

Amazon Retail Reporting System

Urvi Joshi, Joel Stauffer, Aneesh Raman, Matthew Hunt, Asfand Surhio
Department of Computer Science

Introduction

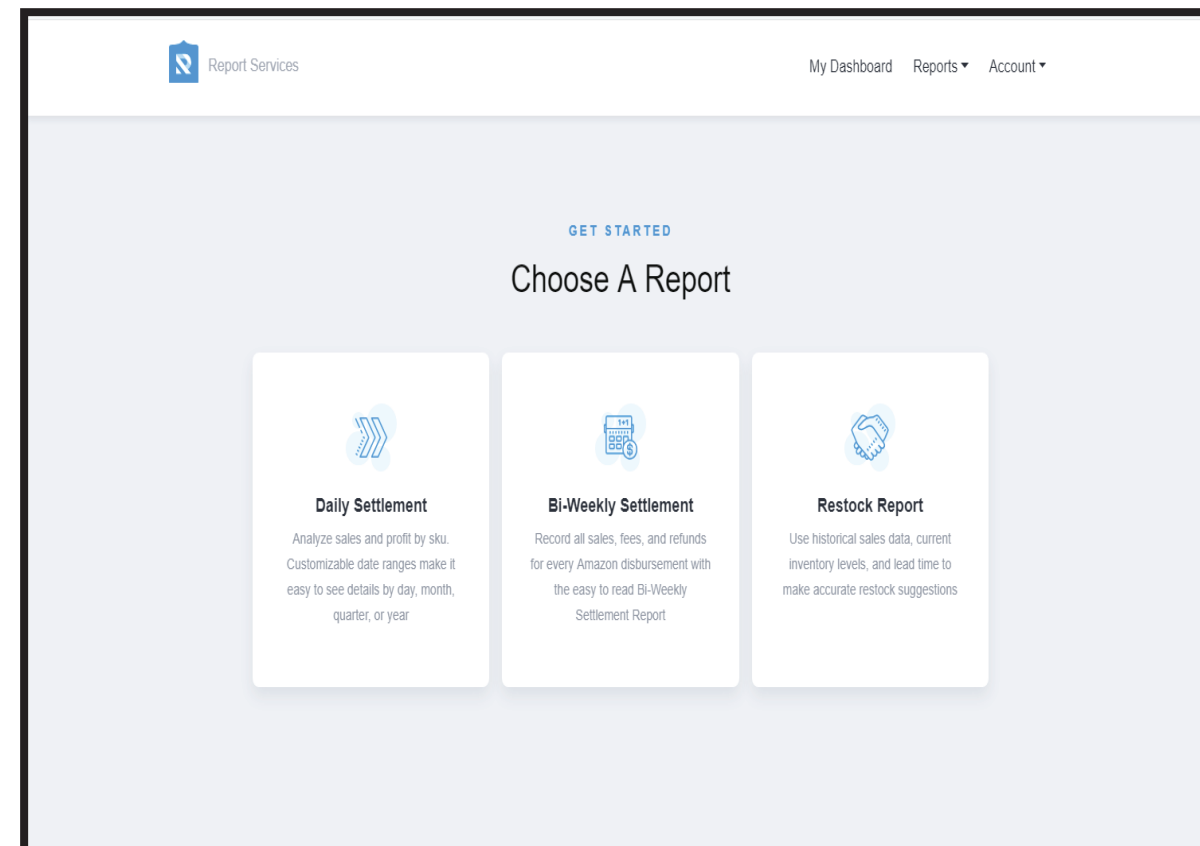
Redesigned Retail is an Amazon consulting agency that works exclusively with brands and manufacturers and helps them maximize the benefits of using Amazon. The company creates business reports that along with Amazon's fulfillment program (FBA), promote vertical integration, allowing clients to sell directly to consumers.

Problem

Presently, Redesigned Retail manually retrieves data from Amazon's seller portals and copies data into Microsoft excel spreadsheets to generate business reports. Such a process is time-consuming, often taking up to 30 hours of work per week, posing a challenge as the company continues to grow.

Solution

To reduce processing time and avoid the manual process, this research project includes a software system developed to retrieve data from Amazon through Amazon Marketplace Web Service, store data into a local database and provide a web application for the clients of Redesigned Retail to access reports, automating every step of the process. Such a software system not only allows the business to scale, but also enhances the quality of the service that Redesigned Retail can provide to its customers.



APIs + Frameworks



Settlement Report

A report that is generated when Amazon issues payment to clients. It captures and groups all sales and expense transactions that have occurred during a two-week settlement period. The data can be analyzed on a SKU level which is important to clients as they use this for reconciling sales and tracking profitability.

The application captures two different types of Settlement Reports: Daily Settlement and Bi-weekly Settlement. The Daily Settlement Report provides the settlement information retrieved from Amazon over a given date range that can be selected by the user. The Bi-weekly Settlement Report use definite list of settlement periods returned from Amazon's MWS API to generate the settlement data.

Furthermore, the above mentioned Settlement Reports contain two different tables: Settlement Totals & Settlement Line Items. The Settlement Totals provides the clients with an overview of settlement data retrieved from Amazon. The Settlement Line Items table lists each different product that was sold during the given settlement period/ date range as selected by the user. The Settlement Totals table is customizable to enable user integrations with different tools or enhancing readability.

Settlement Totals

| Categories | Alternate Name | Total |
|-------------------------------------|----------------|-------|
| Product Income | | 0.00 |
| Amazon Total Fees | | 0.00 |
| Advertising | | 0.00 |
| Refunds | | 0.00 |
| Merchant Fulfilled Shipping Revenue | | 0.00 |
| Tax | | 0.00 |
| Inbound Shipping | | 0.00 |
| Storage Fees | | 0.00 |
| Miscellaneous Fees | | 0.00 |
| Subscription Fee | | 0.00 |
| Reserve | | 0.00 |
| NET DEPOSIT | | 0.00 |

Settlement Line Items

| SKU | ASIN | Title | FBA | MF | Units | Gross Rev | Gross Rev Avg/Unit | MF Shipping Rev Total | AMZ Fees Total | COGS/Unit |
|--------------|------------|--------------------------------------------------|-----|----|-------|-----------|--------------------|-----------------------|----------------|-----------|
| 712769511631 | B07DK2K2KQ | In-Car Stereo Headphones - Limited Edition - USA | 1 | 0 | 1 | 19.99 | 19.99 | 0.00 | 0.00 | -6.19 |

Restock Report

A report that is ran every week and is used to forecast demand and analyze sales. Sales history, inventory on hand, inventory in transit to Amazon, and desired weeks of safety stock are used to calculate a suggested reorder quantity.

The web application has enhanced this report to offer customizable sections of the report and also detailed sales history spanning up to a year.

| Description | ASIN | SKU | FBA QTY | MF QTY | Inbound Inventory | Days Without Inventory | Suggested Reorder QTY | Sales History |
|--------------------------------------------------------------------------------------------------|------------|-------|---------|--------|-------------------|------------------------|-----------------------|------------------------------------------------------------------------|
| 30% Vinegar - 300 Grain Vinegar Concentrate - 1 Quart of Natural Concentrated Industrial Vinegar | B07NDYL11D | 07572 | 0 | 0 | 0 | 44 | 0.00 | Past 7 Days: 0 Past 30 Days: 0 Past 90 Days: 0 Past 1 Year: 0 |

Contribution

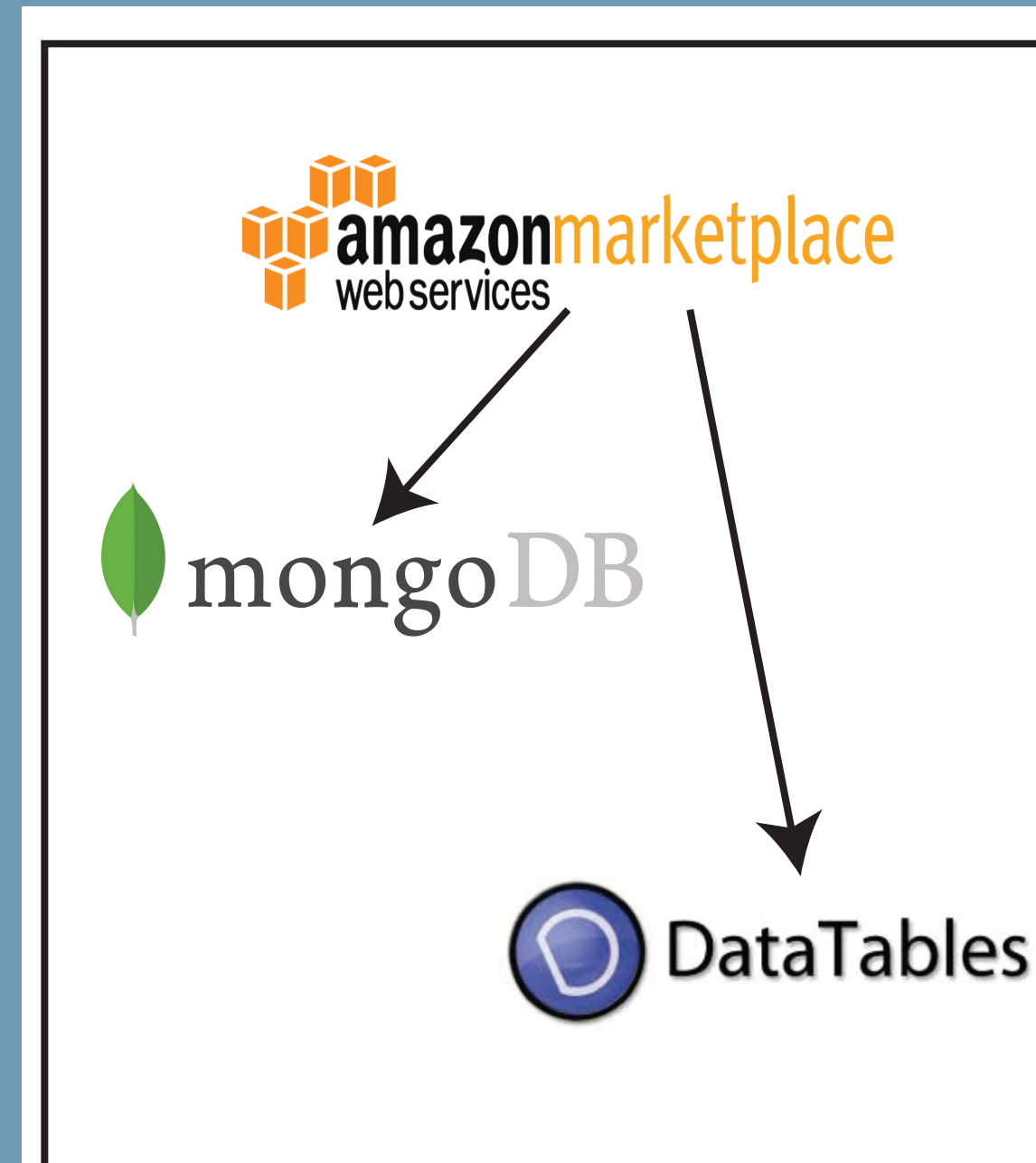
Our contribution is a web application which can download, store, and display up to date information from Amazon's API. Redesigned Retail can now remain competitive as their client base continues to expand. Our contribution to the field is research on how reports can be automatically downloaded, saved and presented from Amazon's API and the possible challenges and solutions in that effort. Interactions with the client/sponsor have resulted in more customizations to the reports that are now a step ahead of the current excel-derived reports.

Design Components

The application consists of two parts: web app to display reports and a backend program that automatically downloads reports to update the data.

The web application is developed through a MEAN stack, i.e. MongoDB (database), Express (routing framework), AngularJS (front-end framework) & NodeJS (back-end framework). The reports are downloaded automatically at a specific time of the day through a cron job which executes the NodeJS code to pull the latest data from Amazon's API.

The website is hosted on Amazon's Web Services using an EC2 instance.



References:

http://docs.developer.amazonservices.com/en_US/dev_guide/index.html
<https://docs.mongodb.com/manual/>
<https://datatables.net/manual/index>

<https://expressjs.com/en/4x/api.html>
<https://nodejs.org/dist/latest-v10.x/docs/api/>
<https://mochajs.org/api/mocha>

Project Advisor - Dr. Zesheng Chen, Department of Computer Science
 Project Sponsor - Kyle Herman, Redesigned Retail Inc. & Indiana Next Generation Manufacturing Competitiveness Center (IN-MaC)

