**1. What is CMS?**

Content management systems, CMS, is a software application or set of related programs that are used to create and manage digital content. These systems are generally used for enterprise content management and web content management. CMS can keep track of every piece of content on one’s website, like a local public library keeps track of books and stores them. Content can be simple text, photos, music, video, documents, or just about anything you can think of. A major advantage of using a CMS is that it requires almost no technical skill or knowledge to manage. Content management systems fall into two major categories: open source and closed source. An open source CMS has lower costs and is created and maintained by a community of developers A closed source CMS is proprietary (Distributed and maintained by a business) and is more expensive to use. Both types have pros and cons.

**2. What types of capabilities does it typically provide?**

A content management system provides many capabilities such as building inventory control systems, data reporting tools, applications bridges, custom product catalogs, integrated e-commerce systems, complex business directories, reservation systems, and communication tools. A good CMS should have flexible content repositories. This allows content to be structured and accessible. It gives flexibility to visitors flexibility that helps them find what they are looking for when visiting a site or app. It also provides various levels of access to your content for monetization. In combination with a flexible content repository, a CMS should have an open API (application programming interface). This makes it possible to deliver content beyond the web. With the API, an app developer can build a targeted app using existing content to drive a business value, by repurposing the existing content in an eBook, on websites, mobile, Facebook, and other platforms. CMS also provides the capability to personalize one’s content. This is crucial to a business’ growth, and will lead to more visitors to your website.

**3. Identify five open source CMS tools (of differing degrees of power).  What are the  
strengths and weaknesses of each of these products?**

**WordPress:**

WordPress is the most used open source CMS worldwide. The software’s large user community benefits from a various selection of themes, plugins, and widgets. It requires minimal effort for installation and setup, it provides an intuitive user interface. It also allows for simple integration of plugins and other extensions. The weaknesses of this system are because its high circulation, it is vulnerable to more hackers. Updates come out quickly after the security incidents, but aren’t always compatible with all the extensions that are required for effective use of the software. Constant software updates can be associated with more administrative effort.

**Joomla!:**

Joomla! Is the second biggest provider in the CMS market. This software caters to both new and experienced users, but is more of a challenge to use compared to WordPress. A strength of the system is that it provides comprehensive CMS functions without installing extensions. In comparison to WordPress, it has simpler installations and configuration efforts. There is a larger pool of extensions and designs, and provides user-friendly templates creation. On the downside, Joomla!’s rights management and approval processes are deficient for larger projects. While they have a variety of extensions, they come at a higher price, and often require manual implementation.

**Drupal:**

Drupal evolved from a student community solution to a full-fledged open source CMS. Its strengths include providing an extremely lean basic installation, which can be extended through modules. Its biggest strengths are drawn from the community. The basic module has numerous web 2.0 and community functions like blogs, forums, and tag clouds. Its focus is on social publishing and community projects for small to medium sized groups. It offers a variety of options for customization with its modular layout. Its large spectrum of extensions makes it possible to incorporate community portals with complex multi-domain structures. A weakness of Drupal is the combination of administering a CMS core with comprehensive extensions requires expertise and an instinct. Additionally, if its basic functions aren’t sufficient, then extra modules will have to be installed manually via FTP (File Transfer Protocol). Lastly, updating the extensions can be difficult because some are not compatible with the backend.

**TYPO3:**

While Joomla! Is the second biggest provider, TYPO3 is the second most popular open source CMS next to WordPress. Its focus is an enterprise management system and is continuously updated and kept technically current by a team of experienced developers. TYPO3 is an ideal solution for large corporate portals and ecommerce platforms. Because of its large community, feedback and is provided quickly for beginners with technical problems or questions. For professional use of this CMS, expert knowledge is required. One of the biggest strengths of this system is the wide range of functions, flexibility, and extensibility and extensive rights management at the enterprise level. As mentioned before, some expertise is required for implementation, configuration, and administration. The wide range of functions leads to higher demands on hosting than comparable systems. Lastly, training for non-experts is comparatively high.

**Contao:**

This CMS system was previously known as TypoLight and eventually became known as Contao. It is a user-friendly CMS for barrier-free web content. A strength of this system features an intuitive multi-lingual backend, and a clearly structured administrative layer. It pays attention to compatibility with web standards, and is known for its high security standards. It also provides a live update service and online demo. Additionally, it offers an integrated theme manager and comprehensive range of functions. Themes must be purchased. It’s long term support system comes with a four-year guarantee. This system is geared towards small to medium sized companies as well as non-profits. Contao is not recommended for complex enterprise solutions. Multi-level workflows are not supported, and has a smaller community in comparison to the other content management systems previously mentioned.

**4. Identify five proprietary CMS tools (of differing degrees of power).  What are the  
strengths and weaknesses of each of these products?**

**DNN: SMB - Mid-Market**

**Base Price: $8,000 per yr. - $100,000**

DNN is licensed as proprietary and offers both free and paid editions. DNN offers an efficient way of creating and managing content pages without the need for IT assistance, to a degree. The software offers a host of professionally made, reusable layouts, so that you can create a page in just a few clicks. DNN delivers individual features as a service, delivered from our Microsoft Azure cloud. This provides a multi-tenant SaaS capability for customers, whether their WCM is on-premises or in the cloud. A downside to this service is that is does not have as many native marketing capabilities as their competitors. Their approach is to provide built-in connectors to other technology products such as Marketo and MailChimp.

**Telerik Sitefinity: Mid-Market**

**Base Price: $10,000 - $100,000 depending on edition and domain.**

Telerik Sitefinity’s platform is aimed at making the management of a website a more positive, empowering and usable experience. It is the first CMS to enable enterprises to take full advantage of responsive web design, mobile website, and mobile apps all from one CMS user interface. It’s user interface caters to both developers and business users alike, making it a more efficient environment to get work done faster. Training is less time consuming, so new non-technical users will adapt to it in a shorter time period. A downside is that Sitefinity does not provide hosting, so that must be done on one’s Window’s server. Advanced workflows cannot be created without developer resources. It is also pricier options compared to other proprietary CMS.

**Kentico: Mid-Market**

**Base Price: $4,499 - $19,999 covers 1 website license and a year of maintenance**

Kentico is a CMS, e-commerce, and digital marketing platform, all in one. It offers different tiers of service: CMS Base, CMS Ultimate, and Enterprise Marketing Solution. Kentico has a very customizable system architecture that supports multi-site and multilingual websites. The strengths of this CMS includes a strong partner network with over 1,000 partners worldwide. They provide great value for the price, offering a full range of capabilities at a low entry cost. Non-technical users can interact with the system with ease. On the downside Kentico is lagging behind leaders in terms of machine learning elements and predictive analytics in their product line. They have a strong developer community, but lack a strong marketing community, which is crucial because marketing and IT control the budget.

**Epi: Mid-Market to Enterprise**

**Base Price: On Premise: $40,000 - $100,000 / SaaS $50,000 - $150,000**

Epi is a product of Ektron and Episervers’ merge in 2015. This system uses the cloud to help mid-market organizations to manage digital content, commerce, and marketing. Epi’s ease of use and intuitive UI, coupled with their rich list of features, makes it a favorite amongst .NET editors and developers. Although they are fairly late in offering a packaged cloud service, their Digital Experience Cloud is impressive, with a full stack wrapped up in a pay as you go service model. A downside is that there are many add-ons available, but you will likely need to install some basic add-ons for even the simplest website.

**Sitecore: Mid-Market to Enterprise**

**Base Price: Starts at $20,000 for perpetual or $1,100/month for consumption. Enterprise-sized licensing with Sitecore’s full experience marketing feature starts at $200,000 for perpetual or $11,000/month for consumption.**

Sitecore is a customer experience management company that provides web content management and multichannel marketing automation software. It combines web content management with marketing automation, email marketing, social media, e-commerce, optimization, and analytics, into one unified platform. There have been numerous improvements across the platform including segmentation that is more accessible and easier to understand. The downsides include the lack of free trial version, only a demo. Sitecore must be customized to fit specific needs. It is CMS and more, so a user who is only looking for CMS may not need all the features provided by Sitecore.

**5. Why one of the ten tools would you recommend for our client and why?**

When deciding which tool Surgery on Sunday Louisville should use, we first had to decide between open source or closed source. Right now, they are using WordPress, a highly recommended system for non-profits. We definitely agree that open source is the way to go, since it is the lowest cost and highly flexible. All in all, we decided that WordPress is SOS’s best choice as a growing nonprofit. WordPress accommodates from smallest to largest non-profits. It offers features like plugins, themes, and widgets specifically for nonprofits. For SOS, it is crucial to find a CMS that supports a multilingual plugin. WordPress has a variety of free to low cost options for this function. SOS also needs to add more accessibility to their social media, public forms, and donations. WordPress has features that accommodates these needs. Because of its popularity, there are numerous websites that help nonprofits online presence through WordPress.

**1. What are payment management systems?**

A payment management system is any system used to settle financial transactions. This can be done through the transfer of money. Many factors make this exchange possible, such as institutions, instruments, people, rules, procedures, standards, and technologies. A payment management system is also defined as a financial system supporting the transfer of funds from suppliers (savers) to the users (borrowers) usually through exchange of debits and credits among financial institutions. It consists of a paper-based mechanism for handling checks and drafts, and a paperless mechanism (such as electronic funds transfer) for handling electronic commerce transactions.

**2. What are the capabilities / limitations of these systems?**

Payment systems are capable of many things; they may be physical or electronic and each has its own procedures and protocols. Standardization has allowed some of these systems and networks to grow to a global scale, but there are still many country- and product-specific systems. Payment systems that have become globally capable are credit cards and automated teller machines (ATMs). Limitations or specific forms of payment systems are also used to settle financial transactions for products in the equity markets, bond markets, currency markets, futures markets, derivatives markets, options markets and to transfer funds between financial institutions both domestically using clearing and real-time gross settlement (RTGS) systems and internationally using the SWIFT network.

**3. Identify seven payment systems. What are the strengths and weaknesses of each**

**of these systems? What are their cost structures?**

**PayPal:**  The equipment is not free and a 2.90% + $0.30 fee is charged to sellers/merchants for each transaction by the PayPal. PayPal payment system can be integrated with other shopping cart systems, which enables individual website, retail/online shopping centers/markets or Point-of- Sale (POS) to accept payments on their own. PayPal can also be used by any individuals to send or receive personal payments.

**Stripe:** The equipment is not free and a 2.90% + $0.30 fee is charged to sellers/merchants for each transaction. Stripe payment system can be integrated with other shopping cart systems, which enables individual website, retail/online shopping centers/markets or POS to accept payments on their own. Stripe also offers "Stripe Subscriptions" for recurring billing and "Stripe Connect" for marketplace transactions.

**North American Bancard (NAB):** The equipment is free and a 0.29% fee is charged to sellers/merchants for each transaction. NAB operates on a month-to-month contract with no Startup fees.

**National Processing (NP):** The equipment is not free and a 2.70% + $0.20 fee is charged to sellers/merchants for each transaction. NP offers no long-term contracts and has a $2.00 monthly fee.

**Capital One Merchant Services (Spark Pay):** The equipment is free and a 2.65% +$0.05 or 3.70% + $0.05 fee is charged to sellers/merchants for each transaction. Spark pay requires a minimum per transaction fee (PTF) of $0.05 and there is no minimum number of transactions required.

[**Apple Pay**](https://en.wikipedia.org/wiki/Apple_Pay): The equipment is not free and a 15.00% + $0.15 fee is charged to sellers/merchants per transaction. This payment system is mostly used for Apple based services, products, but it is also supported by many retail shopping centers/markets & [POS](https://en.wikipedia.org/wiki/Point_of_sale). This is where Near Field Communicators (NFCs) come into play, if seller's or merchant's POS supports NFC, then it will also accept Apple Pay based payment. But, if NFC support is not present in POS, then Apple Pay will not work.

[**Samsung Pay**](https://en.wikipedia.org/wiki/Samsung_Pay)**:** The equipment is not free, but there is a 0.00% + $0.00 fee charged per transaction. This payment system is mostly used for Samsung-based services, products, but it is also supported by many retail shopping centers/markets & [POS](https://en.wikipedia.org/wiki/Point_of_sale). This is where (NFCs) come into play, if seller's or merchant's POS supports NFC, then it will also accept Samsung Pay based payment. But, if the sellers/merchants are still using a magnetic-stripe (MS) card reader and NFC support is not present and a software update, or an add-on software tool can be loaded into the POS to enable MS support, then Samsung Pay based payments can still work.

**4. Address some basic security issues associated with these systems.**

The main security issue with any payment system is going to be fraud vulnerability. This is when a person deceives others for financial gain. Within these payment systems, it is going to be when an outsider gets the customer’s credit/debit information.  To keep customer’s information safe, sellers/merchants need website security. This is the best way to avoid fraud.

**5. Make a recommendation to the client for which system you feel best meets their  
needs.**

I recommend North American Bancard (NAB) for Surgery on Sunday (SOS). With SOS’s low budget this system with allow the same benefits at a fraction of the cost. They also seem to be the most flexible the equipment is free and they operate with a month-to-month contract.