



MACHINE MINDS

Business Cases & Capabilities

MACHINE MINDS TECHNOLOGIES

REAL ESTATE



The real estate portal was designed to give all users a simple and effective way to access and search the commercial real estate property database, using a variety of search parameters.

Challenge

The client has been an active player in the real estate commercial market for 10 years and has many offices throughout the USA. They wanted a property web portal that would convert as many potential customers as possible into customers. The concept of the real property portal modernization was to put everything that the customer might need at their fingertips so that buying and leasing commercial housing of any type - offices, industrial buildings, retail buildings, warehouses, distribution centers, coworking, flexes, in the USA and overseas would be simple. The customer insisted on fast page rendering, enhanced UX/UI, and seamless use of a large real estate database, both on desktop and mobile. Our web portal development for the real estate agency needed to satisfy users and meet their needs right from the very first use.

Solution

Machine Mind has got significant experience in , as well as in custom software development web application development for the real estate industry. So, the team created a real estate web portal where users, depending on their needs, switch between 2 tabs, Leasing/Buying right on the main page. Various choices and filters allow them to navigate a map of real estate listings all over the world and select according to features like size, transport facilities, surroundings, street address, lease rate or price, broker's name, and description.

- For leasing, users search by Type, Lease Rate, Time Period, Building Size, and they can apply some specific filters including Parking availability for offices, Transport facilities, City Areas, etc.
- For buying, they can search according to Space (square feet), Capacity (number of people, cubic feet, etc.), Number of stories, Price, Year of construction, History, and some specific parameters such as industrial buildings, retail buildings, warehouses, distribution centers, coworking, flexes, etc.

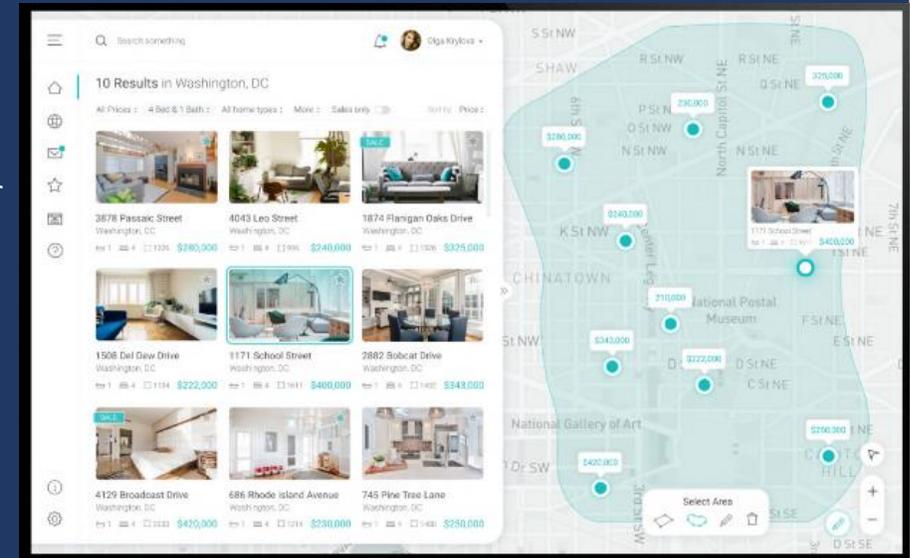
On the commercial property portal, users can save their searches, add their listings, find a broker, get notifications, fill in their profiles, communicate through the platform in their personal account, submit a request, and much more.

Solution

Professional investors in commercial real estate will find the market stats for different country regions to be a very useful feature. It allows them to explore the average list price, get notifications of what's new, see price histograms, supply and demand charts, and the lowest and highest prices for a specific period of time. All these metrics serve as guidelines for investors and allow investors to buy and sell according to the best conditions in a particular market.

Results

- ❑ Time to select a real estate property reduced by 5%.
- ❑ User engagement increased by 19%.
- ❑ Brand awareness in the market grew by 7%.
- ❑ 98% customer satisfaction rate with the detailed monitoring and evaluation features.
- ❑ 90% of users claimed that user interface had improved and property listing was easier on the mobile version.



Technology Stack

NodeJS, ReactJS, AWS, MySQL, Google Maps



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Healthcare Application Development



The Customer is a manufacturer of phyto-based pharmaceuticals located in North America. Unlocking a therapeutic effect of medicinal herbs to the local market, the company delivers to their patients a natural way to manage general well-being, as well as treat a variety of conditions, such as anxiety, pain, insomnia, etc

Challenge

- ❖ The Customer hadn't revised their workflow management for a while and eventually got several business-critical workflows gone outdated.
- ❖ The Customer wasn't clear on the automation scope required to upgrade their business. To begin with, they wanted to improve cumbersome document management workflow and substandard patient experience resulting from a paper-based registration process.
- ❖ All medical needs specified in the registration were to be supported with proper documentation, in particular, prescriptions and insurance applications. However, the only way that the Customer provided for document submission was by mail demanding certain efforts from applicants.
- ❖ Despite a busy document flow, document management was entry-level. The team processed documents manually, which resulted in long validation times and frequent frustration among applicants. Besides, paper docs were prone to loss or damage.

Solution

- ❑ In the Customer's challenge, Machine Mind saw an excellent opportunity to bring digital transformation to the Customer's business.
- ❑ As a priority task, our team designed and implemented a custom web application for user registration and further authorization on the website. The goal to achieve was streamlined processes of registration and document management.

Registration and Document Management Automation

- ❖ We investigated the Customer's business needs and nationally instilled requirements to the physiotherapeutic market.
- ❖ A rigorous assessment of the needs and requirements at the initial stage prevented later solution redesign.
- ❖ Angular applications for patients, healthcare professionals and caregivers were designed and further coded.
- ❖ We implemented the OAuth 2.0 authorization mechanism to enable users to share confidential data with the web application while keeping it private and secure. Amazon SQS/SNS was used for asynchronous communication between the registration applications and related systems.
- ❖ We used M-Files system, powered by the Microsoft Azure cloud platform, as a cloud storage for digital documents submitted by users. For patients' data like credentials and personal details, we set up Apache Solr so that the application could retrieve and interact with data faster.
- ❖ We integrated the authorization application into the Customer's IT infrastructure: an ecommerce website built on Shopify and Microsoft Dynamics 365 Sales.

Upon work completion, the cooperation with Machine Mind didn't end. Having investigated Customer's business pains by that time, our consultants offered to automate two more business workflows – order and warehouse management. Appreciating Machine Mind's proactive approach, the Customer reviewed the offered solutions and greenlit the projects

Order Management Automation

- ❑ The implementation of a custom order management system and its integration with the Customer's ecommerce solution brought much-needed efficiency into the order processing. The system enabled centralized visibility into all order, sales, fulfilment and supply information.

Order Management Automation

- ❑ For warehouse automation, Machine Mind analyzed what data about medicinal plants must be collected and processed. This allowed us to design a warehouse management tool best-suited to the Customer's demands. As the warehousing needs may change with time, we employed abstract APIs to introduce new parameters for data collection swiftly, without reworking the back-end business logic heavily.

Results

With several business workflows automated by Machine Mind, the company made an important step towards digital business transformation and improved experience for their clients. Now, the Customer can:

- ✓ Prevent possible clients' resistance to undergo a complicated registration process and steadily grow their client base.
- ✓ Significantly reduce the manual effort for document collection and processing.
- ✓ Save on engaging additional resources to manage patient data while it amasses.
- ✓ Prevent order fulfilment delays and errors.
- ✓ Track the supply and plan the manufacture accurately.

Technology Stack

Java 8, Spring MVC, JavaServer Pages, Spring Security, Spring Data, Hibernate, MySQL, MongoDB, LDAP, OAuth2, Apache Solr, M-Files, AWS SNS/SQS, Microsoft Dynamics 365, FreeMarker, Apache PDFBox, JUnit, Apache JMeter, Gradle, Apache Tomcat

PATIENT PORTEL

The project is the fully automated Patient Portal that provides access to patients' medical examination history. The client is a healthcare company that provides enterprises with useful software for medical and administrative procedures. Machine Mind were addressed with the task to design the product – patient portal for hospitals in Canada, Australia, and other countries. It should have been a cross-platform software with the exceptional usability level for the hospital's administration, doctors and patients.

Challenge

- ❖ The main goal was the highest level of security and correspondence to all the legal requirements of HIPPA, PHI and other regulations across multiple countries the users.
- ❖ Patient's private information should be kept at the servers of the country of their residence (relevant for Canadian and Australian residents), so our developers had to master Amazon Web Services (AWS) and cloud technologies to make the solution meeting these requirements.
- ❖ Client's emphasis was on great usability that would favorably make the cloud solution stand out from the similar software.

Solution

- ❑ The fully functional web site covers all the needs of hospital employees and patients.
- ❑ The portal provides full access to patients' medical exams from desktop and mobile devices.
- ❑ The software has built-in cloud storage and image viewer that allow having high- resolution images at doctor's disposal for diagnostical purposes.
- ❑ The high-security level and guarantee full protection of PHI. Our client hired an independent subcontractor to take security penetration tests. Zero security breaches were found.
- ❑ Usability was the top priority of the client. After a substantial piece of work dedicated to this matter, we had the results that satisfied our client and its focus groups.
- ❑ The web site style has flexible configurations and is able to conform to each tenant's branding.
- ❑ Special attention has been paid to the performance and testing. It easily scales up to millions of users and guarantees high availability and zero downtime during the deployment.
- ❑ The application is built on utilizing a modern serverless stack of technologies and runs on the AWS cloud platform.

Results

- ✓ There are four kinds of users at the portal: Tenant, Admin, Clerks, Patients.
- ✓ Each user type possesses a range of functions that differentiates its groups from others. Tenants have super admin functions that include branding, selecting functions for other groups, etc.
- ✓ Admins can designate clerks, clerks do not have the power to administrate, users tagged as “patients” have access to their medical exams.
- ✓ The solution is extremely scalable, it is able to scale up to millions of users at the time.
- ✓ It was a real challenge to grasp al the concept of AWS for meeting PHI requirements, and Machine Minds developers stood up for these challenges to deliver the high-quality end product with the help of latest up-to-date technology stack.
- ✓ The project is completed and software have already gained a significant number of medical facilities in Canada, Australia, and other countries. It is ready for future expansions.

Technology Stack

Angular 7, GraphQL, NodeJs, SaaS, AWS



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E-Commerce



E-COMMERCE PORTEL

The client, a US-based local specialty goods trader, required an e-commerce solution to facilitate the online selling and buying of authentic local and handcrafted goods. Their objective was to provide local vendors (like farmers, bakers, butchers, brewers, distillers and more) with an easy-to-use online platform wherein they can register and sell/promote their goods.

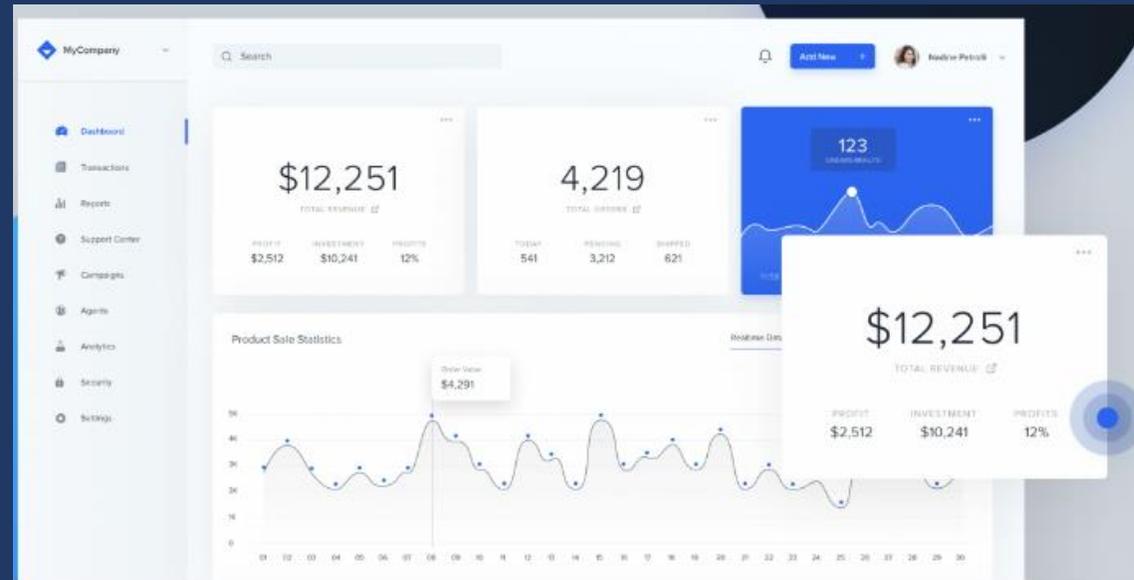
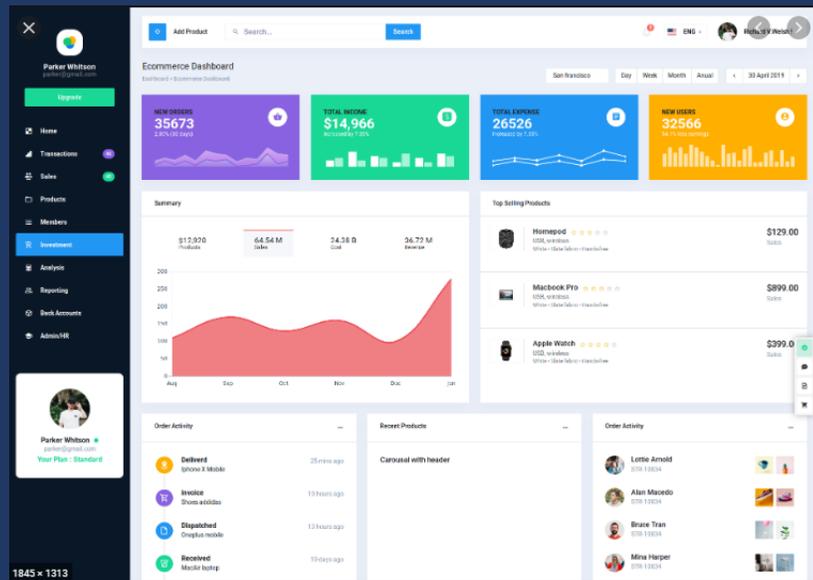
Challenge

- ❖ An online marketplace focused on the purchase and sale of artisanal and handcrafted goods
- ❖ Intuitive and interactive user interface (UI)
- ❖ Integration of multiple payment gateways
- ❖ Multi-stakeholder model
- ❖ E-commerce tracking
- ❖ Search optimization
- ❖ Page improvement for better conversion rate
- ❖ Relatively short project implementation deadline
- ❖ Fluctuation and inaccuracy of the requirements

Solution

- ✓ Development of web and mobile apps to facilitate the online selling and buying of local goods.
- ✓ Implementation of multi-stakeholder model: customer, artisan and back office admin.
- ✓ Development of an easy-to-use e-commerce dashboards for all the stakeholders.
- ✓ Integration with multiple payment gateways.
- ✓ Implementation of easy registration and robust authentication processes for vendors.
- ✓ Incorporation of social sharing feature for artisans (like WhatsApp, Facebook and Instagram).

Results



Technology Stack

Java, React JS, Android, iOS, SQL Lite, Postgres, Amazon Web Services



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BANKING & FINANCE



PREPAID CARDS

The Customer is European Bank , a private commercial bank with \$100 million of authorized capital and 70 branches.

Challenge

The Customer offers hire-purchase cards to buy goods and services on favorable conditions from over 1,000 vendors and pay in instalments. Since only iOS users were privileged to manage their cards via the mobile app, the bank decided to take advantage of Machine Mind's mobile banking application development services to create a similar tool for Android. Without a detailed specification from the Customer, Machine Mind had to reverse-engineer the application based on the hands-on experience with its iOS counterpart.

Solution

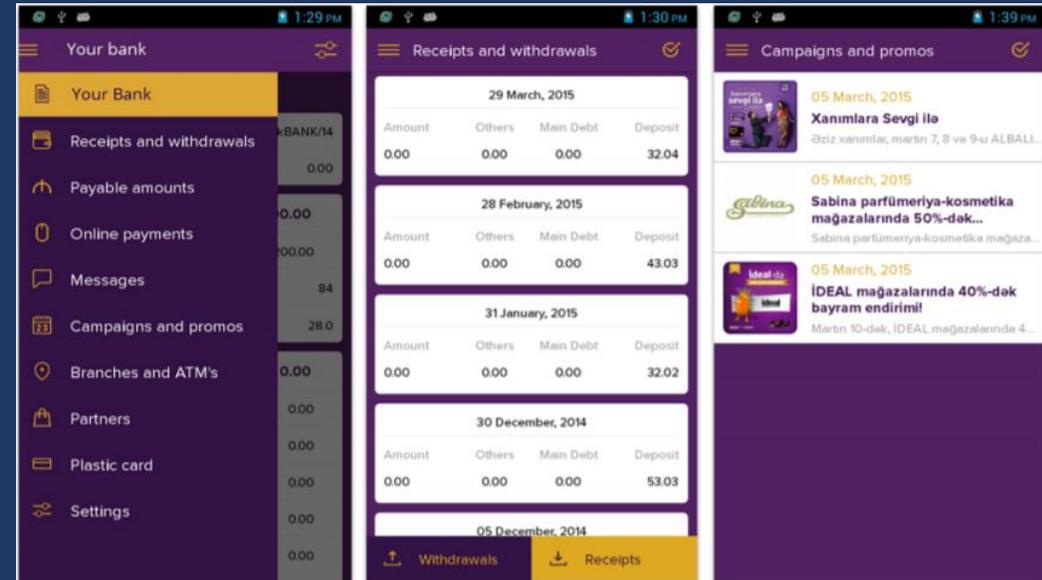
Machine Mind developers implemented a two-factor authentication system which is both simple and secure. To authenticate themselves, users need to enter the card number and the cell phone number, and receive a validation code.

In the app, the rich functionality is exposed to the user through a sleek and slim interface. The tool allows clients to perform a wide range of operations such as balance check, credit and deposit management, online payments and others. The full information about the card can be accessed in just a few seconds. With the help of GPS-navigation, users can find the bank branches, ATM's and partnering outlets across the whole country.

Helping the bank reach out to its clients, Machine Mind team created a newsfeed for updating users about the new promotions and a chat to ensure continuous support. The tool also enables the Customer to send personalized push notifications.

Results

The android App was developed in a short span of 3 months, the app was released on Google Play and now is enjoying positive feedback from users – 4.8 out of 5.



Technology Stack

Android SDK, AppCompat v7, Google Maps Android API v2, Cupboard, Retrofit, ACRA, Picasso, OkHttp

DATA ANALYSIS & INSIGHTS

Custom Application Development

At some point, the vast amount of analytical info that you've collected during your work may turn from a source of insights into a useless jumble of data. One of the possible reasons for this is the absence of full-featured data analysis software. Its analysis and easy-to-under-stand visualizations can provide a fresh look at the endless lists of economic indicators.

Challenge

Machine Minds development team was asked to build a comprehensive tool to provide better data visualization and analysis of economic and investment data. The app should have an intuitive user interface, provide advanced searching and filtering features, and allow users to visualize large amounts of information in charts, maps, tables, and diagrams. We were asked to develop an analysis and visualization tool that can work with more than 4 million data series accumulated from 1,500 information sources without any lags or glitches. Each user would be able to create individual insights that visualize the required information. Another requirement was to replace the existing obsolete software with this new platform and ensure painless data migration.

Solution

Machine Minds development team has developed an efficient solution that allows users to analyze important indicators and create personalized insights. The app consists of several main parts intended for data discovery, its further transformation, visualization, or extraction, and collaboration between users. The smart searching system enables users to find core economic and financial indicators required for analysis and reporting. For example, the system's advanced filtering options allow users to review all recently updated or recently added economic indicators. With this system, users can perform the following operations:

- smart searching and easy visualization
- database browsing via a structured tree
- grouping series by custom indicators for simple analysis
- multi-dimensional filtering
- economic mapping of search queries

Solution

Users can input mnemonic codes in a search bar. While typing, the app will add suggestions to guide a user through the available options. For example, you can type USD.GDP* to get all records related to USA and the GDP indicator. Also, mnemonic codes can be used in an Excel table for smart and quick reports generation.

Drag-and-drop support allows users to move data from the Data Discovery section to the Data Selection area and visualize it as a list or data table in the blink of an eye. The system provides users with different types of data visualization. Among the available options, there are charts (with a pie chart recently added), tables, map, heatmap, histogram, and more. Users can choose custom colors for maps and define custom data labels. Each user can either choose from a predefined list of options or create a custom visualization. The application allows them to change the following visualization aspects:

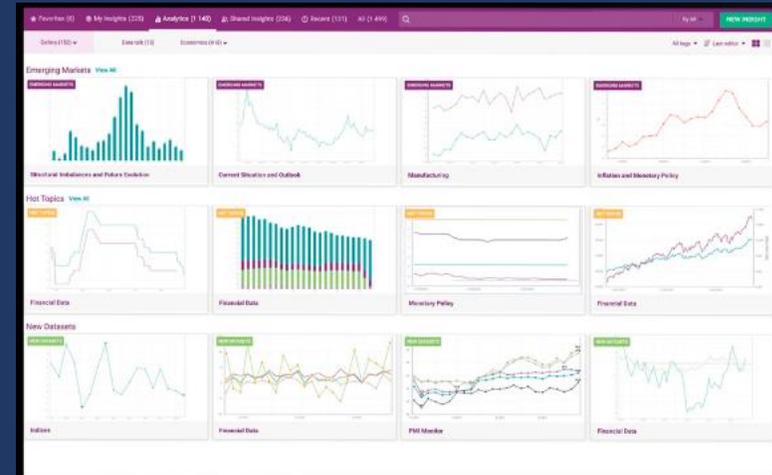
- chart type
- color palettes
- legend
- tooltips
- time axis
- value axis

Users can apply economic and mathematical functions, use quick calculations, and make economic forecasts and custom visualizations with a couple of clicks. For example, there's a currency conversion function that supports US Dollars, Japanese Yen, UK Pounds, and other currencies. A built-in function editor lets users change the parameters of available functions. Also, the app supports data analysis tools such as Matlab and R. All generated Insights, reports, and visualizations can be downloaded in these formats: Excel, CSV, PDF, PNG, JPG. Also, you can create a visualization from the selected series right from the download window. For better customer support, the Email Us window lets you attach images or files. Also, you can send an email to several recipients from your team to invite them into a discussion with developers. To achieve these goals, developers have used the Webix UI library, PhantomJS, Backbone.js, Docker, AWS Elastic Beanstalk, and other cutting-edge technologies.

Results

Our development team has broad experience in creating custom data visualization solutions. Users can use our advanced searching and filtering features to access the economic indicators they require. Built-in mathematical functions significantly expand the possibilities of this system. All important indicators can be visualized in various ways. According to the feedback received from our customer, the adoption of this system allowed them to improve teamwork and collaboration thanks to smart alerts on information updates, sharing modes, and other features. The solution allows users to:

- access any piece of data and create visualizations in a click
- discover underlying trends more efficiently
- make data-driven decisions



Technology Stack

Java, Spring, Microservices, ReactJS, Webpack, MongoDB, redis, AWS, Websockets, Python