Campus Intern

**Mid Term Progress Report Industrial
Training Project
Undertaken at QuarkXPress Publishing R&D India Pvt. Ltd.**

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD
OF THE DEGREE OF

BACHELOR OF TECHNOLOGY

(Computer Science And Engineering)

SUBMITTED TO

**University College Of Engineering,
PUNJABI UNIVERSITY, PATIALA**

SUBMITTED BY

Name of Student	University Roll No.
Harkaran Singh	11901150

SUPERVISED BY

Dr. Gaurav Gupta (Asst.Professor, CE)   Mr. Rakesh Khullar

(Engineering Manager)

March 2023

DECLARATION

I **Harkaran Singh** hereby declare that I have undertaken Six months Industrial Training at **QuarkXPress Publishing R&D India Pvt. Ltd.** during a period from 4th Jan 2023 to 31st June 2023 in partial fulfillment of requirements for the award of degree of **BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING** from UCOE, PUNJABI UNIVERSITY PATIALA. The work which is being presented in the training report submitted to the Department of **COMPUTER SCIENCE AND ENGINEERING** at **UCOE, Punjabi University** is an authentic record of training work.

Industry Coordinator   Faculty Coordinator

ACKNOWLEDGEMENT

ABSTRACT

This internship report highlights the major works carried out by me in terms of academic and non- academic perspective. The scope of this document is to identify and describe the analysis carried out, projects completed, experience gained by me as an intern in the past two months (Jan-Feb 2023).

I'm currently doing my internship at QuarkXPress Publishing R&D India Pvt. Ltd., Quark Software Inc. is a software company which specializes in enterprise publishing software for automating the production of customer communications. The company is best known for its desktop page layout and design software, QuarkXPress, commonly used for print and digital publishing. QuarkXPress® is design software that lets anyone create and publish rich, compelling materials for print, the Web, e-readers, tablets, and other digital media in one easy-to-use tool — no coding or programming required.

I found myself lucky to get a chance to work in such an environment that Quark Software Inc. has provided. I got introduced to some of the new terms, new technologies and new programming languages.

The tasks that I worked on during my internship certainly helped me by increasing my practical knowledge depth. They were very helpful to me for learning different software development frameworks.

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1. INTRODUCTION

1.1. Objective

This report has been prepared as a requirement of the internship program of the degree Bachelor of Engineering in Computer Science. The report is intended to reflect my achievements, project involvements and professional growth during the internship period.

1.2. Scope

This report gives an insight of the experience that I got in my workspace at QuarkXPress Publishing R&D India Pvt. Ltd., Quark Software Inc.

2. COMPANY'S PROFILE

Figure 2.1: Quark logo

2.1. About Quark Software Inc.

Quark was founded in Denver, Colorado, in 1981. The company was named after the subatomic particle which is considered to be the building block for all the matter. The vision of the company was to create software that would lay the foundation for modern publishing. Quark has delivered on its mission and it is a leading provider of publishing software and solutions for customers of all sizes. Quark has a wide variety of customers- from professional designers to small and mid-sized businesses, and large organizations.

The company revolutionized desktop publishing. For end-to-end content lifecycle management, today the company provides content design, automation and intelligence software. All over the world, customers rely on Quark in order to modernize their content ecosystems. These ecosystems help them to create complex print and digital layouts, automate omni channel publishing of mission-critical documents, and analyze production and engagement insights for the greatest return on their content investments. Quark is backed by Parallax Capital Partners.

The company's headquarter is in Grand Rapids, Mich., and it has offices in the United Kingdom, Ireland and India.

In 1987, Quark introduced its software named 'QuarkXPress'. It provides to the desktop computer both precision typography and layout & color control. It changes the way people do publishing all around the world. By 1990, QuarkXPress 3 had become a very famous software among publishers all around the world. QuarkXPress quickly became the world's most widely used professional page-Layout software with the release of QuarkXPress 4 in 1997. About five billion pages have been produced using QuarkXPress. All the QuarkXPress users around the world are benefiting from rich design capabilities for print, Web, and interactive media.

A wide variety of organizations are being benefited from the services provided by Quark Enterprise Solutions. These include financial organizations, manufacturing, governmental, and other organizations worldwide. It helps the organizations around the world in transforming their communications and developing new revenue streams. It helps in reducing costs across the publishing process by extending the benefits of advanced technologies. New standards have been set by the company's dynamic publishing solutions. This is done by automating cross- media publishing by combining the power of XML with flexible Layout and design in order to automate the delivery of customized, intelligent customer communications across print, the Web, and digital media.

2.2. Vision and Mission

Quark's vision is to consistently innovate in desktop publishing and lead the dynamic publishing market. The company aims to help small and medium sized businesses to promote themselves easily and affordably.

Quark is dedicated to development, design and publishing software that helps clients of all sizes deliver a superior experience to their customers while meeting on-going demands to do so better, faster, and cost-effectively.

2.3. Industry Experience

Quark Software Inc. is a privately owned software company which specializes in enterprise publishing software for automating the production of customer communication. It has been a pioneer in desktop publishing, digital publishing and content automation since 1981. Customers rely on Quark for closed-loop content lifecycle management to meet their desired goals.

2.4. Products

2.4.1. QuarkXPress – Content Design and Digital Publishing Software

Figure 2.2: QuarkXPress logo

Soon after its first release in 1987, QuarkXPress established itself as the predominant professional desktop publishing software and became a dynamic tool providing unprecedented speed and precision to massive publishing outlets. More than three decades later, it remains a superior product with a large and loyal global customer base because of that speed, reliability and strong features across its multiple, integrated tools for page layout and digital publishing with capabilities for refining graphics and illustrations plus photo editing. Brilliant content begins with QuarkXPress.

Add-Ons for QuarkXPress:

As add-ons to QuarkXPress the following additional software are available.

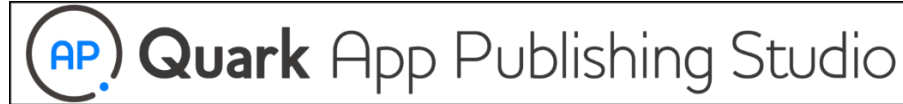- **Quark App Publishing Studio**

Figure 2.3: Quark App Publishing Studio logo

Quark App Publishing Studio provides integrated analytics of the content. It is used to publish, distribute and track digital content. Using this, one can enable the audiences via multiple formats and channels to engage with his brand. It improves the reader's experience by understanding the digital interactions. It helps to grow revenue and subscriptions without the overhead of custom app development.

- **QuarkXPress CopyDesk**

Figure 2.4: QuarkXPress CopyDesk logo

QuarkXPress CopyDesk provides the facility where without altering an established layout one can enables content components to be edited. With it's help, the designer can allot headlines, subheadings and can copy blocks and photos as editable elements while a page design is set. Then writers and editors can amend text, place, crop or rotate images, and write copy for a precise fit.

2.4.2. Quark Publishing Platform (QPP) NextGen – Content Automation Software

Figure 2.5: Quark Publishing Platform NextGen logo

A content automation software named Quark Publishing Platform (QPP) NextGen. It is used for modular and omnichannel publishing and it is metadata-driven. There are five stages of content lifecycle management- creation, collaboration, assembly, publishing and analysis. QPP NextGen automates every stage of content lifecycle management. With the help of Quark Publishing Platform, global enterprises can modernize their content ecosystems. They support digital transformation, regulatory compliance, customer satisfaction and revenue generation.

Key Features:

- Integrations/APIs: A comprehensive library of open APIs enables integration with your existing application ecosystem for a high level of platform extensibility in meeting content automation requirements.
- Structured Authoring: Quark Author is a web-based content authoring tool. Quark XML Author is our Microsoft Word plug-in which is used to create controlled, compliant and reusable content components.
- Power-Review Cycle: Review structured documents in native Microsoft Word and automatically merge changes from multiple reviewers.
- Workflow Design: Automate error-prone, time-consuming and repetitive manual tasks with the workflow designer.
- Metadata & Taxonomy: To add critical context and meaning, the content can be tagged with metadata. It makes locating important components or complete assets easy.
- Component Storage & Dynamic Assembly: Store content components in the central repository. This repository assembles the stored components to meet different requirements for different types of content.
- Multichannel Previews: With the help of QPP, one can easily preview the content as it will

render when published to multiple channels.

- Omnichannel Publishing: With QPP, the content can be published in many different formats, like print, PDF, HTML5, web, XML, tablet and mobile apps, and other digital formats.

- Personalization: Configure metadata tags to publish personalized content based on region, audience, language and more.

- Content Intelligence: Robust reporting enables the analysis of content use and engagement across content types and/or specific components, providing insights for SMEs and other stakeholders to improve effectiveness.

- Single Sign-On: Enable authentication for specific users, roles or groups with a single set of credentials, as well as link to your existing sign-on infrastructure for easy adoption and rollout.

2.4.3. Quark Docurated – Content Intelligence Software

Figure 2.6: Quark Docurated logo

Quark Docurated is a Software as a Service (SaaS) solution. It provides many integrations. It has AI & ML capabilities for content management and intelligence. Quark Docurated helps its users to aggregate, curate and share multi-format content with the audiences through the devices. The shared content can then be analyzed if and how that content is distributed. Organizations will know what is viewed and shared for an overall content score. This content intelligence leads to wonderful experiences and more control over the content lifecycle.

Key Features:

- Content Aggregation & Integration: Seamlessly aggregate and integrate enterprise content repositories, productivity tools, marketing automation platforms, email applications, IT systems and much more.

- Google-Like Search Engine: It has Google-like search engine where the content can be tagged with rich metadata which makes it easy to search content.

- Collections: It helps to organize multiple content assets for delivery as a single collection rather than of individual pieces.

- Personalization: Create or modify content as needed to address a particular individual or an organization in terms of meeting their needs.

- Smart Decks: Assemble and personalize presentations on the fly, starting with an approved template that you adjust using text and data variables and then export as a PPT or PDF.

- Workflows: Establish workflows for content curation and delivery, plus prompts for follow-up or other tasks once your content has been received.

- Version Control: Automatically control content versions, with the ability to see what changes have been made over time.

- Automatic Asset Retirement: It uses metadata to set content expiration dates. This is done for automatic removal of old content and to ensure only current content is available for distribution.

- Multiple Access Levels: It provides many levels of access and sharing on the basis of audience.

2.5. Achievements

- Quark Publishing Platform NetGen has won the Bronze Stevie Award for best Content Management Solution in 20th Annual American Business Awards.
- Quark is selected as a launch partner by Microsoft for the introduction of SQL Server 2012.
- Mobile IQ is acquired by Quark to advance enterprise digital publishing strategies based on XML and HTML5.
- QuarkXPress embraces eBooks with new and enhanced support for ePub and Amazon Kindle.
- Quark Publishing Platform is the only integrated solution that is made to automate the creation and delivery of rich and interactive content across print, Web, and digital formats.
- IBM and Quark partner to bring advanced communications solutions to the financial sector.
- Financial services, governmental, and manufacturing organizations adopt Quark dynamic publishing technology.
- Quark transitions to new private ownership that is dedicated to expanding the breadth and depth of Quark's digital and dynamic publishing capabilities worldwide.

3. SOFTWARE AND TOOLS
3.1. HTML

HTML, which stands for Hypertext Markup Language, is an essential skill for any full-stack developer. As an intern at QuarkXPress Publishing R&D, learning HTML is an essential part of the internship project. HTML is the standard markup language used to create web pages and applications. It provides the structure and content of web pages, defining the elements and their attributes, such as text, images, videos, and hyperlinks.

HTML plays a vital role in full-stack development, as it forms the foundation of any web page or application. It

Figure 3.1: HTML

allows developers to structure and organize the content of a web page, making it more user-friendly and accessible. By using HTML, developers can create responsive and dynamic web pages that adapt to different devices and screen sizes.

In summary, HTML is a critical skill for any Web developer. The intern will gain practical experience in creating web pages and applications using HTML, learning the basics of HTML tags, attributes, and elements, as well as how to optimize web pages for search engines.

3.2. CSS

CSS, or Cascading Style Sheets, is an essential component of the web development stack and is used to control the visual presentation of HTML documents. As an intern at QuarkXPress Publishing R&D, learning CSS has been an integral part of my full-stack development training.

CSS allows developers to style and format HTML documents in various ways, including layout, typography, color, and more. With CSS, developers can create responsive web designs that adapt to different screen sizes and devices.

Figure 3.2: CSS

During my internship, I have hands-on experience in using CSS to create visually appealing and responsive web pages. I have learned how to use CSS selectors to target specific HTML elements and apply styles to them. I have also learned how to use CSS frameworks such as Bootstrap to create consistent and mobile-friendly layouts quickly.

Additionally, I have learned about CSS preprocessors such as Sass, which allows developers to write more efficient and maintainable CSS code. Sass provides features such as variables, mixins, and nesting, which help reduce code duplication and improve code organization. Overall, my experience with CSS has been an essential part of my full-stack development training at QuarkXPress Publishing R&D. The skills I have gained will be invaluable in my future career as a web developer.
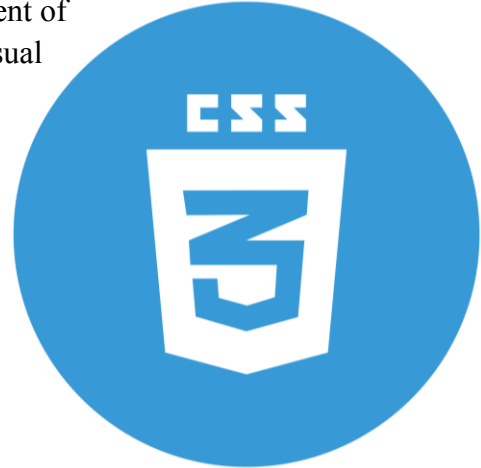
3.3. TypeScript

TypeScript is a free and open source high-level programming language developed and maintained by Microsoft. It is a strict syntactical superset of JavaScript and adds optional static typing to the language. It is designed for the development of large applications and transpiled to JavaScript. As it is a superset of JavaScript, existing JavaScript programs are also valid TypeScript programs.

TypeScript may be used to develop JavaScript applications for both client-side and server-side execution (as with Node.js or Deno). Multiple options are available for transpilation. The default TypeScript Compiler can be used, or the Babel compiler can be invoked to convert TypeScript to JavaScript.
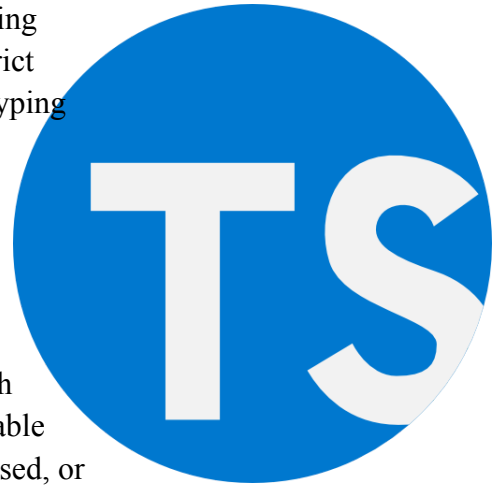

Figure 3.3: TypeScript

TypeScript supports definition files that can contain type information of existing JavaScript libraries, much like C++ header files can describe the structure of existing object files. This enables other programs to use the values defined in the files as if they were statically typed TypeScript entities. There are third-party header files for popular libraries such as jQuery, MongoDB, and D3.js. TypeScript headers for the Node.js library modules are also available, allowing development of Node.js programs within TypeScript.

The TypeScript compiler is itself written in TypeScript and compiled to JavaScript. It is licensed under the Apache License 2.0. Anders Hejlsberg, lead architect of C# and creator of Delphi and Turbo Pascal, has worked on the development of TypeScript.

3.4. SASS

Sass, or Syntactically Awesome Style Sheets, is a preprocessor scripting language that is used to generate CSS. It offers a range of features that are not available in standard CSS, such as variables, nesting, mixins, and inheritance.

During my internship project as a full-stack developer, I had the opportunity to work with Sass for styling web pages. With Sass, I was able to write cleaner and more maintainable CSS code, which ultimately made the development process more efficient. One of the most significant advantages of using Sass is the ability to create reusable code snippets, or mixins, which can be used throughout the project. For example, I created mixins for button styles and typography, which I could then apply to

Figure 3.4: SASS

different elements throughout the project without having to write the same code repeatedly.
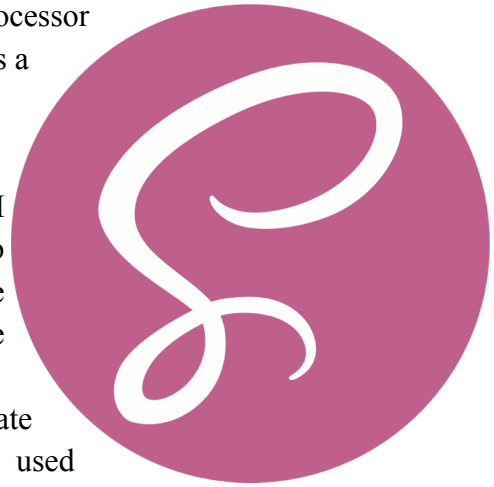
Sass also provides the ability to nest styles, which allows for more organized and readable code. This is particularly useful when working on larger projects with many different styles and elements.

Another notable feature of Sass is its variable system, which allows developers to declare and reuse values throughout the project. This makes it easy to maintain consistency in styles and update styles quickly and efficiently.

Overall, Sass is a powerful tool that significantly enhances the CSS development process. Its ability to create reusable code snippets, nest styles, and use variables makes it an essential component of any modern web development project.

3.5. Angular

Angular is a client-side open-source JavaScript-based front-end framework, which is used to build custom applications in HTML, CSS, and Typescript. AngularJS was launched in 2009 by Misko Hevery and Adam Abrons as a project at Google. It is a front-end JavaScript framework, which was developed to build web-based dynamic applications easier, due to its MVC (Model-View-Controller) feature. AngularJS is currently supported as a framework, although no longer being developed or updated.

Figure 3.5: Angular

Don't confuse it with Angular (without JS) which is the term for Angular 2 and above (i.e. versions 2, 4, 5, 6, 7, 8, and now the latest version is 13) which was released in 2016. Angular 2, as it used to be known, demonstrated considerable differences from AngularJS, the main difference of which was its change in the template language.

One of the key features of Angular is that it uses TypeScript as a programming language. Alternatively, it is possible to create Angular applications using languages such as Dart or JavaScript. However, TypeScript is still the primary language.

3.5.1. Why use Angular?

Angular is a quite popular framework for building web and mobile apps and can be the perfect framework for building large-scale, powerful, and easy-to-serve web apps. So here is the list of reasons why you should use Angular:

- **Safety.** Angular is a fairly trustworthy platform because it is supported by Google
- **Reduced development time.** Angular relies on the current JavaScript virtual machine by transforming templates into code. Angular's load time is also fast.
- **Unit test friendly.** Angular features two-way data binding of modules and components, which makes the code consistent and easy to understand for unit testing. Every unit of code is independently tested across the entire app-building process, providing in-depth quality control.
- **Cross-platform**. Angular-based PWAs can run on a variety of platforms, and the framework is widely used in native mobile apps. Previously, front-end developers used a cross-platform combo of Ionic with Angular. Nowadays, its most popular combo is with NativeScript.
- **Complex learning curve.** Angular uses a much harder learning curve than other frameworks. To get started, you need to explore all aspects of the framework, such as RxJS (a reactive library for asynchronous development) and Typescript (used to increase maintainability and code support capabilities), not just basic JavaScript.
- **Community.** Angular has a great community and ecosystem which is actively supported. There is plenty of content on the framework like guides and videos, and lots of useful third-party tools as well.

4. PROJECTS

4.1. Design a cover page using QuarkXPress

Our first assignment was to design one paper (newspaper /catalog /magazine cover) onto QuarkXPress Business by utilizing all the desired features with unique ideas. The purpose of this assignment is to make us familiar with the product and its various features. I created a QuarkXPress pamphlet.

Through this task I have learnt different features available in QuarkXPress 2022.

4.1 Cover Page

4.2. Design magazine pages using QuarkXPress

Our second assignment was to make copies of magazine pages provided by the company using QuarkXPress. The purpose of this assignment is to make us familiar with in-depth features of QuarkXPress.

Figure 4.2: Magazine page 1

Figure 4.3: Magazine page 2

4.3. Customize Microsoft Word environment using Quark XML Author.

Quark Author is a web-based content authoring tool. Quark XML Author is our Microsoft Word plug-in which is used to create controlled, compliant and reusable content components. The focus of the software is to enable non-technical users, such as business users and other subject matter experts, to create structured content without having to know or understand XML. The purpose of the creation of the XML is to allow for automated omni- channel publishing using Quark Publishing Platform. Quark Author is built with HTML5 to provide an app-like experience and consequently requires the use of modern Web browsers with HTML5 support (Windows Explorer 9 and higher, latest versions of Chrome and FireFox and Safari on the Mac).

Our task was to customize the author environment as instructed.

4.4. Unit Testing

In Web Development, unit testing is largely neglected yet significant for quality delivery of products. One of the main reasons being, lack of development time and sometimes due to lack of awareness about its importance. Unit testing, a testing technique using which individual modules are self-tested by the developer to determine if there are any issues with his/her code. We at Quark rely on unit tests for a quality and quicker delivery of our products.

Jasmine & Karma

Jasmine is a JavaScript testing framework that supports a software development practice called Behaviour-Driven Development, or BDD for short. It's a specific flavour of Test- Driven Development (TDD).

Jasmine, and BDD in general, attempts to describe tests in a human readable format so that non-technical people can understand what is being tested. However even if you *are* technical reading tests in BDD format makes it a lot easier to understand what's going on.

For example, if we wanted to test this function:

```javascript
function helloWorld() {
  return 'Hello world!';
}
```

We would write a Jasmine test *spec* like so:

```javascript
describe('Hello world', () => {
  it('says hello', () => {
    expect(helloWorld()).toEqual('Hello world!');
  });
});
```

Karma

Manually running Jasmine tests by refreshing a browser tab repeatedly in different browsers every time we edit some code can become tiresome. Karma is a tool which lets us spawn browsers and run Jasmine tests inside of them all from the command line. The results of the tests are also displayed on the command line. Karma can also watch your development files for changes and re-run the tests automatically. Karma lets us run Jasmine tests as part of a development tool chain which requires tests to be runnable and results inspectable via the command line. It's not necessary to know the internals of how Karma works. When using the Angular CLI it handles the configuration for us and for the rest of this section we are going to run the tests using only Jasmine.

I am currently working as an intern and one of my main tasks is to create, change and develop the UI of the Docurated. This involves writing code for the functionality of individual parts of a web application, such as buttons, dropdowns, toggles, etc. Also updating the libraries/packages etc for the product.

As an intern, I am expected to write these unit tests in a professional manner, following industry best practices and using appropriate testing frameworks and methodologies.

5. CONCLUSION

After 2 months of my industrial training in web development, I am pleased to report that I have made significant progress in my learning and development. During this time, I have had the opportunity to work on a variety of projects and tasks, gaining valuable experience in web development and software engineering.

During this period, I have also been able to gain experience in the Cloud part, i.e. Aws, Azure etc and getting my hand on these platforms.

Overall, I am pleased with the progress I have made during the first two months of my industrial training. I look forward to continuing to learn and develop my skills over the remaining four months of my training, with the goal of becoming a proficient and skilled web developer.