**Background**

The intention of this project is to create a mobile app that allows people to scan receipts after they make purchases. Many stores still issue paper receipts for many products. This includes things people purchase frequently and may not think of as expensive. However, items like these can cost someone a lot over item, and an app like this could be helpful for people who want to watch expenses like these.

**Main features**

This app will allow users to track their expenses by scanning paper receipts. This scan will be done as quickly as possible with available technology. This will include the use of an O.C.R. engine to capture the data that can then be used to keep records and generate reports.

The main fields that should be scanned from a receipt include the total. The name of the store, a breakdown of items and a date would also be good. These will need to be tested with care, as different stores print dates on receipts in different formats(mm-dd-yyyy or yy/dd/mm, etc.) and store names can be harder to get with O.C.R.

**Target audience**

The target audience for this app is people who wish to track expenses for any reason, whether because they are running a business or feel it would be good for personal use. Some people do like to track personal expenses with great care. Other people do so temporarily as a learning exercise(i.e., some teachers of personal finance courses will tell students to very carefully track their spending for a period of time so they can learn from the data they gather).

**Platforms**

This app will be built to work on Android devices and will also include a web app. This will make it easier for people to manage categories, tags and reports while having the convenience of scanning receipts wherever they are.

**Comparison of existing products**

To get a sense for what existing apps do, a sample of apps for scanning receipts or general document scanning on Android were considered. Of the ones that got some positive online reviews and had a high number of downloads, ones that were easy to install and produced test results in a reasonable time were noted in detail. Apps that proved difficult and very time consuming just to get up and running on a device were not considered.

These apps were tested on a Motorola Moto E (2nd Generation) running Android version 5.0.

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| **App** | Expensify |
| **Ease of installation** | Does ask for some special permissions, requires you to use a confirmation e-mail to complete process and set up account online. |
| **Automatic Optical Character Recognition** | Available. Takes a few minutes but actually works with accuracy far better than any other app I tested. |
| **Reports** | Allows you to create your own reports and start adding expenses to them. |
| **Data organization** | Has pre-defined categories for expenses. |
| **Additional Features** | You can select your currency, i.e. Canadian Dollars or others, there is a long list to choose from. |
| **Link** | [Expensify](https://play.google.com/store/apps/details?id=org.me.mobiexpensifyg&hl=en) (https://play.google.com/store/apps/details?id=org.me.mobiexpensifyg&hl=en) |
| **Comments** | Scanning process takes time, but works well, better than other apps. But, it only shows a total, not a breakdown with sales tax, etc. It is not clear from their web site whether it is using human verification like Shoeboxed or not. |

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| **App** | CamScanner |
| **Ease of installation** | Does require special permissions and setting up an account. Account setup requires Activation E-mail, then you enter activation code and app will request permissions. |
| **Automatic Optical Character Recognition** | Yes but does not work particularly well. |
| **Reports** | No but this is a general document scanner with OCR rather than a specific receipt scanner. |
| **Data organization** | Can upload pdfs to Google Drive but not documents that have been scanned with OCR without upgrading and paying for premium version. |
| **Additional Features** | Fairly basic app, not a lot of extra features. |
| **Link** | [CamScanner](https://play.google.com/store/apps/details?id=com.intsig.camscanner&hl=en) (https://play.google.com/store/apps/details?id=com.intsig.camscanner&hl=en) |
| **Comments** | Logging in to online account does not work after set up of account on cellphone. |

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| **App** | ShoeBoxed |
| **Ease of installation** | Asks for a LOT of permissions to access things on your phone, more than some people might be  comfortable with. AND requires you to have an account. |
| **Automatic Optical Character Recognition** | Yes, but the service puts it through human verification. |
| **Reports** | Can’t find reports functions here. |
| **Data organization** | Can add note to a receipt but not put in categories. |
| **Additional Features** | Also includes trip tracker to record distances. |
| **Link** | [Shoeboxed](https://play.google.com/store/apps/details?id=com.shoeboxed.android.phonegapapp&hl=en)  (https://play.google.com/store/apps/details?id=com.shoeboxed.android.phonegapapp&hl=en) |
| **Comments** | Does not seem to have as many features and options as other apps. |

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| **App** | SmartReceipts |
| **Ease of installation** | Easy to install and start using on Android Phone. No special permissions, no need for an account. |
| **Automatic Optical Character Recognition** | No |
| **Reports** | You can generate PDFs, CSV files or a JPG. It was tested by creating a report in PDF format.. It was easy to do this, although the expense report did not include the receipt name that was entered, just the category. |
| **Data organization** | Receipts can be put into pre-defined categories, including an “Other” category. But, no obvious way to add a new category. |
| **Additional Features** | Has an import/export function for making and loading from backups. |
| **Link** | [SmartReceipts](https://play.google.com/store/apps/details?id=wb.receipts&hl=en)(https://play.google.com/store/apps/details?id=wb.receipts&hl=en) |
| **Comments** | Has a long list of settings you can use, many options. |

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| **App** | Receipts |
| **Ease of installation** | Easy to install and start using on Android Phone. No need for an account, but does require quite a few special permissions. |
| **Automatic Optical Character Recognition** | No |
| **Reports** | You can generate a nice variety of reports. |
| **Data organization** | Receipts can be put into pre-defined categories, and you can add new categories. |
| **Additional Features** | Although it does not employ O.C.R., you can take a photo of a receipt and save it as an attachment. |
| **Link** | [Receipts](https://play.google.com/store/apps/details?id=com.tidalpoolsoftware.receiptspro&hl=en)(<https://play.google.com/store/apps/details?id=com.tidalpoolsoftware.receiptspro&hl=en>) |
| **Comments** | Has a long list of settings you can use, many options. |

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| **App** | Google Drive |
| **Ease of installation** | Already installed |
| **Automatic Optical Character Recognition** | Yes but does not work for receipts. When you upload a scan onto Google Drive, you can search for it based on key terms the OCR found, but I tested this with a receipt and it did not work until I opened up the receipt as a Google Doc, and then the OCR did not work well. |
| **Reports** | No, but this is not specifically a receipt tracker. |
| **Data organization** | Just loads the scan onto Google Drive. |
| **Additional Features** |  |
| **Link** | [Google Drive Blog](https://drive.googleblog.com/2013/05/a-smoother-drive-app-for-android.html) (https://drive.googleblog.com/2013/05/a-smoother-drive-app-for-android.html) |
| **Comments** | I tried this because it can be used to scan documents and is supposed to have OCR. |

**Distinct Features**

The intent of this project is to include a combination of features that the existing apps that were studied do not offer. This will consist of:

1) The ability to scan receipts

2) The ability to put the scanned receipts through an O.C.R. engine and for the user to correct any errors. This will allow the data to be captured quickly, without a requirement for the service provider to supply human intervention which is very time consuming and increases the cost of an app.

3) The ability to view this data on the device or on a web app

4) The options to organize data with categories and tags and to view reports based on these categories, tags and time. For example, tracking how much money one spent in a certain category over a specific number of months.

**Possible Additional Features**

The reports part of this app raises a number of possibilities for more features, including how the reports are presented. Should they be shown as pie charts, bar graphs, line graphs, or written reports? There are numerous possibilities to explore. Some common reports will be included in an initial implementation, and then more variety of reports and styles of charts can be added.

Another possible additional feature would the ability to record transactions without receipts. This would be useful because some people make frequent purchases that they don’t get receipts for. Although these individual transactions are not expensive, the money spent on them can add up to a lot over time and so may be of interest to people to keep track of. This includes things like coffee and muffins, some people spent quite a bit on these over weeks and months but many coffee shops rarely give people receipts. To accommodate this, the app could have an option to press a button and simply enter an amount and brief description the first time, and then use a list of previously entered descriptions to let the user enter more such transactions. Or, for people who like their coffee the same way every time and buy it from the same shop every time, perhaps one button could be added to the app’s main screen and one tap would record a daily coffee sale.

**References**

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