Doe
Date of Birth (YYYY-MM-DD): 1975-06-29
Phone Number (10 digits): 7095551234
Gender (M, F, O): M
```

- You will then be prompted to add another patient. Type **Y** for "Yes" or **N** for "No", and press Enter/Return to confirm. Select "No" to return to the main menu.

6.2 Find a patient:

- Type **2**, and press Enter/Return to search for a patient and display their personal information, list of medications and list of prescriptions.
- You can search for a patient either by their ID, or first name and last name.

- Follow the prompts to enter:
  - Patient ID: A numerical value over 0 is accepted. Leave blank, and press Enter/Return to search by full name instead.
  - First Name: Letters only.
  - Last Name: Letters only.

It should look as follows:

```
Search for Patient Details:
Patient ID (leave blank for name search): 3

Patient Details:
-----------------
ID: 3
First Name: Bob
Last Name: Ross
Age: 35
Date of Birth: 1990-01-10
Phone Number: 7093334444
Gender: M
```

6.3 Edit a patient:

- Type **3**, and press Enter/Return to edit a patient's personal information.
- To edit a patient's details, you will first be prompted to select the patient, which is done by using the "Find a Patient" functionality. Please refer to section 5.2 for guidance.
- Once a patient has been selected, their current details will be displayed. You will then be prompted to input the updated data.
- You only need to input the values that need to change. Leave a blank value, followed by Enter/Return to leave the data unchanged.
- Next, you will be prompted to confirm the changes. Type **Y** for "Yes" or **N** for "No", and press Enter/Return to confirm.
- Finally, you will then be prompted to edit another patient. Type **Y** for "Yes" or **N** for "No", and press Enter/Return to confirm. Select "No" to return to the main menu.

It should look as follows:

```
Patient Details:
----------------
ID: 3
First Name: Bob
Last Name: Ross
Age: 35
Date of Birth: 1990-01-10
Phone Number: 7093334444
Gender: M

Leave value blank for no modifications.

First Name:
Last Name:
Phone Number (10 digits): 7095551234

Confirm the patient details update:

First Name: Bob (unchanged)
Last Name: Ross (unchanged)
Phone Number: 7095551234
Update the patient details these information (Y/N)?
```

6.4 Delete a patient:

- Type **4**, and press Enter/Return to delete a patient from the database.
- To delete a patient, you will first be prompted to select the patient, which is done by using the "Find a Patient" functionality. Please refer to section 5.2 for guidance.
- Once a patient has been selected, their current details will be displayed. You will then be prompted to delete the patient.
- Next, you will be prompted to confirm the deletion. Type **Y** for "Yes" or **N** for "No", and press Enter/Return to confirm.
- Finally, you will then be prompted to delete another patient. Type **Y** for "Yes" or **N** for "No", and press Enter/Return to confirm. Select "No" to return to the main menu.

It should look as follows:

```
Search for Patient to Delete:
Patient ID (leave blank for name search): 3

Patient Details:
------------------------------
ID: 3
First Name: Bob
Last Name: Ross
Age: 35
Date of Birth: 1990-01-10
Phone Number: 7093334444
Gender: M

Are you sure you want to delete the patient (Y/N)?
```

7. Manage a Medication

-From the main menu selection screen, type **1**, and press Enter/Return to confirm.

-You will then be greeted with the following sub-menu:

```
***** Medication Management *****

Please make a selection:

1. Add a medication
2. Search for a medication
3. Edit a medication
4. Delete a medication
5. Restock a medication
6. Back to main menu
*******************************************************************
```

-Type the corresponding option between **1** and **6**, and press Enter/Return to confirm.

7.1 Add a Medication:

- Type **1**, and press Enter/Return to add a new medication.
- Follow the prompts to enter:
  - Medication Name: Letters only.
  - Dosage: Number only, not negative.
  - Quantity in stock: Number only, not negative, no decimal.
  - Expiry Date: Format must be YYYY-MM-DD. For example, 1980-12-31.

It should look as follows:

```
Medication name:
Ibuprofen
Dosage:
100
Quantity in stock:
1000
Expiry date (yyyy-mm-dd):
2026-06-30
Medication created successfully!
Press enter to return to menu...
```

- You will then be prompted to press enter to return to the main menu. Simply press Enter/Return to confirm.

7.2 Search for a Medication:

- Type **2**, and press Enter/Return to search for a medication and display its name, dosage, quantity in stock and expiration date.
- Follow the prompt and enter:
  - Medication Name: Letters only.

It should look as follows:

```
Medication name:
Ibuprofen 500
Medication ID: 2
Name: Ibuprofen 500
Dosage: 500.0
Quantity in stock: 20
Expiry Date: 2027-01-30
Press Enter to continue.
```

7.3 Edit a Medication:

- Type **3**, and press Enter/Return to edit the details of a medication.
- To edit the details of a medication, you will first be prompted to select the medication, which is done by using the "Search for a Medication" functionality. Please refer to section 6.2 for guidance.
- If a medication is found, you will be prompted to enter updated information about the medication.

It should look as follows:

```
Medication name:
Ibuprofen
New medication name:
Ibuprofen 500
New dose:
500
New expiration date:
2027-01-30
Medication updated successfully
Press Enter to continue.
```

7.4 Delete a Medication:

- Type **4**, and press Enter/Return to delete a medication from the database.
- To delete a medication, you will first be prompted to select the medication, which is done by using the "Search for a medication" functionality. Please refer to section 6.2 for guidance.
- If a medication is found, it will be automatically deleted from the database.

It should look as follows:

```
Medication name:
Ibuprofen 500
Medication removed successfully.
Press Enter to continue.
```

7.5 Restock a medication:

- Type **5**, and press Enter/Return to restock on a medication.
- To restock on a medication, you will first be prompted to select the medication, which is done by using the "Search for a medication" functionality. Please refer to section 6.2 for guidance.
- Once a medication is found, follow the prompt and enter:
  - Quantity to add to stock: Number only, not negative, no decimal.

It should look as follows:

```
Medication name:
Ibuprofen 500
Quantity to add to stock:
1000
Medication restocked successfully!
Press Enter to continue.
```

8. Manage a Doctor

- From the Main Menu, select the option for Manage a doctor

- The system will display the following sub menu:

```
***** Doctor Management *****

Please make a selection:

1. Add Doctor
2. Search Doctor
3. Edit Doctor
4. Delete Doctor
5. Assign a Patient to a Doctor
6. Back to main menu
************************************************************
```

8.1 Add a doctor:

- Select 1 to add a new doctor.
- Follow the prompts to enter:
    - First Name: Letters only.
    - Last Name: Letters only.
    - Date of Birth: Format must be YYYY-MM-DD. For example, 1980-12-31.
    - Phone Number: Exactly 10 digits, no spaces or special characters.
    - Gender: Enter M for Male, F for Female, or O for Other.
    - Specialization: Enter the doctor's area of expertise.

- Once all information is entered correctly, the doctor will be added to the system.
- You will see a confirmation message and be prompted to press Enter to return to the Doctor Management menu.

8.2 Search a doctor:

- Select 2 from the Doctor Management menu.
- Enter the Doctor ID (numeric).
- Enter the Doctor's First Name and Last Name (letters only).
- If a matching doctor is found, their details will be displayed, including ID, full name, date of birth, phone number, gender, and specialization.
- If no doctor matches the criteria, a message will inform you that the doctor was not found.
- Press Enter to return to the Doctor Management menu.

8.3 Edit a doctor:

- Select 3 from the Doctor Management menu.
- Enter the Doctor ID, First Name, and Last Name of the doctor to edit.
- If the doctor exists, you will be prompted to update:
- Phone Number: Enter a new 10-digit phone number or press Enter to keep the current number.
- Specialization: Enter a new specialization or press Enter to keep the current one.
- The system will confirm the update.
- Press Enter to return to the Doctor Management menu.

8.4 Delete a doctor:

- Select 4 from the Doctor Management menu.
- Enter the Doctor ID, First Name, and Last Name of the doctor you wish to delete.
- If a matching doctor is found, they will be removed from the system.
- A confirmation message will appear.
- Press Enter to return to the Doctor Management menu.

8.5 Assign a patient to a doctor:

- Select 5 from the Doctor Management menu.
- You will be prompted to search for the doctor you would like to select.
- Enter the Doctor ID, or First Name and Last Name of the doctor you would like to select.
- You will then be prompted to search for the patient you would like to add to the doctor's list of patients.
- Enter the Patient ID, or First Name and Last Name of the patient you would like to assign to the doctor.
- If a doctor and patient is found, the patient will be added to the doctor's list of patients.
- A confirmation message will appear.
- Press Enter to return to the Doctor Management menu.

8.6 Back to Main Menu:

- Select 6 to return to the Main Menu at any time.

9. Accept a Prescription

- This feature automatically creates a sample doctor, patient, medication, and prescription, then links them together and adds them to the system. It demonstrates how a prescription is recorded without requiring any user input.

10.   Generate a report

- From the Main Menu, select the option for Generate a report

- The system will display the following sub menu:

```
***** Reports Menu *****

Please make a selection:

1. Generate a General Report
2. Generate a Report for Expired Medication
3. Generate a Prescriptions Report by Doctor
4. Generate a Report of Patients Prescriptions (past year)
5. Back to main menu
*************************************************************
```

10.1   General Report:

When selected, this report prints a full summary of all doctors, patients, and medications currently in the system.

- For each doctor, it shows their name, date of birth, phone number, gender, specialization, and a list of their assigned patients.

- For each patient, it displays their name, date of birth, phone number, gender, their medications, and their prescriptions along with the doctor who prescribed them.

- For each medication, it lists the name, dosage, quantity in stock, and expiry date.

At the end, users are prompted to press Enter to return to the main menu.

10.2   Expired Medication Report:

This report checks and displays all medications that have passed their expiry date.

- If any expired medications are found, it prints their name, dosage, quantity, and expiration date.

- If no expired medications are found, a message will display: "No expired medications found."

Afterward, the user is prompted to press Enter to return.

10.3   Doctor Prescriptions Report:

The user is first prompted to enter a Doctor ID.

- If the user leaves the input blank, they will then be prompted to enter the doctor's first name and last name to search by name instead.
- It prints each matching prescription with details like prescription ID, patient name, medication name, dosage, quantity, issue date, and expiry date.
- If no prescriptions are found for the selected doctor, it prints a message indicating so.

After displaying each prescription, the program waits for the user to press Enter before continuing to the next prescription.

10.4   Patients Prescriptions Report:

This report lists all prescriptions issued in the past year for each patient.

- It checks each patient and prints any prescriptions issued within the last 12 months.

- If no patients exist in the system, it displays: "No patients found."

After reviewing the report, users press Enter to return to the main menu.

10.5   Back to Main Menu:

- Select 5 to return to the Main Menu at any time.

11. Exiting Program

To close the program:

- Go to the Main Menu.

- Type 6 and press Enter.

- This will shut down the program safely. If you're in a sub-menu, just go back to the main menu first, then select the exit option.

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12. Troubleshooting Tips

Here are some quick tips if something goes wrong:

- The program won't open:
Make sure Java is installed. You can check by typing java -version in your terminal.

- I'm getting errors:
Double-check your input. For example, phone numbers must be 10 digits, and dates should look like 1990-01-01.

- The program crashes or closes:
Try restarting it. If you're editing something and it crashes, you may have to start that part over.

13. FAQs

Q: Can I leave stuff blank when editing?

A: Yes! Just hit Enter and the old info will stay the same.

Q: How do I go back to the main menu?

A: Most sub-menus will give you an option to go back. Just choose it or finish what you're doing.

Q: What happens if I type something wrong?

A: The program will usually tell you and ask you to try again.

Q: Can I search without an ID?

A: Yep! Just leave the ID blank and enter the first and last name instead.

Q: Can I undo a delete?

A: No, once something is deleted, it's gone. You'll have to re-enter it manually if you need it again.

14. Contact Us

If you have any questions or need further assistance, feel free to reach out:

- **Email:**

  Justin: Justin.Greenslade@keyin.com

  Joseph: Joseph.Gallant@keyin.com

  Ashton: Ashton.Dennis@keyin.com