Karthik Subramanian

"Find out what you like doing best and get someone to pay you for it"

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Summary

- Highly accomplished IT professional with substantial hands-on experience in comprehensive SDLC strategy development from requirements definition & analysis through development & deployment for Windows & Web-based applications

- Full Stack Developer fluent in multiple languages with in-depth knowledge of the Agile workflow & experienced in designing intuitive, elegant, scalable & durable applications

- Capable of efficiently delegating tasks among onsite & offshore teams, working on technologies ranging from .Net, Java, SQL, RabbitMQ to Angular, Django, ElasticSearch, PostgreSQL, MySQL & AWS

- Demonstrate strong organizational skills in expediting product/project life cycle customization, estimation & project tracking. Highly skilled in transforming the needs of the business to functional & technical requirements

- Skilled problem solver, proven leader & architect, capable of leading multiple projects simultaneously

- Effective communicator capable of building & strengthening partnerships across functions to drive cohesive, strategic operations; and coordinate multiple teams & various stakeholders for project reporting

SKILLS

Programming Languages	Java, C#.Net, VB.Net, Python, PL/SQL
Scripting Languages	TypeScript, JavaScript, VBScript
RDBMS	SQL Server 2005/2008R2, PostgreSQL, MySQL, MS-Access
ORM	Entity Framework 4.5, PetaPoco, Dapper .Net, Spring Boot 2.0, Django
Web Technologies	ASP.Net, HTML 5, CSS 3, Bootstrap 3, JQuery, Angular JS, Angular 2/4/5, Elasticsearch
AWS Deployment Stack	S3, Elastic Beanstalk, RDS, Elasti-Cache, EC2, Docker, Code-Pipeline
Source Control	Git, SVN 1.6.6, TFS 2015, Visual Source Safe, Stash, GitHub, BitBucket
Tools	Visual Studio 2008,2010,2012,2015, SQL Server Management Studio, Visual Studio Code, Intellij IDEA, Confluence, JIRA, Jenkins, SOAP UI 3.5, Postman, Fiddler, FileZilla, Balsamiq Mockup, Infragistics, SSRS & Crystal Reports
Messaging	RabbitMQ, EasyNetQ, Apache Kafka, XML, JSON , SOAP & RESTful Services

LINKS

EDUCATION

B.E in Information Technology, *Mumbai University, India*

Microsoft Certification- 70-515 TS: *Web Applications Development with Microsoft .NET Framework 4*

Microsoft certification- 70-519 PRO: *Designing and Developing Web Applications Using Microsoft .NET Framework 4*

EXPERIENCE

Sr. Software Engineer - New York, NY   2018 - Present

Project: Literacy Pro
Company: Randstad Client: Scholastic Inc.

LITERACY PRO is an independent reading experience that allows students to intuitively connect to the books they want to read. It also includes assessment features to allow students to get book recommendations based off of their reading level. In addition, there is a rich data feedback loop for students and educators to gauge progress towards reading goals.

Educators and administrators can also use Lit Pro as a tool to gather data about their students' reading experiences to inform their instructional choices. Various reports are populated to help teachers understand reading choices at both an individual student and class level. Additionally, administrators can view rolled up statistics across a class, teacher, school or district.

Responsibilities:

- Design & Develop reusable components in **AngularJS and ngx-charts**, that are responsive across all mobile devices
- Develop highly scalable and optimized REST APIs in Java using the **Spring Boot Framework & MySQL** database
- Implement a batch assignment feature to enable teachers to assign Scholastic Reading Measure and Scholastic Reading Readiness tests to multiple students at once
- Design & Develop a CSV export feature that allows teachers to extract crucial information related to student performance from the Literacy Pro reporting dashboard
- Implement an event based messaging pipeline to deliver relevant information to the cross product dashboard from Literacy Pro using **Apache Kafka**
- Work on reducing the tech-debt of the project by refactoring the existing code base to be more reusable and durable
- Resolve key issues related to synchronization of roster data for **CLEVER** users
- For the 2019 back to school, enhance the LiteracyPro front-end and back-end code to support year over year transition. This includes integration changes with Scholastic Digital Manager and app specific changes
- Analyze business use-cases across all 3 products and assist in the design and development of a cross product dashboard to enable teachers to view a student's overall progress across all of Scholastic Literacy Products
- Enable teachers to create assignments for students in **Google Classrooms** right from the Literacy Pro application
- Conduct code-reviews & provide guidance to junior developers with their tasks. Assist in the cross-functional training of front-end & back-end engineers with the aim of making them full-stack

Tech Stack: HTML5, CSS3, Bootstrap 4, JSON, AngularJS, Java, Spring Boot 2.0, MySQL, AWS S3, OpenShift, AWS RDS, Apache Kafka

Project: Ooka Island, W.O.R.D.
Company: Randstad Client: Scholastic Inc.

Ooka Island and WORD are educational games provided by Scholastic to schools across America. The purpose of the project is to design a robust and highly scalable reporting dashboard that displays real time metrics of game play to teachers, school admins and district admins. The objective is to provide intuitive reports on student progress to allow for custom tailoring of a student's learning path.

Responsibilities:

- Design & Develop reusable components in **Angular 5 and ngx-charts**, that can be used across both game dashboards and are responsive across all mobile devices
- Develop highly scalable and optimized REST APIs in python using the **Django Rest Framework, Redis cache & ElasticSearch**
- Develop a **custom Django middleware backend** for sending emails leveraging the organizations **Adobe Campaign Manager** implementation
- Develop custom python scripts to generate random game play data in bulk for both products to help test for **scalability** & **performance** and cover edge cases
- Design & Develop the **CSR portals** for both products that would allow customer service representatives to update a student's game play progress based on requests received from teachers or school administrators
- Establish a reusable query manager class that would allow clients to easily and quickly create **custom ElasticSearch** queries by leveraging a suite of helper methods
- Implement a robust authentication protocol using JWT tokens to verify the user's identity and access level obtained by integrating with Scholastic Digital Manager
- Strategically combine related application functionality under "feature modules" and implement **lazy loading** to improve application load time
- Design the APIs to query both **MySQL** and **ElasticSearch** for data and return a consolidated result set
- Provide crucial support in the integration of Ooka Island into Scholastic's suite of games to ensure a smooth go-live of the game as per schedule
- Create custom angular pipes to transform data returned by backend API's into desirable formats
- Conduct code-reviews & provide guidance to junior developers with their tasks. Assist in the cross-functional training of front-end & back-end engineers with the aim of making them full-stack

Tech Stack: HTML5, CSS3, Bootstrap 4, JSON, XML, Angular4, Python, Django Rest Framework, Redis, MySQL, AWS S3, OpenShift, AWS RDS, AWS Elasti-Cache, ElasticSearch, Kibana

Technical Lead - New York, NY   2014 - 2018

Project: Content Protection 2.0
Company: L&T InfoTech   Client: Viacom Inc.

The purpose of the project is to design a solution that can meet the organization's growing need to identify audio/video content using fingerprinting & watermarking technologies. Other use cases include Usage Tracking, UGC Monetization & Content Identification to enable interactivity.

Responsibilities:

- **Spearheaded** the entire project to completion on schedule & within the estimated budget, exceeding expectations in what was delivered & overcoming all challenges along the way
- Architected the entire process workflow spanning 4 different systems & designed highly scalable integration messaging formats that sustained changing business requirements
- Successfully mapped all business use cases & pain points into actionable work items ensuring **100% coverage** & an end product that was intuitive, easy to use & a **fully automated workflow** for fingerprint delivery to partners
- Designed the **messaging architecture** in RabbitMQ, defining the specific exchanges, queues & routing patterns for each step of the workflow including fail safe procedures using DLX queues & retry capabilities

- Designed & developed the dashboard application in **Angular 4** using **PrimeNG** controls in TypeScript, including creating **custom components for advanced filtering & state graph** that are now being used by other angular projects
- Designed & developed the database schema in **PostgreSQL** & created the REST APIs in python using the **Django Rest Framework & Redis cache**
- Implemented a seamless authentication protocol for **Active Directory** authentication using ng2-adal, and Authorization using **Django Tokens**
- Implemented a scalable **self-hosted .Net API** to generate vendor specific metadata xml's using generic inputs for **YouTube, Vobile & AudibleMagic**
- Singlehandedly deployed the full stack using **AWS** – **S3** buckets for static hosting of the UI, **Elastic Beanstalk** instance to host the python API, **RDS** to host the PostgreSQL Database & **ElastiCache** to host the Redis Cache server
- Skillfully **collaborated** with multiple stakeholders including end users, other project teams & external vendors to ensure a smooth integration and a quick rollover from the old system to the new one with **no disruption to services**
- Created an intuitive & scalable **library** that encapsulates the process of subscribing & publishing data to **RabbitMQ**. The library is now being used by multiple projects in the organization
- Created design mockups & wireframes using **BalsamiqUI**

Tech Stack: HTML5, CSS3, Bootstrap 3.7, JSON, XML, Angular4, PrimeNG 4, Python, Django Rest Framework, Redis, PostgreSQL, pgAdmin4, .Net 4.5, RabbitMQ, Camunda, AWS S3, AWS Elastic Beanstalk, AWS RDS, AWS Elasti-Cache

Project: PTSX Web
Client: Viacom Inc.

Develop a web interface to support a legacy WinForm application, providing a complimenting UI to access the programming & scheduling information across hundreds of channels on the go.

Responsibilities:

- Designed dynamic & modular views in **AngularJS** that were driven by **JSON** files containing form field information using **schema-form.js & dataTable.js**
- Implemented **Angular controllers, factories, services & directives** to retrieve data from REST API's & build key functionalities
- Developed light-weight, flexible & fast API's using **NancyFX** in .Net to support the application
- Conducted daily standup meetings as a part of agile **SCRUM** methodology to track the teams progress and identify & address issues/roadblocks
- Meet with end users & key stake holders to map requirements, scope identification, impact analysis and release planning
- Guide developers on Query performance tuning and **SQL Optimization**
- Built **caching protocols** for saving distance data on queries & implemented caching using **Redis**

Tech Stack: HTML5, CSS3, Bootstrap 3.7, JSON, AngularJS, JQuery, JavaScript, .Net, NancyFX, SQL Server 2008R2 & Redis

Project: Program Tracking System (PTS)
Client: Viacom Inc.

The project entails maintenance & enhancement of an existing legacy Win Form application that serves as the primary scheduling application for all domestic channels of the organization. The application holds the metadata of all domestic content owned/acquired & is used schedule content on broadcast channels & across multiplatform partners such as Amazon, Netflix, Hulu, DIRECTV etc.

Responsibilities:

- Responsible for end to end development & delivery of the application including production (L3) support, leading a team of 7 offshore developers
- Assist brainstorming sessions with the Programming & Scheduling departments to optimize business process workflows

- Developed custom automation solutions using **fuzzy mapping algorithms** to help map content originating from multiple applications. The code provides control over the accuracy at which the algorithm operates to allow users to cover maximum number of scenarios
- Re-designed the **scheduling grid** module to look more like the Microsoft Outlook Calendar allowing users an intuitive & familiar interface to schedule content, leveraging features such as drag-drop, auto-scheduler, parallel views, customized export & quick lookups
- Refactored multiple key modules of the application using **Infragistics** Controls such as UltraGrid, UltraSchedule, Excel Exporter, Dock Manager, UltraPanel, UltraEditors & UltraSplitter. Improved the application's look & feel by implementing a custom style using the AppStylelist
- Re-engineered certain critical modules that involved data intensive operations using the **Background Worker** & improved performance by approximately **60%**
- Spearheaded the migration of **BET networks** onto the application, automating several of the manual processes ultimately ensuring huge savings on tasks that would have otherwise been outsourced for manual execution
- Implemented multiple console applications that facilitated bulk data inserts/updates for various modules helping users save several hours of manual work.
- Created a highly durable & scalable **RabbitMQ** subscriber using **EasyNetQ,** that leveraged .Net **Async Tasks** to process multiple messages at once & implemented a **re-try mechanism** for failed messages using the message headers to keep track of the re-try count

Tech Stack: .Net Framework 4.5 (C#.Net & VB.Net), SQL Server 2008R2, Crystal Reports, Infragistics 2014, PetaPoco, EasyNetQ & RabbitMQ

Sr. Software Engineer – Mumbai, India   2012 - 2014

Program Tracking System (PTS), Media Monitor
Company: L&T InfoTech   Client: Viacom Inc.

The application was designed to assist the multiplatform departments of the client to package and deliver media assets present in the DAM. The assets were subject to multiple stitching processes based on work orders prior to delivery to external vendors. The application was designed to automate a critical part of the supply chain that involved generating metadata & tagging it to the corresponding package meant for delivery.

Responsibilities:

- Supervised the deliverables for **two projects** simultaneously, mentoring the junior developers on both teams
- Responsible for development of critical & time sensitive modules using **VB.Net, C#.Net, LINQ, Crystal Reports** & **Infragistics**
- Designed & developed modules in **XAML** & C#.Net using **MVVM** framework for Media Monitor, which was a **WPF** application
- Created a **custom reusable windows forms control** that allowed for a button to be placed on an Infragistics column header
- Conducted Resource Loading, Timesheet Tracking, Senior Management Reviews & QA Compliance as per **CMMI SVC 1.3**
- Improved overall quality of project deliverables by designing coding standards & implementing appropriate design patterns which were enforced by mandatory code reviews before code commits
- Effectively used **PetaPoco**, a micro-ORM, for a fast & seamless interaction with the database
- Created an **Email Processor** console application that searched through the logged in user's mailbox look for emails with a specified subject & performed certain operations. Multiple applications report errors to system admins by emails, this tool was a quick & easy way to process them & take specific actions on each

Tech Stack: .Net Framework 4.5, SQL Server 2008R2, PetaPoco, Crystal Reports, Infragistics 2014, PetaPoco, RabbitMQ, XAML

Software Engineer – Mumbai, India   2011 – 2012

Program Tracking System (PTS), BugNet
Company: L&T InfoTech   Client: Viacom Inc. & L&T

BugNet is a free, open source issue tracking and project management solution implemented on the **ASP.NET** platform.

The project to implement it internally was a personal initiative to address multiple drawbacks of the existing project management system. The implemented application was designed for planning, tracking and reporting of all deliverables, generating intuitive reports on demand and by schedule for senior management enabling them to take quick informed decisions easily.

Responsibilities:

- Actively involved in the development & maintenance of 2 projects
- Designed the UI & implemented the template layouts using ASP.NET, HTML, CSS & **JavaScript**
- Implemented server caching techniques, state management, forms authentication, and created Master Pages in **ASP .NET** using **MVC** Architecture
- Deployed the Web Application to local servers using IIS 7
- Fixed & submitted multiple bug fixes to the open source project, some of which were incorporated in subsequent releases
- Developed complex reports in **SSRS** leveraging stored procedures implemented in **SQL Server 2005**
- Worked extensively on creating database objects like Stored Procedures, Triggers, Views and Functions

Tech Stack: .Net Framework 3.0 (C#.Net), SQL Server 2005, ASP.Net, HTML, CSS, JavaScript, SSRS

Software Intern – Mumbai, India   2010 – 2011

Anti-Piracy Web Crawler
Company: L&T InfoTech   Client: Warner Bros.

This proof of concept contained a suite of tools designed to track piracy of specific audio and video content on the internet. The objective of the project was to track and obtain details of videos being aired or available for download across several popular sites such as YouTube, MetaCafe etc. Given a list of content titles, the script crawled through several predefined media hosting sites & identified content matching the titles that were available for download/online viewing. The script tagged the links & downloaded the content where available for further scrutiny

Responsibilities:

- Developed the algorithm to crawl through websites using **VBScript**
- Designed the database schema and implemented it using **MS Access**
- Generated analytical reports of Pirated Videos & extrapolated various patterns & usage across several demographics using **SSRS**
- Performed Unit & Integration Testing
- Documented & Maintained design documents & release notes

Tech Stack: VBScript, SSRS, MS Access, Visual Source Safe

PERSONAL PROJECTS

Fuzzy Mapper (WinForms, .Net, Infragistics)

The Fuzzy Mapper is a simple Windows Forms application that will allow you to compare & map data from 2 excels using fuzzy string matching algorithms. The application allows you to specify the columns which need to be compared (one or more) & also allows you to specify the accuracy at which the algorithms should operate.

The code & sample app can be found at https://github.com/karthiks3000/fuzzymapper

File Comparison (Python)

A simple **Python** script that compares the contents of 2 folders and spits out an excel with the results. The script iteratively scans through all sub folders and files of the source and searches for the corresponding file & folder structure in the destination.

For each file it finds it performs an MD5 checksum comparison to verify if they are the same.

The code can be found at https://github.com/karthiks3000/FileComparison

Content Look-Up (Angular)

An angular application to lookup contents from the **Library of Congress & EIDR**.

The application showcases a few features of angular,

- How to implement a simple search as you type functionality using **rxjs** observables, subject and debounceTime & distinctUntilChanged operators
- The response from EIDR is an XML response which is converted to JSON using the **xml2js** package
- Both search implementations are subscribed to the same search text box. Depending on the view currently displayed, the corresponding search is kicked off

The code can be found at https://github.com/karthiks3000/content-lookup