TSI Digital Foundations Handbook

v0.1

Table of Contents

1. Introduction

Digital technologies have profoundly changed the ways we do business, buy, work and live. They have even altered society and continue impacting virtually all business functions and industries.

India started as an outsourcing destination in the 1990s and quickly received global prominence for the back office work. Though the outsourcing market is not growing very fast these days, with the proliferation of mobile phones and with the costs of smartphones & internet coming down steeply, India itself is at the cusp of becoming a very large market for Digital Technologies with its 500 million consumer base. No wonder services such as app based shopping, classifieds, taxi booking etc. are mushrooming in this country like never before. Besides with the rise of social media platforms, even the traditional brick-and-mortar businesses have no other choice except to embrace digital technologies to engage their prospects and customers. And traditional roles such as sales & marketing, teaching, accounting etc. are also changing because of digital technologies. There is also a heavy push from the government with its initiatives such as Digital India, Make-in-India and Smart Cities. Overall, this is excellent news for an aspirant who is planning to start his / her career in the digital technologies space.

The question is where to begin? When there are myriads of job opportunities and job profiles out there under digital technologies, how does an aspirant find and land on an opportunity that suits him / her? This is the problem we have set out to solve via our TSI Digital Foundations Program.

Inspired by Montessori training methodology, we start with a Foundations Course and lead the aspirant towards a Job Suitability & Aptitude Assessment. We, then, expose the aspirant to Advanced Topics and guide him / her through a self-directed learning program on the chosen career path using On-the-Job

training methods. When the aspirant demonstrates sufficient proficiency in performing the role, we will proactively work with the candidate along with our employer partner in finding a suitable role.

The purpose of the Digital Foundations course is to provide a quick peek into the current state of digital technologies. This course is targeted at aspirants who have completed / completing their Bachelor's Degree. It assumes that the aspirants possess requisite verbal, quantitative and analytical skills but very little computer skills.

How is it different?

TSI Digital Foundations program does not offer conventional instructor led pedagogy. The emphasis is on self - directed learning assisted by a coach/ mentor.

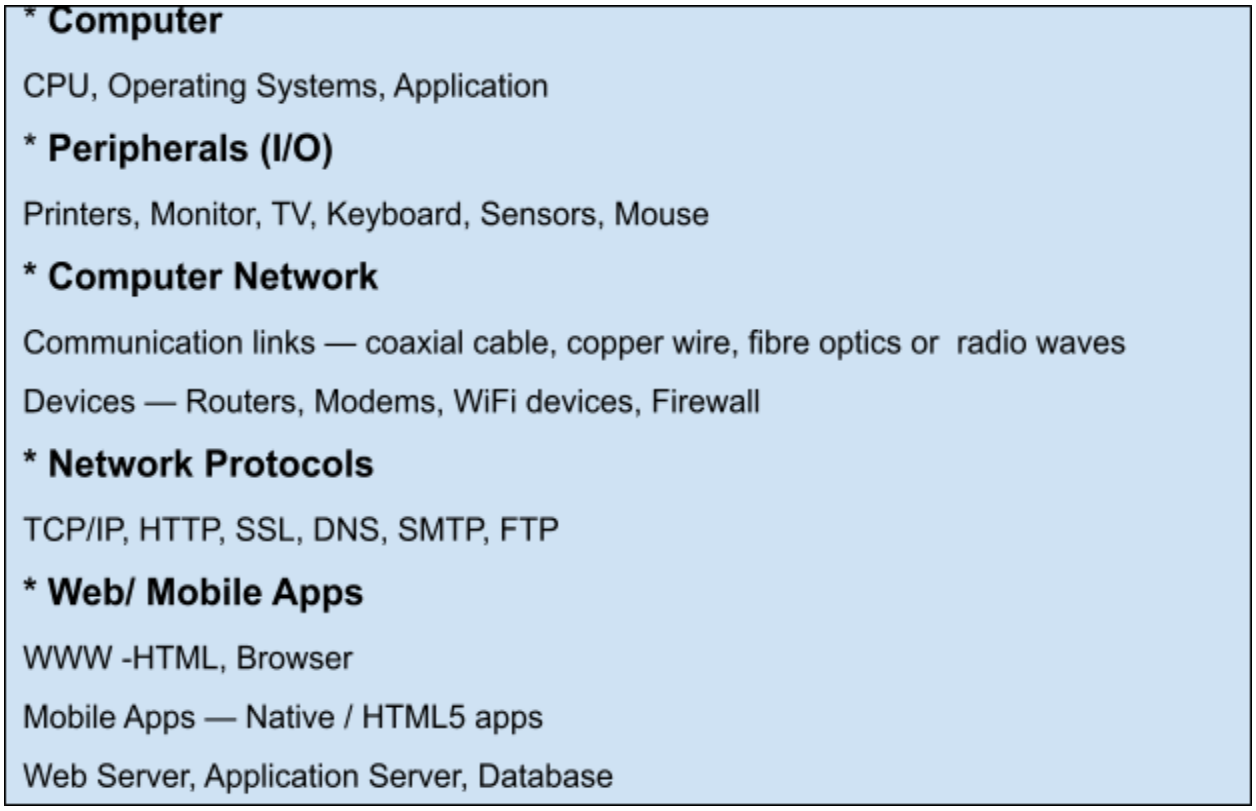
The coach and the aspirant jointly designs a personalized program that is suited to the aspirant's needs

The aspirants work in small groups, which resemble a job - like environment, and accomplish tasks collectively.

The aspirant's progress will be obsessively tracked on a system with inputs from all stakeholders who are interacting with the aspirant from time to time.

A qualitative “Skill Report” that highlights the strengths and weaknesses of the aspirant will be shared with hiring managers.

2. Building Blocks



Computers are everywhere now. They used to be big a few decades back. With the advancement in chip design, we have very powerful computers right with-in our smartphones.

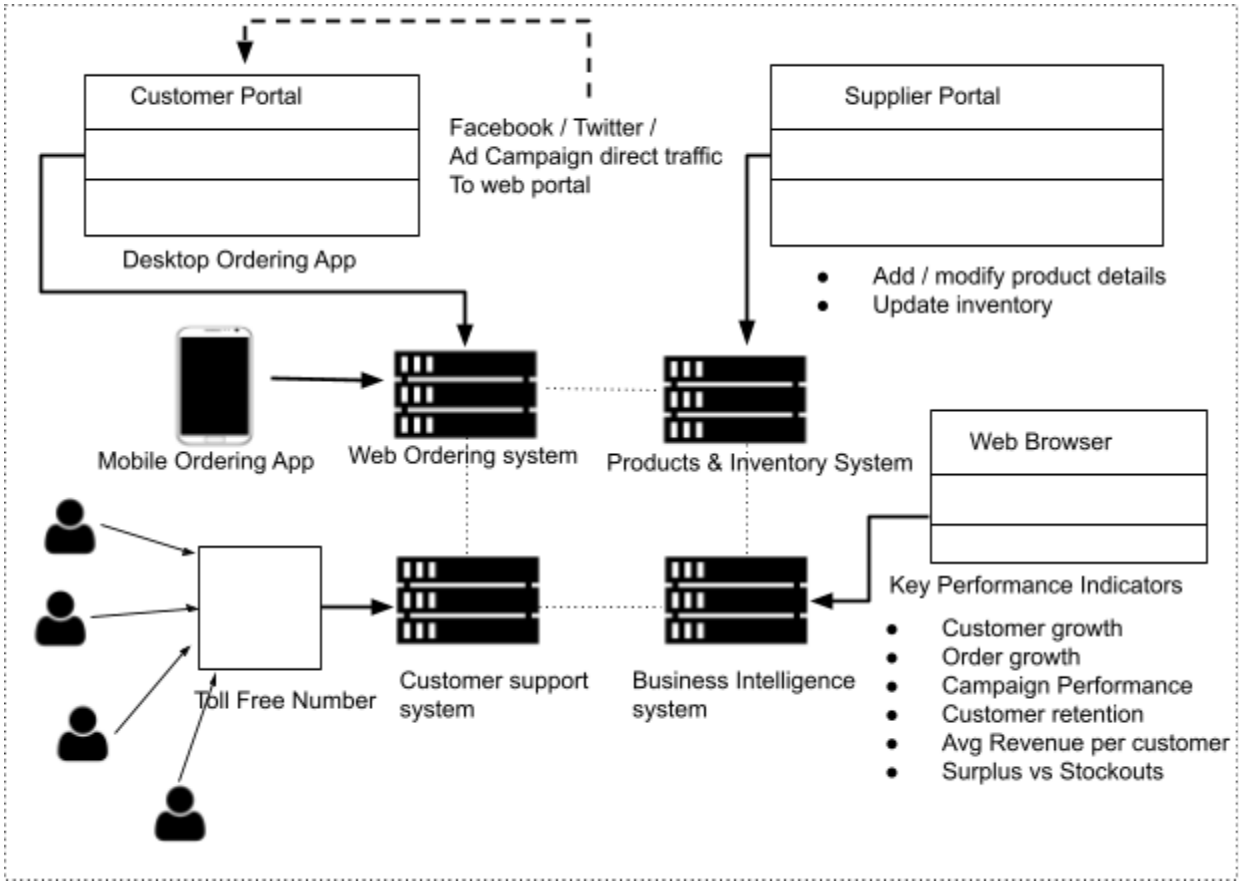
The public internet is a worldwide computer network that interconnects billions of computing devices. End systems are connected together by communication links — coaxial cable, copper wire, fiber optics or radio waves. End systems are not directly connected to each other, instead they are connected via intermediary switching devices known as routers

TCP/IP protocol provides end-to-end connectivity specifying how data should be packetized, addressed, transmitted, routed and received at the destination. An Internet Protocol address (|P address) is a numerical label assigned to each device (e.g.computer server).

HTTP is a TCP/IP based communication protocol, that is used to deliver data (HTML files, image files, query results, etc.) on the World Wide Web. Simple Mail Transfer Protocol (SMTP) is an internet standard for electronic email (email) transmission. HTML is a mark-up language for describing web documents (web pages). Web Server is a program on the Server computer that serves the HTML documents. Application servers enable dynamic generation of the HTML documents by integrating with a database.

3. Digital - In Action

Ecommerce Organization

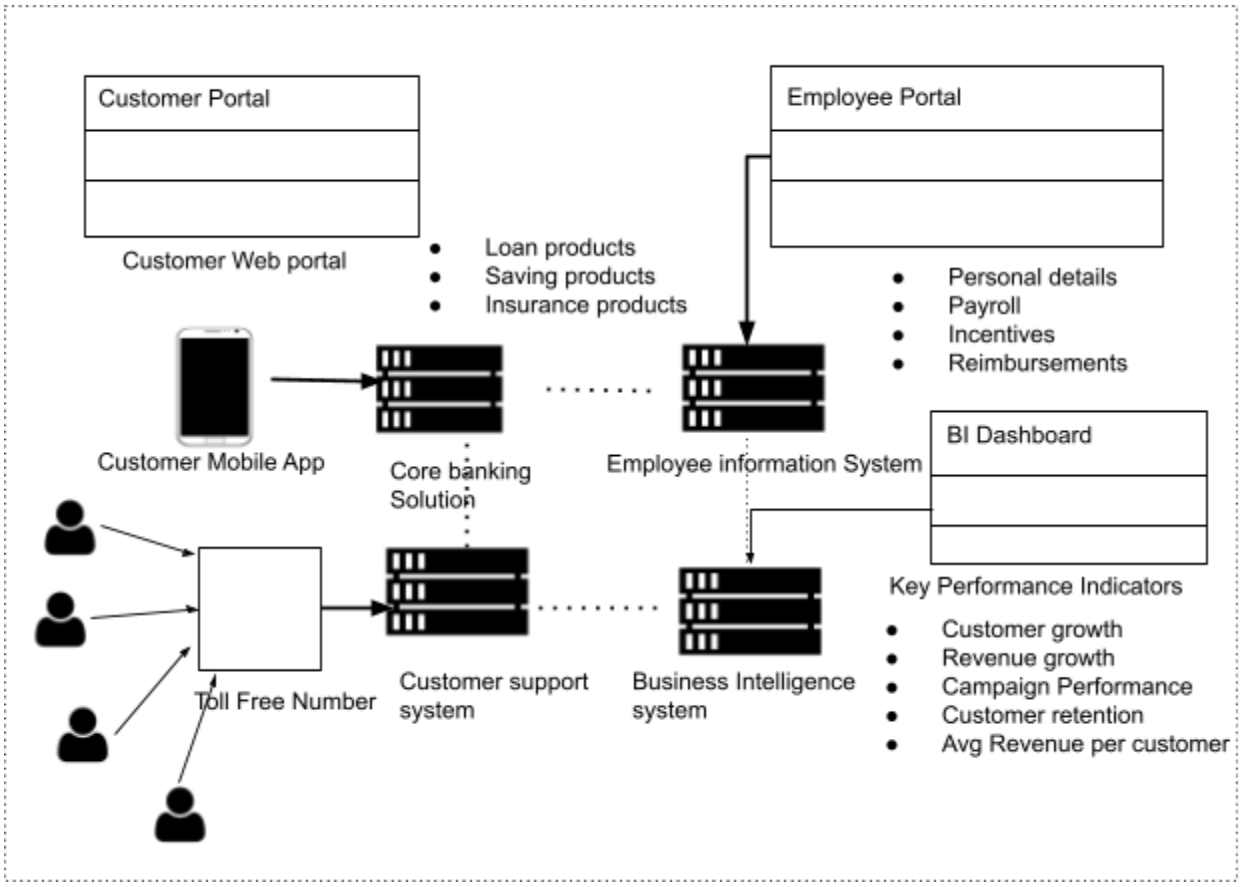


The diagram shows a typical system design of an e-commerce organization, The most critical system for any ecommerce organization is the web ordering system. A web ordering system typically lets users browse products, add selected items to shopping cart, check out and pay via a payment gateway

Products and Inventory will be managed by a backend system. This will have the ability to upload product images, provide product descriptions etc. Another essential system is the customer support system. This lets the customer support teams receive customer complaints, follow-up on them and bring them to a logical conclusion.

Also since e-commerce is a high volume low margin business, they'd invest in a sophisticated business intelligence system to keep track of key performance indicators such as customer growth, order growth, campaign performance etc.

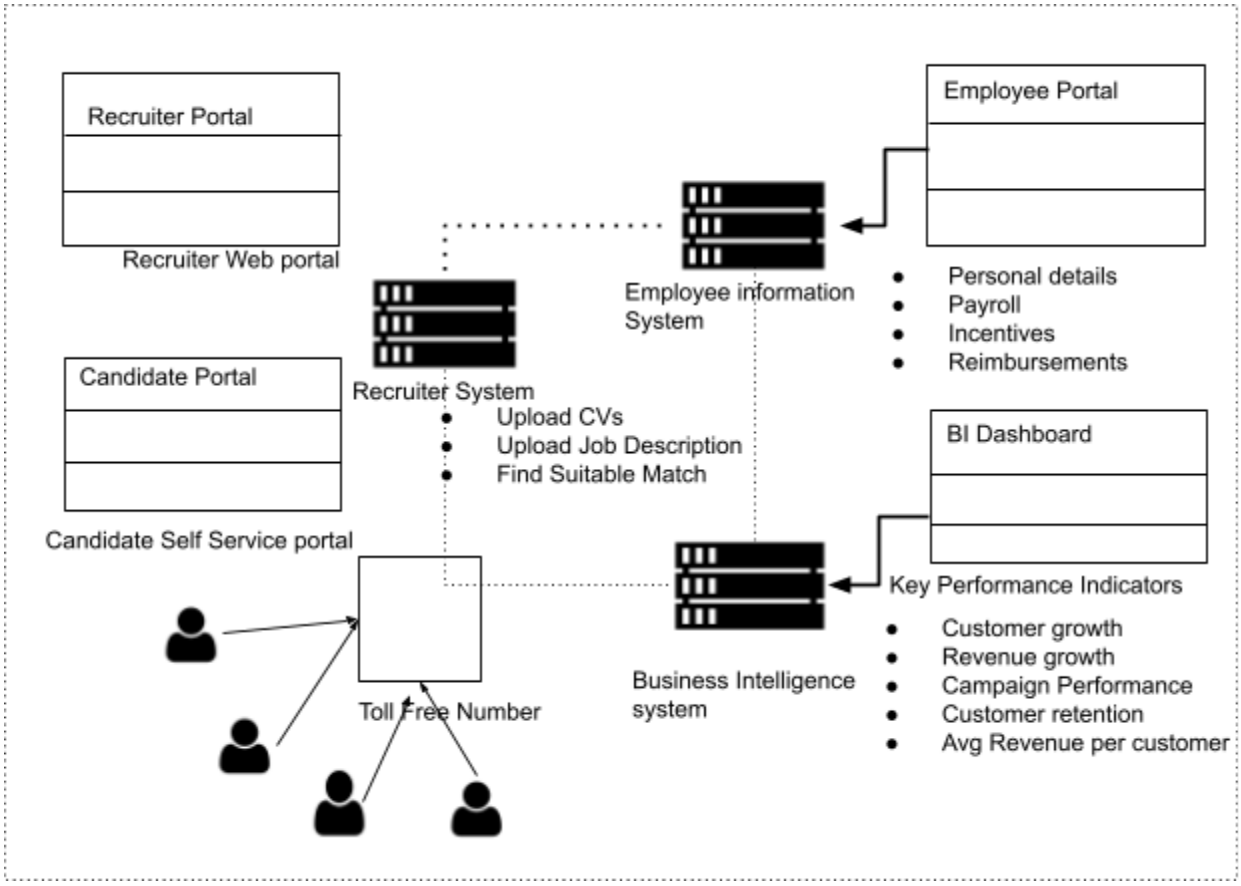
Bank



The diagram shows a typical system design of a bank. The most critical system for any bank is the core banking solution. It will be used by bank staff and customers themselves via a web portal or a mobile app. All customer loan products & savings products are managed in the core banking system.

Another essential system is the customer support system. This lets the customer support teams receive customer complaint follow-up and bring them to a logical conclusion. Banks may also have pure operational systems to manage employee data, payroll, field staff incentives etc. Banks also invest in sophisticated business intelligence systems to keep track of key performance indicators such as customer growth, order growth, portfolio quality etc.

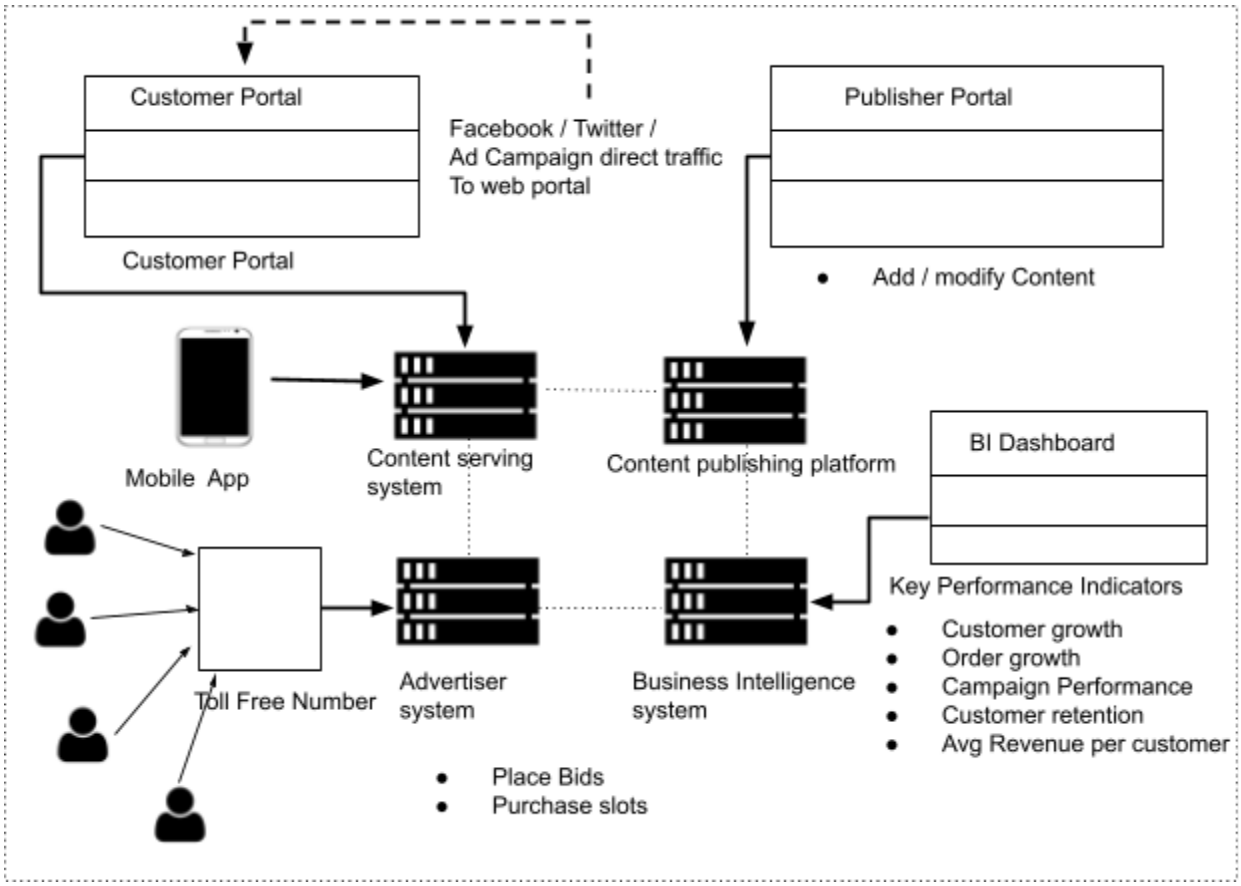
Recruitment Organization



The diagram shows a typical system design of a recruitment organization. The recruiters use a recruitment management system where the Resumes and Job Descriptions are uploaded. The recruitment management system may use sophisticated algorithms to match the CVs with the relevant job description. Besides the recruitment organization may offer self-service portal / mobile app for candidates and hiring organizations

Some organizations also employ toll free numbers for candidates / call me button on the mobile app to reach out and connect with a recruiter seamlessly, thus enhancing the overall candidate experience.

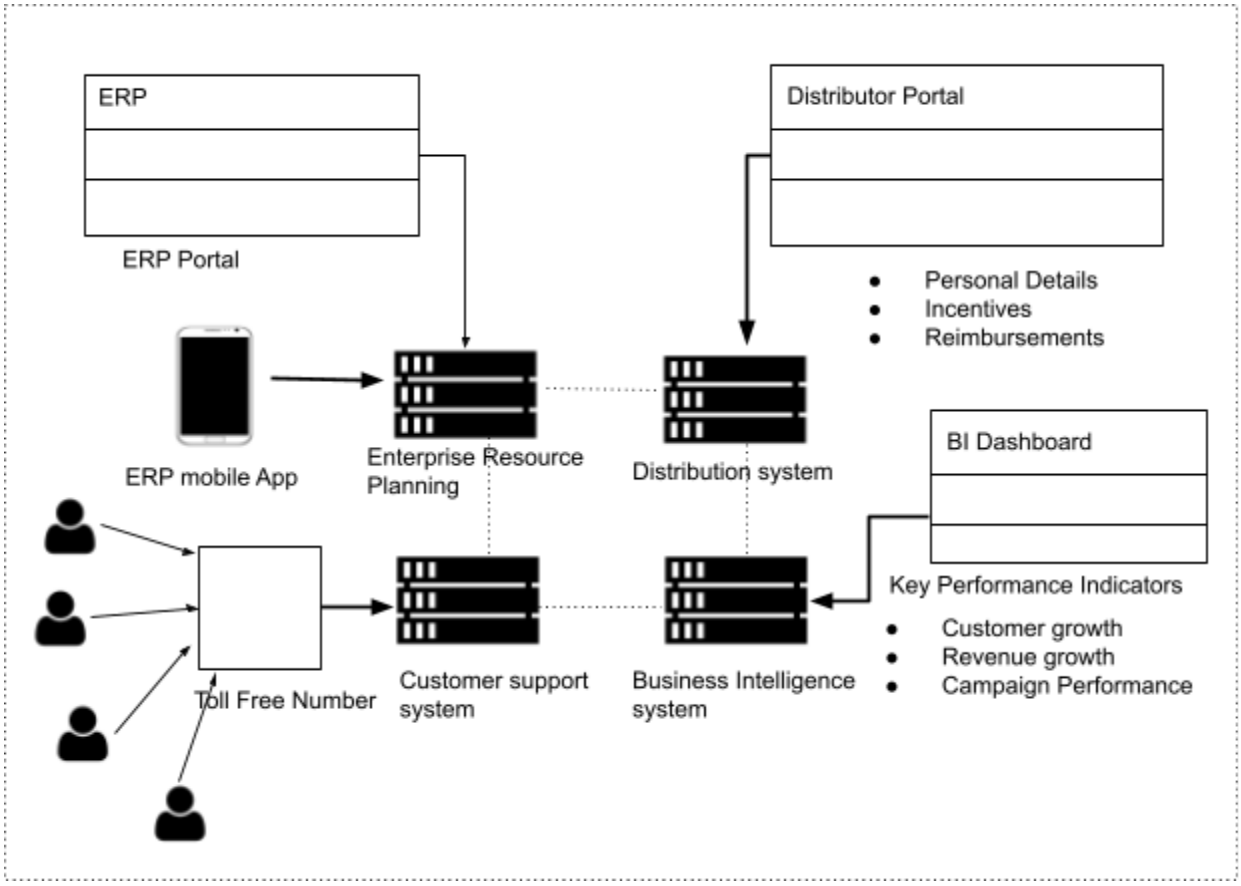
Media



The diagram shows a typical system design of an online media organization. Content management system is the core online media organization. It has two parts: content publisher and content viewer.

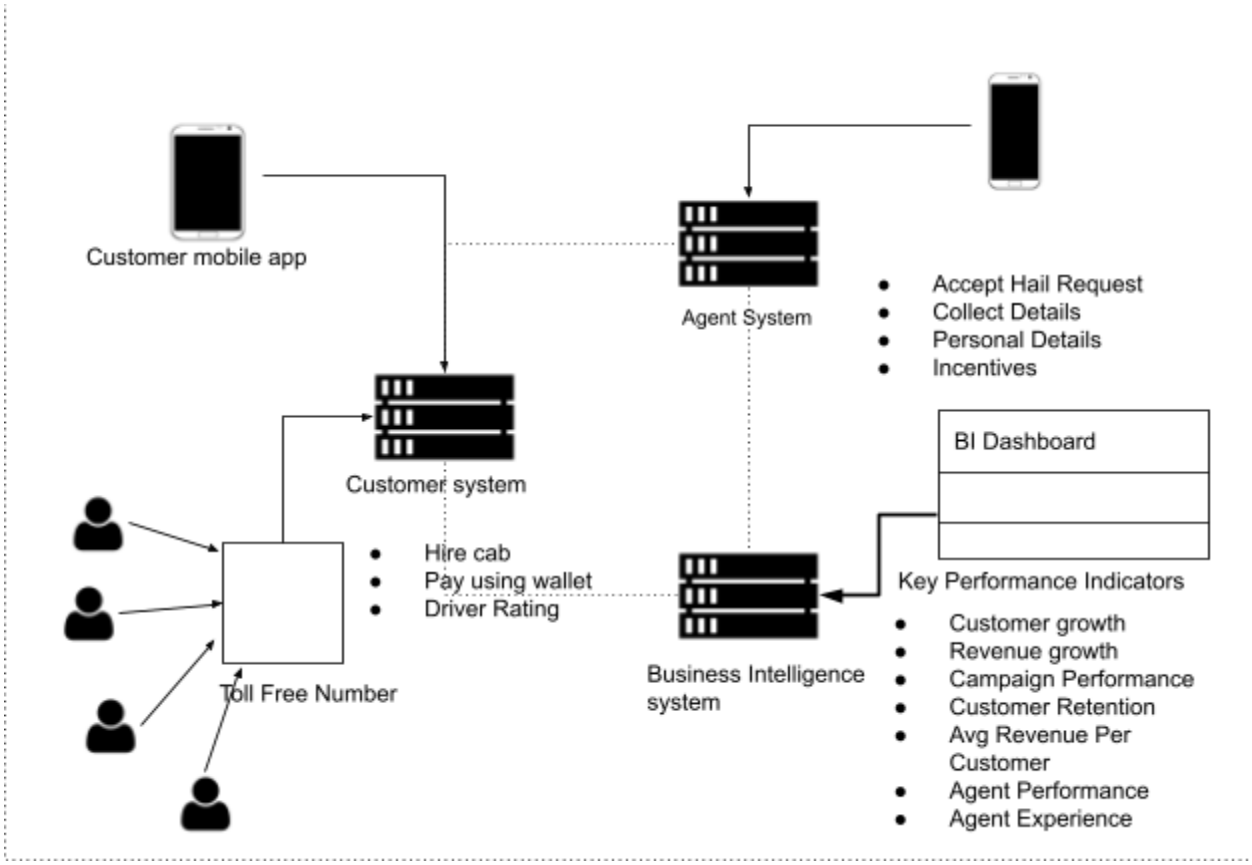
Another essential system is the Advertiser system where advertisers can place bids and purchase slots, The media organizations also invest in sophisticated business intelligence system to keep track of key performance indicators such as user growth, user retention, advertiser ROI etc

Manufacturing



Manufacturers use ERP systems to manage their operations end to end. They would also have a distributor portal for their distributors to place orders. Besides, a customer support system is an absolute must to listen to customers and fix defects. And a sophisticated BI system will help them optimize operations.

Taxi service



Modern day Taxi Service providers such as Ola, Uber etc completely rely on mobile apps. A customer can place a booking via his / her mobile app. Immediately a cab driver who is closer to the customer and is available gets notified on his mobile app. If the driver accepts the request, then both parties are connected to facilitate the transaction.

4. Essentials — Operating System

* **The most important program that runs on a computer — first one to load. It has to be efficient, small in size and reliable.**
* **It performs basic tasks such as**
    * Recognizing input from the keyboard or mouse
    * Sending output to the monitor
    * Keeping track of files and directories on the disk
    * Controlling peripheral devices such as disk drives and printers
    * Manages resources and memory
    * Manages all other programs on the machine.

FAQ:

What Is kernel?

What Is Virtual memory?

What Is a thread?

How does swapping result in better memory management?

What is a socket?

What Is a Root partition?

What are device drivers?

What Is multitasking?

What Is caching?

What Is spooling?

Windows OS

* Add/Remove Users
* Add/Remove hardware
* Connect to Network via LAN / WiFi
* Perform backups
* Install / Uninstall software
* Setup Anti-virus, Firewall etc
* Explore Outlook and productivity applications such as Word, Excel, PowerPoint etc.
* Get comfortable with basic cmd line tools — copy, move, run .bat files

FAQ:

What to do when outlook fails to send outgoing email?

What is the difference between a 32 bit and 64 bit system?

What is Active Directory service?

What is a file server?

What is a core dump?

Linux OS

* Add/Remove Users

* Add/Remove hardware

* Connect to Network via LAN / WiFi

* Perform backups

* Install / Uninstall software

* Setup Firewall etc

* Get comfortable with shell commands — ls, cp, mv, ps, df, top etc and run .sh files

FAQ:

What Is BASH?

What is the advantage of open source?

Describe the root account.

How can you find out how much memory Linux is using?

What are symbolic links?

How do you change permissions under Linux?

What are daemons?

What are the kinds of permissions under Linux?

What are environmental variables?

What Is redirection and what is grep command?

How do you terminate an ongoing process?

Assignment #1: simple os tasks

a. Setup FTP Server, Add Users and Provide Permissions
b. Setup Apache Web Server and MySQL database
c. Install JDK
d. Learn how to connect to a different machine via TeamViewer, RDC
e. Configure gmail account in Microsoft Outlook

5. Web & Mobile App Development

Native mobile apps are built for specific device capabilities and run on devices such as smartphones and tablets (eg: iOS app built using Swift / Android app built using Java / Kotlin). React Native & Flutter are popular mobile cross platform frameworks.

Web apps are accessible via web browsers and will adapt to whichever device the user has. Unlike native mobile apps, web apps are not native to any particular system or device, and therefore do not need to be downloaded or installed. AngularJS, ReactJS, VueJS are popular web frameworks.

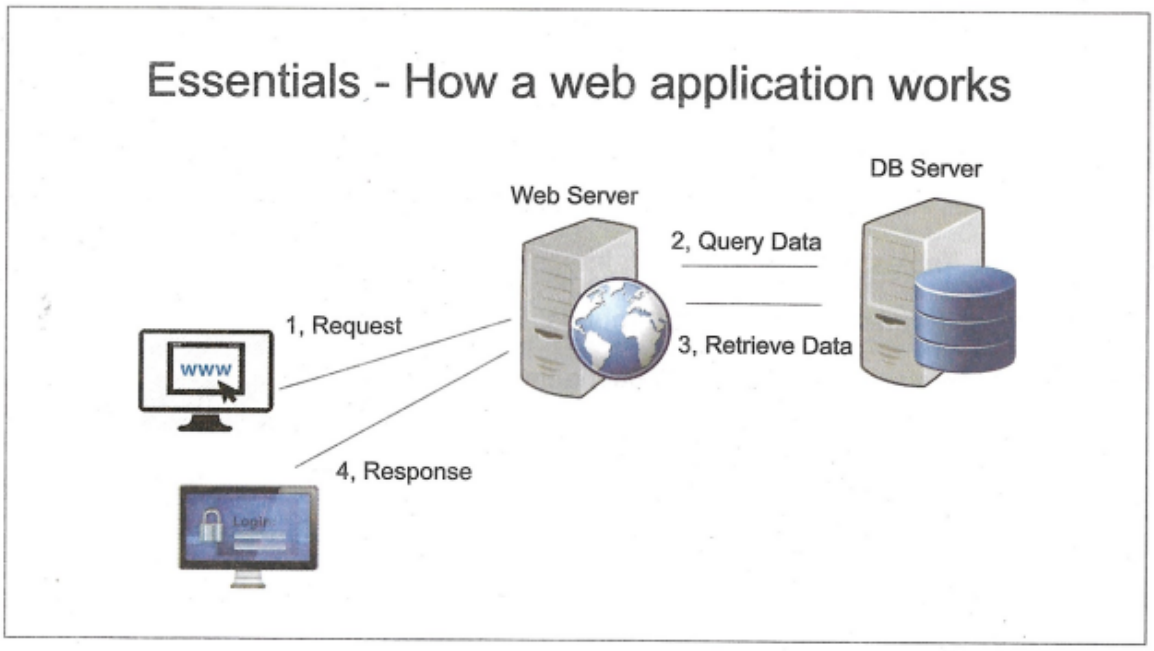
The best thing about web apps is that they are responsive enough to the devices that they are being used on, so much that at times they can function as a mobile app.

A difference between these two types of apps is that web apps require an active Internet connection in order to function, whereas mobile apps can often function while offline.

Mobile apps tend to be faster and more efficient than web apps, but in order to maintain optimum functionality, users must regularly download updates, whereas web apps update themselves.

Most organizations typically standardize on one or two of these frameworks. You are encouraged to pick up the skills around the technologies that your organization would like to standardize on.

How a web application works



A Web application or web app is a client-server software application which the client (or user interface) runs in a web browser.

Web applications are popular due to the ubiquity of web browsers, and the convenience of using a web browser as a client to update and maintain web applications without distributing and installing software on potentially thousands of client computers is a key reason for their popularity, as is the inherent support for cross-platform compatibility, Common web applications include webmail, online retail sales, online auctions, wikis, instant messaging services and many other functions.

Essentials - HTML

* Overview, Basic Tags
* Elements, Attributes, Formatting, Phrase Tags, Meta Tags
* Images, Tables, Lists, Links (Text, Image & Email)
* Frames, iFrames, Blocks, Backgrounds
* Colors, Fonts, Forms, Embed Multimedia
* Marquees, Header, Style Sheet, Javascript, Layouts
* Examples

FAQ:

Does a hyperlink apply to text only?

Do older htm! files work on newer browsers?

What will happen if you overlap sets of tags?

Can a single text link point to two different web pages?

What is a marquee?

How do you create a text on a webpage that will allow you to send an email when clicked?

Essentials - Javascripts

- Overview, Syntax, Enabling, Placement
- Variables, Operators, If. Else, Switch Case, For loop, For In, Loop
- Control, Page Printing
- Functions, Events, Cookies, Page Redirect, Dialog Boxes, void keyword
- Javascript Objects - Number, Boolean, Strings, Arrays, Date, Math,
- RegExp, HTML DOM, Objects
- Error handling, Validations, Animation, Multimedia, Debugging

FAQ:

How to create, read and delete a cookie using javascript?

How to print a web page using javascript?

What Is callback?

How to handle exceptions in Javascript?

What is the purpose of an Error event handler in JavaScript?

What's the $ in jQuery library?

Why AngularJS?

Essentials - Cascading Style Sheet (CSS)

- Syntax, inclusion, Measurement Units
- Colors, Fonts, Backgrounds, Text, Images, Links
- Tables, Borders, Margins, Lists, Padding
- Cursors, Outlines, Dimension, Scrollbars
- Visibility, Positioning, Layers, Text Effects
- Rounded Corner, Multi Background, Gradients, Shadow

FAQ

Explain what a class selector is and how it's used

What are pseudo classes and what are they used for?

What is grouping and what is it used for?

What is an ID selector and how is it used?

How is the float property implemented in CSS?

What is the CSS Box Model used for? What are the elements that it includes?

What is the purpose of the z-index and how is it used?

Essentials - Database - MySQL

- Introduction to MySQL
- Create database, Drop database, Select database
- Data Types
- Create, Drop and Alter Tables
- Query-insert,select,update,where clause,like clause,sorting
- results, Using JOIN, Regexp
- MySQL Indexes

FAQ

What is BLOB?

Define stored procedure

Define Trigger

What Is the purpose of normalization?

What Are the properties of a transaction?

What are B-trees?

What Is Table Scan and Index Scan?

Essentials - Java

- Local Environment Setup
- Run Hello World Program
- Objects, Classes, Methods, Instance Variables
- Basic data types, variables types, modifier types
- Basic operators, Loop control, Decision making
- Number, Characters, Strings, Arrays, Date & Time, Regular Expressions
- Files & IO

FAQ

What is the difference between JDK, JRE and JVM?

What gives Java its ‘write once and run anywhere’ nature?

What is a classloader?

What is a constructor?

What is a static variable?

What is the difference between static (class) method and instance method?

What is Inheritance?

Why does Java not support pointers?

What is object cloning?

Essentials - Java - Advanced

- Data structures
- Collections
- Generics
- Serialization
- Networking
- Sending Email

FAQ:

What is the interface?

Can you declare an interface method static?

When can an object reference be cast to an interface reference?

What Is package?

What is Exception Handling?

What Is Finally blocked?

What Is the meaning of immutable in terms of String?

What Is the purpose of the finalize() method?

What Is Serialization / deserialization?

What Is reflection?

What Is a Singleton class?

What Is the Difference between a Listand a Map?

Essentials - Java - Server Side

- Web Application Introduction
- Servlet & JSP basics
- Servlet Context, HTTP Request, HTTP Response
- HTTP Session
- Sample Servlet and JSP code
- JDBC Example
- Introduction to Tomcat / Jetty App Server

FAQ:

What is the purpose of RequestDispatcher Interface?

Can you call a jsp from the serviet?

Difference between forward() method and sendRedirect () method?

What is the difference between Cookies and HttpSession?

What is a filter?

What is a war file?

What is the use of welcome-file-list?

Essentials - PHP

- Local Environment Setup
- Run Hello World Program
- Variables, Constants, Operator Types, Decision Making
- Loops, Arrays, Strings
- Web Concepts, GET & POST, File Inclusion
- Files & IO
- Cookies, Sessions, Sending Emails, File Uploading
- Coding Standard

FAQ:

What Is the purpose of the php.ini file?

What Is the purpose of METHOD_ constant?

How will you generate random numbers using PHP?

How will you get the size of a file in php?

How will you access session variables in PHP?

How will you send an email using PHP?

How will you parse an XML document using PHP?

What Is the Use of the final keyword?

Essentials - NodeJS

- Introduction & Environment Setup
- Hello World Program
- REPL Terminal, Node Package Manager
- Event Loop, Event Emitter, Buffers, Streams
- File System, Global Objects, Utility Modules
- Web module, Express Framework, RESTful API
- Scaling and Packaging
- NodeJS MySql Connector

FAQ:

What do you mean by Asynchronous API?

Is Node a single threaded application?

What is Package.json?

What is an Event Loop?

What is piping in Node?

How will you delete a file using Node?

What is the purpose of the process object?

Essentials - Data Transfer Format - XML

- Overview, Syntax
- Documents, Declaration, Tags, Elements, Attributes, Comments
- Character Entities, CDATA sections, White spaces
- Processing, Encoding, Validation
- Examples

FAQ:

How is XML different from HTML?

What is DOM & SAX?

What Is a DTD and how can you apply DTP to an XML document?

What Is the Difference between CDATA and PCDATA?

What Is XML Namespace?

Essentials - Data Transfer Format - JSON

- Overview
- Syntax
- Data Types
- Objects
- Schema
- Comparison with XML
- Examples

FAQ:

Why use JSON over XML?

How to generate and send JSON data from the server side?

What is JSON Parser?

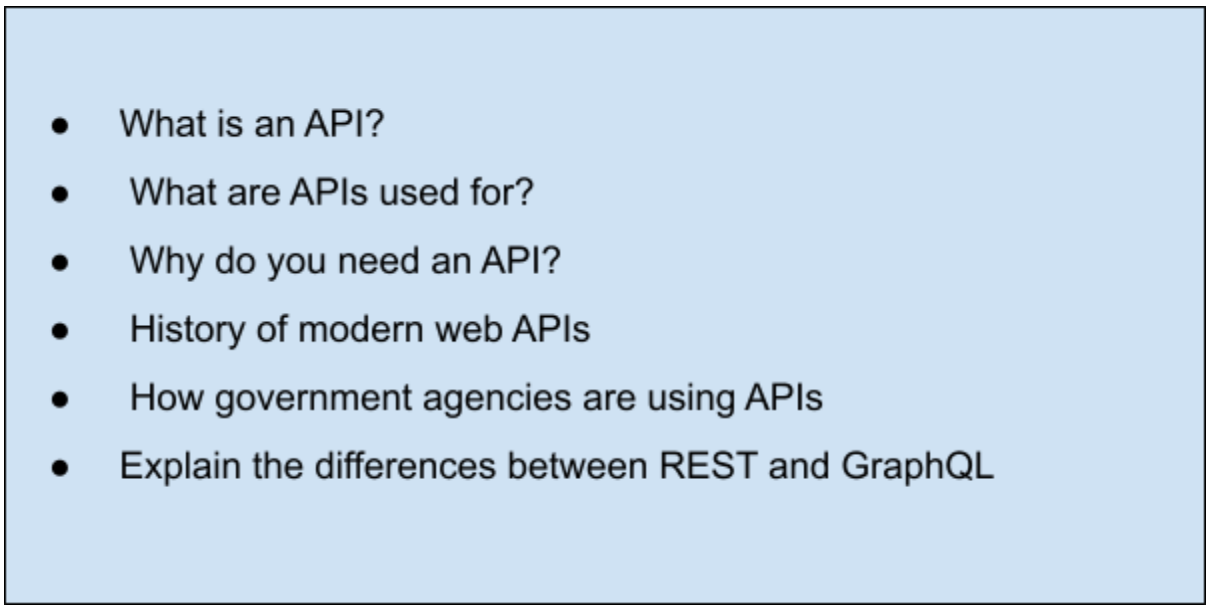
How to receive JSON Data at the Client Side?

How to get a PHP array from json Object?

How to create a JSON Object from JavaScript?

How to convert a json object to json string in javascript?

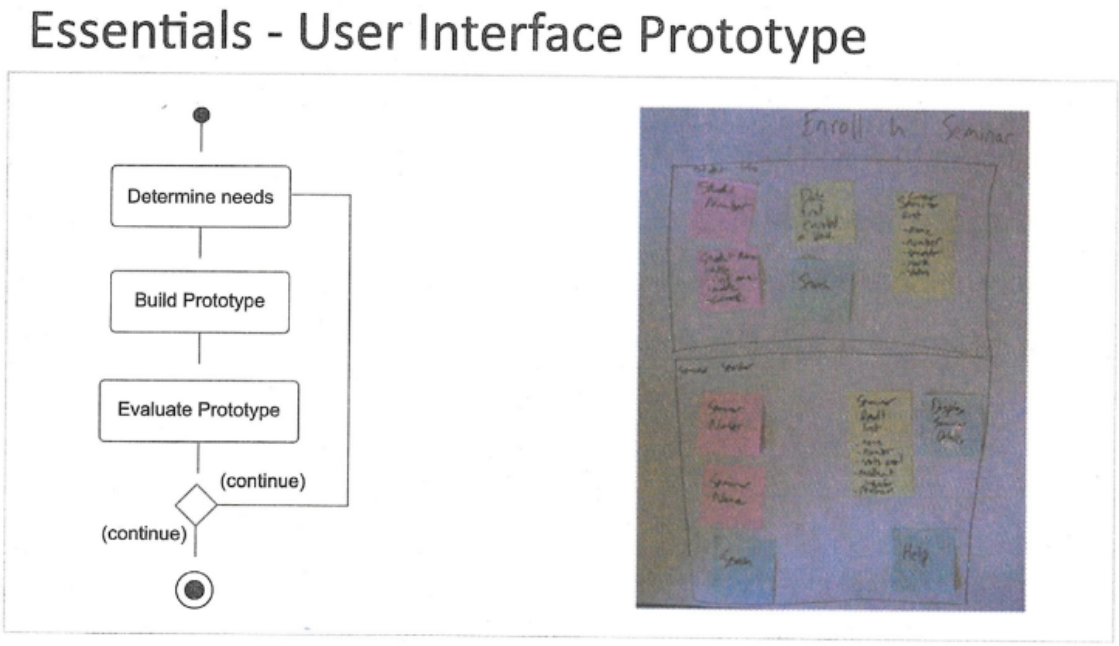
Essentials - Application Programmable Interface (API)

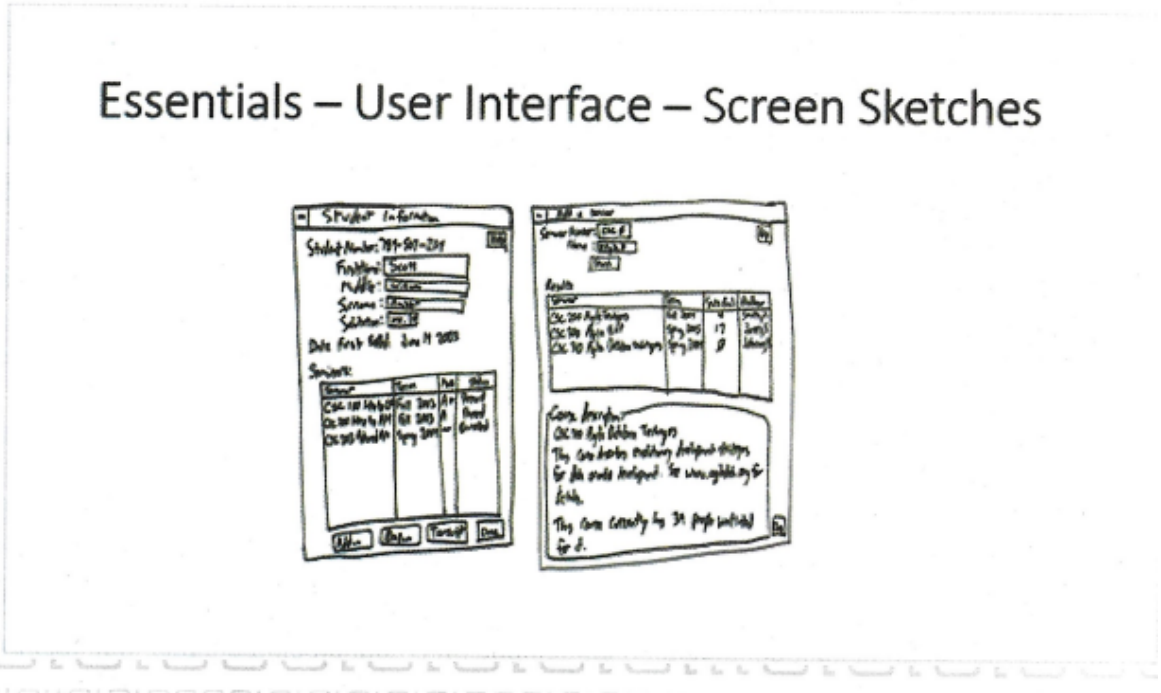


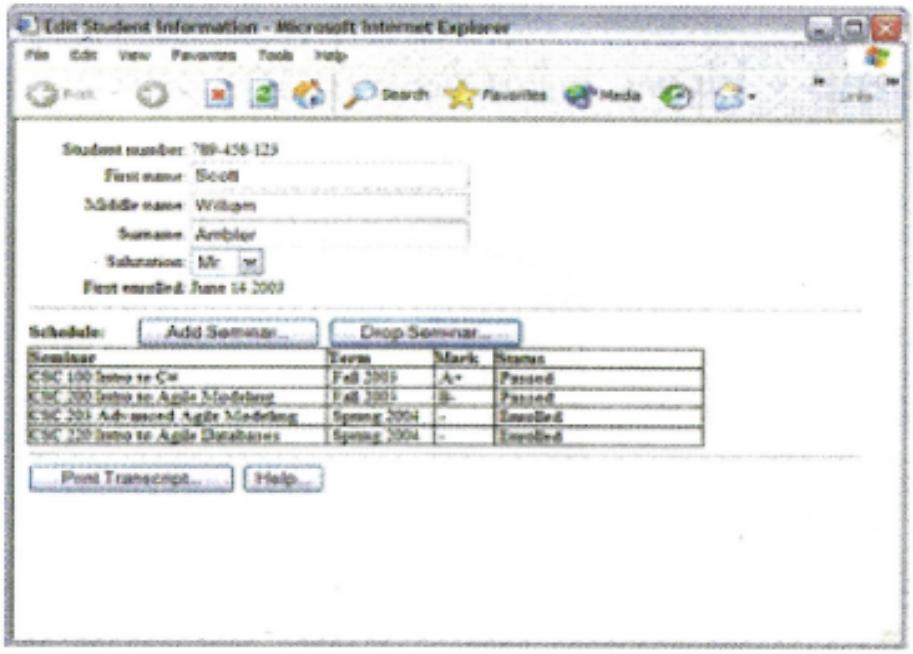
An API—application programming interface — at its most basic level, allows your product or service to talk to other products or services. In this way, an API allows you to open up data and functionality to other developers and to other businesses. It is increasingly the way in which agencies and companies exchange data and services, both internally and externally.

APIs are launched primarily to give partners that are outside the agency or company “firewall" access to data and resources. But recently, APIs are also being used by more and more of the general public, including non-developers. As APIs’ ease-of- use and popularity increases — and as APIs demonstrate their value and deliver efficiencies - many companies have begun to consume their own APIs to build internal systems, websites, and mobile apps using the same APIs that they make available to third-party developers and to the public.

Essentials - User Interface Prototype



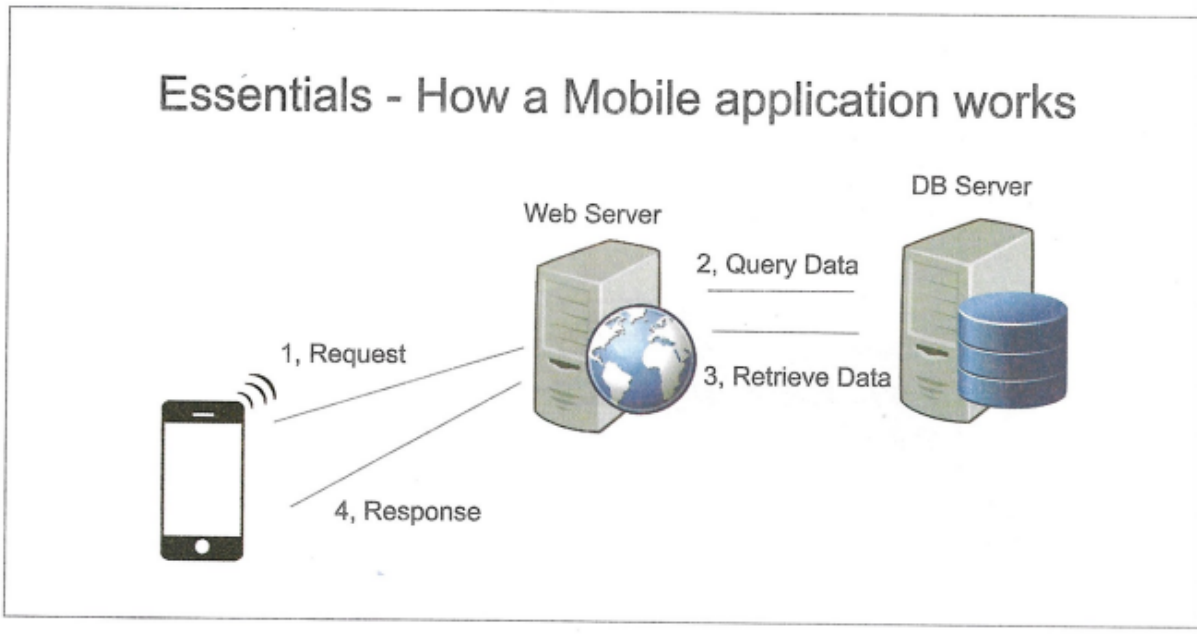




Assignment #2: Build a simple web app

- Build an end to end web application using MySQL/MSSQL database. The Web App Server
- Use the tech stack that your organization wants to standardize on.

Essentials - How mobile application works

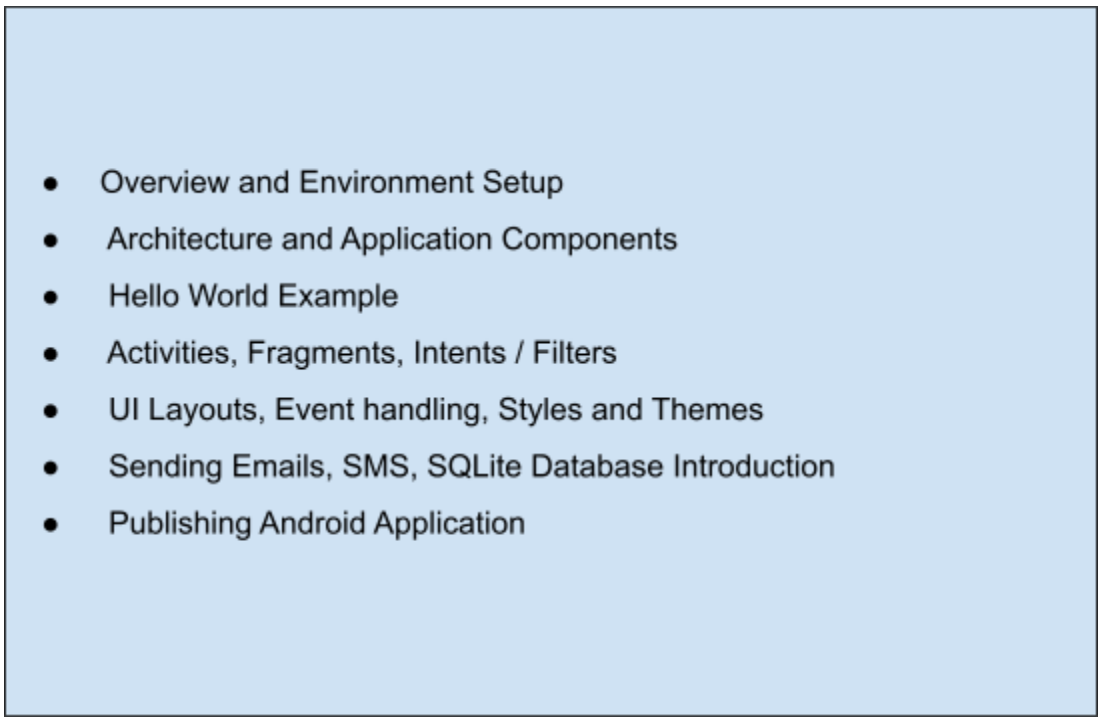


Developing apps for mobile devices requires considering the constraints and features of these devices. Mobile devices run on battery and have less powerful processors than personal computers and also have more features such as location detection and cameras.

Developers also have to consider a wide array of screen sizes, hardware specifications and configurations because of intense competition in mobile software and changes within each of the platforms.

Mobile application development requires use of specialized Integrated Development Environments. Mobile apps are first tested within the development environment using emulators and later subjected to field testing. Emulators provide inexpensive way to test applications on mobile phones to which developers may not have physical access

Android - Basics



FAQ:

What is An Activity?

What Is An Intent?

What are shared preferences in android?

What is WebView?

What Is Fragment In Android?

How to launch an activity in android?

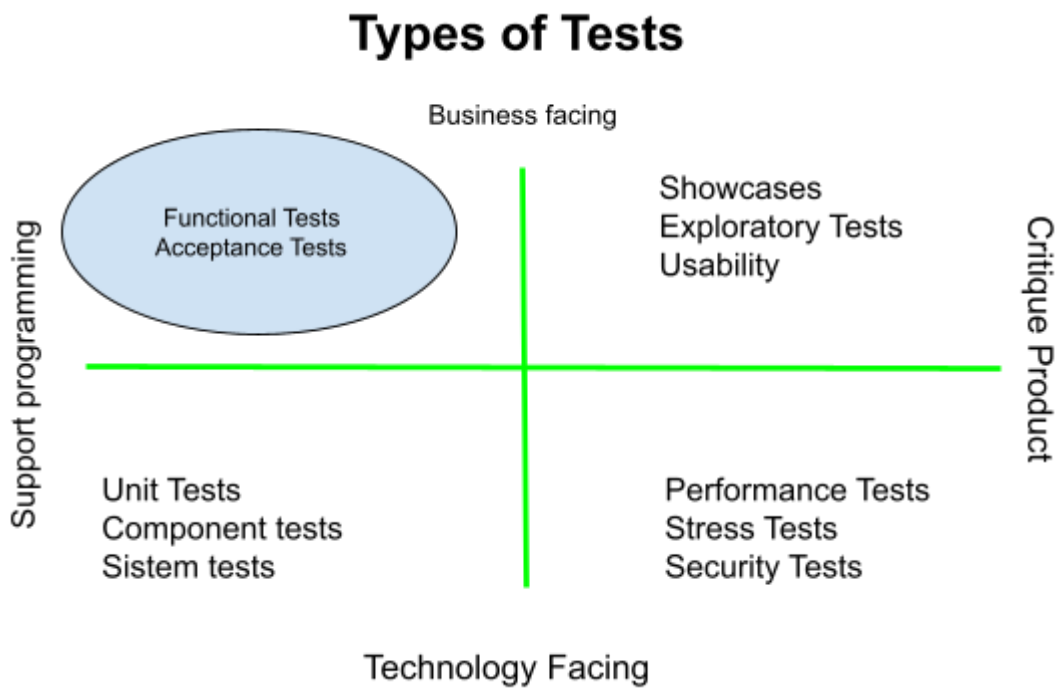
What Is a Content provider?

Assignment #3: Build a mobile app

Use one of the technologies you learnt such as Native Android / Flutter / React Native and build a proper mobile app.

6. Quality Assurance

Types of Tests



Functional & Performance Tests

What are functional tests?
- Verification that business requirements are met
- Black Box
- Automated

Why functional tests?
- Maintain (high) external quality
- Allow teams to be bolder and go faster

What is performance testing?
- Non-functional testing to determine the system responsiveness, stability,scalability and reliability

Functional & Performance testing tools

Introduction to bug tracker

Assignment #4: Write a few test cases and automate them

Write test cases for your Assignment #2 and #3. Use selenium to demonstrate an automated test case.

6. Build, Release and Deployment Process

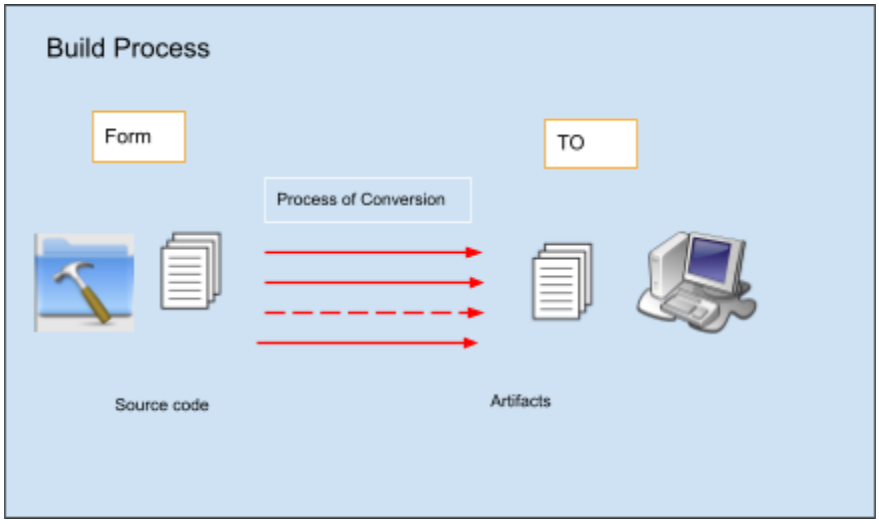
Essentials — Source Code Repository

- **Why we need Source Code Repository?**
  - Enables collaboration between developers
  - Centralized “main code” (trunk)
  - Custom code alongside main code (branching)
  - Eases release management (tags)
  - Rollback to previous version
- **Popular repository tools**
  - Git
  - Subversion (SVN)

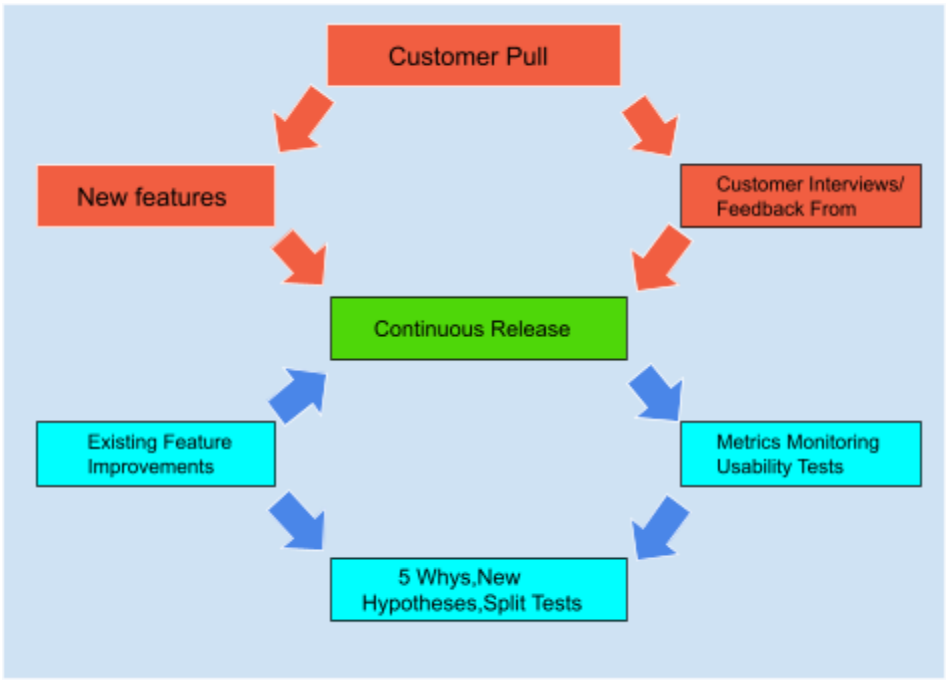
Assignment #5: Commit your code in github

Create a GitHub account and check in your Assignment #2 and #3

Build Process



Release & Monitoring Process



Assignment #6: Setup a docker container

Setup Docker container for the Assignment #2 and #3 backend.

7. Software Project Management

- Project proposal writing
- Project cost estimation
- Scheduling
- Project staffing
- Project monitoring and control
- Software configuration management
- Risk management
- Managerial report writing and presentations etc

8. Cloud Computing Basics

- **What is Cloud?**
  - The cloud is a computing service that charges you based only on the amount of computing resources we use.
  - Pay as you go
- **Infrastructure as a service**
  - Infrastructure as a service delivers basic storage and computing capabilities as standardized services over the network
  - Servers, storage systems, switches, routers, and other systems are pooled and made available to handle workloads that range from Application components to high-performance computing applications.
- **Software as a service**
  - Software as a service features a complete application offered as a service on demand.
  - A single instance of the software runs on the cloud and services multiple end users or client organizations. Eg: Sales force, Google Apps

9. Digital Marketing

Essentials: Digital Marketing Basics

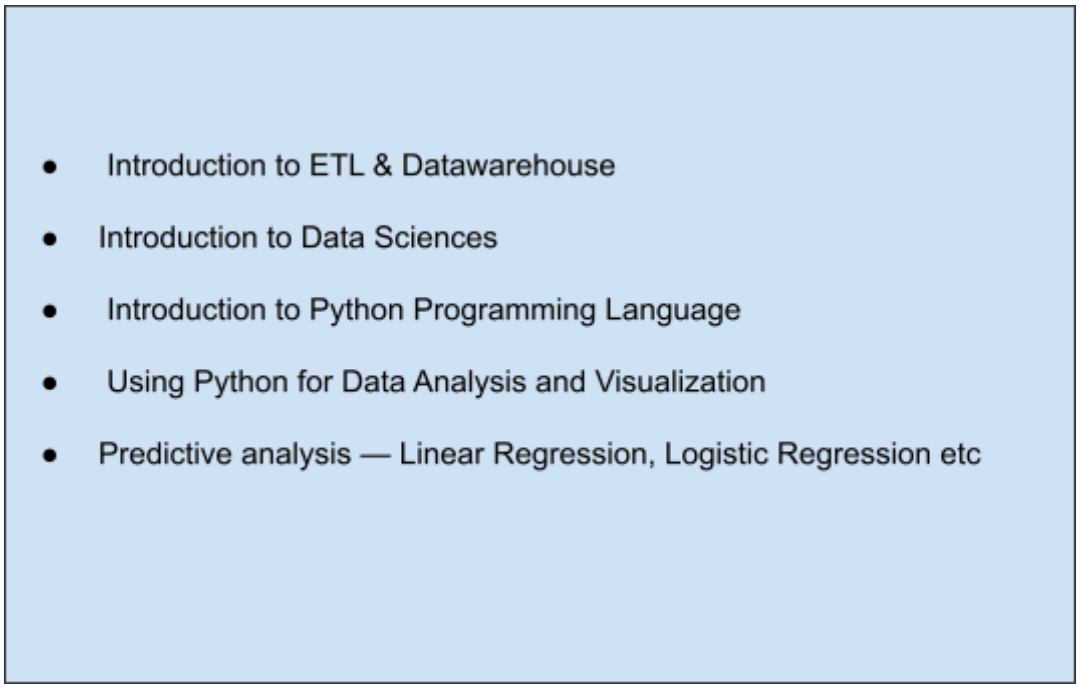
- What is Digital Marketing? Why Digital Marketing?
- Digital Marketing Domains - SEO, Social Media Marketing, PPC, Conversion Optimization, Web Analytics, Content Marketing,Mobile Marketing, Email Marketing, etc.
- Digital Marketing tools - Google Analytics, Google AdWords, Facebook Marketing, YouTube Marketing, etc.
- Formulate, plan and execute effective Digital Marketing campaigns

Assignment #7: Formulate a Digital Marketing Plan

Formulate a Digital Marketing Plan for your organization

10. Data Management & Data Science

Essentials: Data Management & Data Science



Assignment #8: Demonstrate your data analytics skills

Demonstrate your data analysis skills with a public data set using Python

11. Information Security

Essentials: Information Security

- Develop and enforce security plans and standards
- Find security holes or weaknesses by actively testing for weaknesses and offer proactive solutions
- Design endpoint management and endpoint security solutions
- Design application security with appropriate data access for various users
- Design suitable cybersecurity solutions

Assignment #9: Implement data-in-transit and data-at-rest security

Design and implement a data-in-transit and data-at-rest security solution

12. Digital - Roles & Responsibilities

Roles

UI/ UX Professional

Frontend Engineer

Backend Engineer

Digital Marketer

Software Project Manager

Quality Assurance Engineer

System Administrator

Security Engineer

Support Engineer

Analytics Professional

Responsibilities

UI/ UX Designer:

- Collaborate with product management and engineering to define and implement innovative solutions for the product direction, visuals and experience
- Execute all visual design stages from concept to final hand-off to engineering
- Conceptualize original ideas that bring simplicity and user friendliness to complex design roadblocks
- Create wireframes, storyboards, user flows, process flows and site maps to effectively communicate interaction and design ideas

- Present and defend designs and key milestone deliverables to peers and executive level stakeholders
- Conduct user research and evaluate user feedback
- Establish and promote design guidelines, best practices and standards

Frontend Engineer

- Develop new user-facing features
- Build reusable code and libraries for future use
- Ensure the technical feasibility of UI/UX designs
- Optimize application for maximum speed and scalability
- Assure that all user input is validated before submitting to back-end
- Collaborate with other team members and stakeholders

Backend Engineer

- Build robust and scalable software in PHP, Ruby, Java or any other server side programming language
- Design and create services and system architecture for your projects, and contribute and provide feedback to other team members
- Help improve our code quality through writing unit tests, automation and performing code reviews
- Participate in brainstorming sessions and contribute ideas to our technology, algorithms and products
- Work with the product and design teams to understand end-user requirements, formulate use cases, and then translate that into a pragmatic and effective technical solution
- Dive into difficult problems and successfully deliver results on schedule

- Manage database design and development of new feature functionality and product enhancement initiatives (schema,stored procedures, data cubes, etc)

Digital Marketer

- Planand execute all web, SEO/SEM, marketing database, email, social media and display advertising campaigns
- Design, build and maintain our social media presence
- Measure and report performance of all digital marketing campaigns, and assess against goals (RO! and KPIs)
- Identify trends and insights, and optimize spend and performance based on the insights
- Brainstorm new and creative growth strategies
- Plan, execute, and measure experiments and conversion tests
- Collaborate with internal teams to create landing pages and optimize user experience
- Utilize strong analytical ability to evaluate end-to-end customer experience across multiple channels and customer touch p
- Instrument conversion points and optimize user funnels
- Collaborate with agencies and other vendor partners
- Evaluate emerging technologies. Provide thought leadership and perspective for adoption where appropriate

Product Manager

- Managing the entire product line life cycle from strategic planning to tactical activities

- Specifying market requirements for current and future products by conducting market research supported by on-going customers and non-customers.
- Driving a solution set across development teams (primarily Development/Engineering, and Marketing Communications) tt
- market requirements, product contract, and positioning.
- Developing and implementing a company-wide go-to-market plan, working with all departments to execute.
- Analyzing potential partner relationships for the product.

Software Project Manager

- Manage Online Software Development project activities for multiple projects across all project phases, including planning, execution, monitoring, control and closure.
- Work collaboratively with the development team, lead architect and the management to determine technical direction and approach to system design and implementation, including both brand products and supporting systems.
- Create, manage and track project vehicles, including, but not limited to Project schedules, Detailed project plans, Project statements, Cost estimates, Resource plans, Risk and issues logs, Status reports
- Tailor project management, development and support processes to meet the needs of individual (new and/or ongoing) projects
- Manage the day-to-day activities of projects and staff; communicate with project teams as necessary to ensure deliverables are on schedule and within cost parameters.

- Communicate and collaborate with internal and external customers as needed in regards to project deliverables in managing expectations, presenting and interfacing with sponsors.
- Make decisions and communicate trade-offs and risks; drive key decisions across projects.
- Make recommendations to management about schedules, prioritization and resource allocation with input from team members.
- Provide ongoing project plan/status reporting for use by account managers, clients and management.
- Provide input into strategic planning and asset creation processes,
- Manage resource planning and organizational capacity planning.
- Coach and train project team members on Software Development processes and best practices.
- Contribute to the design and coding of products.

Quality Assurance Engineer

- Analyze and clarification of requirements with a customer or a business analyst
- Plan the process of testing
- Write test cases (test scripts)
- Conduct functional testing
- Identify problem areas, add them to a tracking system
- Discuss fixes with developers
- Track the life cycle of errors
- Re-test fixed defects
- Analyze testing
- Optimize the testing process
- Analyze the teamwork processes
- Improve processes
- Maintain the test documentation

System Administrator

- Configuring and maintaining the networked computer system, including hardware, system software, and applications.
- Ensuring data is stored securely and backed up regularly.
- Diagnosing and resolving hardware, software, networking, and system issues when they arise.
- Replacing and upgrading defective or outdated components when necessary.
- Monitoring system performance to ensure everything runs smoothly and securely.
- Researching and recommending new approaches to improve the networked computer system.
- Providing technical support when requested.
- Documenting any processes which employees need to follow in order to successfully work within our computing system.

Security Engineer

- Develop, execute and track the performance of security measures to protect information and network infrastructure and computer systems.
- Design computer security strategy and engineer comprehensive cybersecurity architecture.
- Identify, define and document system security requirements and recommend solutions to management.
- Configure, troubleshoot and maintain security infrastructure software and hardware.

- Install software that monitors systems and networks for security breaches and intrusions.
- Monitor systems for irregular behavior and set up preventive measures.
- Plan, develop, implement and update company's information security strategy.
- Educate and train staff on information system security best practices.

Analytics Professional

- Someone with both statistical modeling experience and technical, engineering skills
- Experienced on the commercial side, and decidedly "hands-on" and not just theoretical,
- Ability and experience dealing with very granular data
- Bring not just an analytics-orientation, but the ability to use analytics to drive key success metrics related to yield management and revenue generation.
- Work with others to develop, refine and scale data management and analytics procedures, systems, workflows, best practices and other issues.
- Hands-on with R/ Python programming language

Technical Support Engineer

- Installing and configuring computer hardware operating systems and applications
- Monitoring and maintaining computer systems and networks
- Taking staff or clients through a series of actions, either face-to-face or over the telephone, to help set up systems or resolve issues
- Troubleshooting system and network problems and diagnosing and solving hardware or software faults, replacing parts as required
- Providing support, including procedural documentation and relevant reports

- Following diagrams and written instructions to repair a fault or set up a system
- Supporting the roll-out of new applications
- Setting up new users' accounts and profiles and dealing with password issues
- Responding within agreed time limits to call-outs
- Working continuously on a task until completion (or referral to third parties, if appropriate). Prioritizing and managing many open cases at one time
- Rapidly establishing a good working relationship with customers and other professionals, such as software developers
- Testing and evaluating new technology

13. Soft Skills, Self Directed Learning & Job Suitability Assessment

- English Communication Basics
- Soft skills
- Self-directed learning
  - * Follow developer sites — GitHub, StackOverflow
  - * Follow Digital Business Sites — Techcrunch.com, yourstory.com, techmeme.com
  - * Keeping updated on the latest technologies
- Job Suitability Assessment
  - * Personality
  - * Skill
  - * Interest