# Task 1

**RESEARCH**

**Contents**

* How digital solutions are used to meet the needs of different users within the tourism and leisure sector
* How hardware and software are used within the context of the industry
* Newly emerging technologies:
* The industry-specific guidelines and regulations that need to be followed.

**How digital solutions are used to meet the needs of different users within the tourism and leisure sector.**

Digital solutions have become integral to the tourism and leisure sector, addressing various user needs and enhancing the overall experience for travellers, service providers, and destination managers. Here are some keyways digital solutions meet different user needs:

**Personalised experiences:** Hotels can use data analytics to create guest profiles and tailor services to individual preferences.

**Improved efficiency:** Smart appliances, automatic check-in, and self-service can reduce wait times and increase efficiency.

**Enhanced customer experience**: Virtual reality (VR) and augmented reality (AR) technologies allow customers to preview accommodations and destinations before booking.

**Direct engagement**: social media and mobile apps allow consumers to directly engage with brands and inform their travel plans.

**Dynamic pricing**: Algorithms can price products and services based on data and analytics.

**Predictive analytics**: Predictive analytics can help forecast travel demand, reshape routes, and optimize resource allocation.

**Contactless payment options**: Contactless payment options can increase safety while traveling.

**Chatbots**: Chatbots can handle customer queries and requests.

**How hardware and software are used within the context of the industry**

**HARDWARE**

**Mobile Devices:** Smart phones and tablet are essential tools for both customers and employees. Customers use them for booking and navigation, while employees use them for communication and operational tasks. This allows for real-time access to information, enabling quick decision-making and direct customer engagement.

**Surveillance and Security Systems:** Increases safety for both customers and staff, providing a sense of security through advanced security systems, including cameras and monitoring solutions, are used in hotels, airports, and attractions to ensure safety.

**Point of Sale (POS) Systems:** Retailers, restaurants, and hotels utilise POS systems for transaction, inventory management, and customer data collection to streamline check processes, provide quick service and detailed analytics on sales trends.

**Wearable Technology:** This offers users instant access to notification, navigation, and activity tracking, enhancing their travel experience with the use of devices such as smartwatches and fitness trackers are increasingly used by travellers to manage activities and stay connected.

**Proximity/Bluetooth Beacons:** Implemented in tourist attractions and retail spaces, these devices send the notifications and information to users’ smartphones based on their location. This enhances customer engagement with the tailored content and promotions, encouraging them to explore offerings.

**SOFTWARE**

**Booking Engines:** Online platforms that allows users to search, compare and book flights, hotels and activities. Streamlines the reservation process and enables users to find the best deals tailored to their needs.

**Customer Relationship Management (CRM) Systems:** These systems help businesses manage customer interactions, track preferences, and analyse data for personalised marketing. This enhances customer relationship management and retention through targeted communication.

**Travel Management Software:** Streamlines travel arrangements and ensures compliance with company policies, allowing for better budget management. It is used by businesses and organisations to manage employee travel, including booking flights and accommodations.

**Mobile Apps:** Companies develop mobile applications to provide services such as booking, customer support, and loyalty programs which in turn enhance customer interaction and encourages repeat business through convenience and accessibility.

**Analytics and Reporting Tools:** Businesses employ software to analyse data related to customer behaviour, booking and marketing campaigns. This provides insights that help companies make informed decisions and optimize their offerings.

**Social Media Management Software:** Tools for managing social media presence, including scheduling posts, engaging with followers, and analysing performance. It increases brand visibility and engagement with potential customers.

### Newly emerging technologies:

Emerging technologies are continually transforming various industries, including tourism and leisure. These technologies enhance customer experiences improve operational efficiency and enable new business models. Here are some notable emerging technologies currently impacting the tourism and leisure sector:

**Artificial Intelligence (AI) and Machine Learning:** AI algorithms analyse customer data to provide personalised recommendations, automate customer service through chatbots, and optimise pricing strategists. This enhances marketing strategies and customer engagement while streamlining operational tasks.

**Virtual Reality (VR) and Augment Reality (AR):** VR offers immersive experience such as virtual tours if destinations, while AR provide interactive experiences that overlay digital information in real-world contexts, such as historical facts at a sightseeing spot. This improves pre-travel experience and shows potential travellers wat to expect, thereby increasing engagement and interest.

**Blockchain Technology:** Increase security, reduce fraud and improve the overall customer experience by streamlining payments and transacts. It is used for secure transactions, smart contracts and decentralised booking systems. Blockchain can enhance trust in transactions and provide transparent travel records.

**Internet of Things (IoT):** IoT connects various devices and systems within the tourism sector, such as smart hotel systems that allow guests to control room settings via mobile apps and sensors that track guest preferences. This improves operational efficiency, offers personalised experiences and enhances customer service through automation.

**5G Technology:** Enhanced mobile connectivity allows for faster data transfer and improved communication channels. It supports applications that rely on high-speed internet, such as streaming and real-time updates. Facilities richer digital experiences, including streaming high-definition content while travelling, as well as enabling advanced applications like real-time language translation.

**Biometric Technology:** Biometrics such as facial recognition and fingerprint scanning are used for identity verification at airports and hotels, improving security and speeding up check-in processes. Enhance security and convenience for travellers, reducing wait times and streamlining processes.

### The industry-specific guidelines and regulations that need to be followed

**Safety and Health Regulations**

* **Workplace safety:** Ensure a safe environment for employees and guests follow government safety laws.
* **Health Standards:** Follow hygiene protocols to protect against illnesses (like COVID-19) and keep up with public health guidelines.

**Consumer Protection Laws**

* **Truthful Marketing:** Provide honest descriptions of services and Void misleading information.
* **Privacy Compliance:** Protect customer data by following privacy laws (like GDPR in Europe).

**Environmental Regulations**

* **Sustainable Practices:** Implement eco-friendly operations, manage waste and conduct environmental assessments when needed.
* **Zoning Laws:** Secure proper permissions for building and operating facilities.

**Licensing and Permits**

* **Business Licenses: Obtain necessary licenses to operate legally.**
* **Special Permits: Get permits for specific activities (like guided hours).**

**Transportation Regulations**

* **Transport Licensing:** Follow local laws for operating vehicles and transporting guests.
* **Insurance:** Ensure appropriate insurance coverage to protect your business.

**International Regulations**

* **Visa Information:** Stay updated on visa and immigration rules for travellers.
* **Travel Advisories:** Be aware of any travel warnings or restrictions.

### Conclusion

In summary, navigating the tourism and leisure industry involves adhering to a wide array guidelines and regulations that ensure safety, consumer. Key areas include Maintaining workplace and public health safety, providing truthful marketing, protecting consumer privacy, securing necessary licences and permits and following labour and transportation laws. further, businesses must consider international regulations regarding travel on immigration, implement effective crisis management plans and adhere to industry standards through memberships are certificates. Employing best practises not only fosters customer trust and enhances reputation but also promotes operational success and resilience in a rapidly evolving industry landscape. Therefore, staying informed ample and proactive in addressing these regulations is crucial for all stakeholders in the tourism and leisure sector.

## Contents

**Proposal**

* Introduction
* Business Context
* Functional and Non-Functional Requirements
* Decomposition of Problems
* Key Performance Indicators (KPIs) and User Acceptance Criteria
* Description of the Proposed Solution
* Justification of Solution
* Compliance with regulatory guidelines.

**PROPOSAL**

**Introduction**

Hey there! We’re excited to present our proposal for an innovative digital solution for Riget Zoo Adventures (RZA). With your unique blend of a safari-style wildlife zoo, an inviting on-site hotel, and fantastic educational programs, we see a wonderful opportunity to enhance the experience for your visitors and streamline operations. This proposal outlines how we can bring your vision to life through a user-friendly web and mobile application.

The client, Riget Zoo Adventures, has reaches out to us with the request to produce a digital solution for their company, the client has also provided a range of services that are to be provided with the digital solution. For the proposed digital solution, the client has specified several requirements along with some prior market research they have completed, from which they have specified some additional features they wish to be incorporated into the proposed solution.

From the requirements the client has specified alongside the research they have collected and requested implementation of, it has been determined that a web application is the most suitable way to implement their required digital solution, as it allows for the application to be accessible and used by anyone with an internet access and a device that can use a web browser, which most modern devices such as mobile devices, desktops and laptops can do with ease, as such it is the best and most suitable way for the application to be designed and interacted with.

The client has specified several feature requirements that the digital solution must implement, the first of these requirements is method to provide users with help and information about the attractions and facilities that within the zoo the client operates. To do so, several pages will be implemented that allows for an individual to easily see any attractions withing the zoo, each page will be specialised to what it is to implement such as showcasing the zoos map or for giving explanations/information about attractions.

The client has also specified that the digital solution needs to provide materials for individuals to learn from and to support educational visits, the informational would be about animals that are within the zoo the client operates. For this to be implemented several pages will be create that provides explanations and research on the animals on the zoos premises so an individual can easily view its content and learn from it, additionally there will be external links that will lead to other sources of information used as further educational materials.

The client has also specified that the digital solution have a system that allows users to book tickets to the zoo along with allowing them to check availability of and book a stay at the on-site hotel. To do so, several pages will be implemented that will allow the users to view all the rooms and ticket types on offer from which they can then choose from and upon making their decision they can book these items as required, allowing for them to visit the zoo and for them to stay at the on-site hotel.

Additionally, the client has requested for additional features they have determined from market research to be implemented within the proposed solution. They request for an account system for a user to register, login and manage their own individual accounts and any bookings that the user has completed through the application.

The client has also requested for various accessibility features to be implemented so the application can support, and is useable by, a wide range of users no matter their personal situations such as what disabilities/limitations they may have. To ensure that this is done several features can be implemented within the application, one feature is the implementation of alternative text, which is adding descriptions to images so users that rely on screen readers to use the application can still understand the image without having to see it.

The client has also given the idea of a loyalty and reward system for the application, this system would make users more likely to return to the application and they clients zoo, increasing revenue. The loyalty and rewards can help customers feel a sense of value and encourage repeated visits. This can be done by giving users incentives to return such earning points by booking of tickets/hotel rooms depending on the amount of points the user has and exchanges. This feature must be heavily considered ad designed so that it can operate efficiently along with having a good balance to encourage users to keep returning to earn points to get free items. As a result, directly increasing the zoos revenue from admissions but also indirectly increase it from attractions such as events, exhibitions, food options or gift shops. All of these will result in increased revenue for the client in the long term as long as ut us properly implemented and utilised.

**Conclusion**

In conclusion, our proposal for Riget Zoo Adventures outlines a comprehensive and innovative digital solution that aligns seamlessly with your vision to enhance visitor experiences and streamline operational efficiency. By creating a user-friendly web application that houses key features such as detailed information about zoo attractions, educational resources, seamless ticket and hotel booking systems, user accounts, and rewards programs, we can significantly enrich the interaction between visitors and the zoo.

This digital solution not only caters to the diverse needs of your audience through accessibility features but also fosters a sense of community and loyalty among your patrons. The implementation of a reward system stands to generate repeat visits, driving long-term revenue growth through both admissions and ancillary services like events, dining, and retail.

We are confident that this tailored approach will elevate Riget Zoo Adventures to new heights, ensuring that both the zoo and its guests benefit from an engaging, informative, and rewarding experience. We look forward to the opportunity to collaborate with you in bringing this vision to reality and making Riget Zoo Adventures a premier destination for wildlife enthusiasts and families alike. Thank you for considering our proposal, and we are excited about the potential to create a lasting impact together.

**Legal and Regulatory Requirements**

For the successful design, development and operation of the proposed digital solution, special and utmost care must be carried out to ensure that various legal and regulatory requirements for the digital solution. The client and we, the software department are required to follow through with these regulatory requirements.

* **Equality Act:** This act contains a set of laws and guidelines that prevent discrimination, harassment, and victimization on the grounds of individuals protected characteristics such as race, size, weight, disabilities, etc. This is done to ensure that everyone is treated equally and fairly, and as such the client must follow these rules when operating their business.
* **Consumer Rights Act**: This act sets out several laws, guidelines and regulations in relation the protection of consumers/customers rights within various sectors, including the Tourism and Leisure sector the client operates in. This act specifies that the customer has several rights including when the customer purchases goods and/or services from a company. It entails they have the right to expect the work to be provided and performed with reasonable care and skill. The right to receive goods and/or services with the exact description the customer was provided and the right to a refund or equivalent compensation for substandard goods and/or services the company has provided to the customer.
* **Data Protection Act:** This act has a set of laws that ensures that we only gather data and process said data with the consent of the consumer/customer. It also requires that we secure any and every personal data/information that we gather on individuals, it also includes the statement that any data we hold is relevant to the application and that storage of excessive or non-required data without the users’ consent, it further states that the data must be kept securely. As such important to ensure that all data, we gather related to the user follows the Data Protection Act.
* **Health and Safety at Work Act:** This act specifies the duties an employer, the client has regarding health, safety and welfare of its employees and customers. It mandates that the employer perform risks assessments of their working environments to ensure that they are up to standard and are safe to work and operate in, alongside this it requires the employer to provide appropriate training to the employees so they can effectively and safely perform their job duties and responsibilities.
* **Intellectual Property Act**: This act ensures the rights of intellectual property, by providing legal protection for the content and its creator. It states that the creator of the intellectual property has exclusive rights over the content, they can then decide whether others are allowed to use their intellectual property and if they are required to follow specified guidelines such as, credited or being financially compensated. As such to prevent any legal problems we must strictly comply with this act, and refrain from using content in an unauthorized manner, and in the case, we do use protected content we must follow the guidelines the creator has specified.
* **Zoo Licensing Act:** This act specifies several laws and regulations that dictate how a zoo is supposed to operate within the UK, this information includes direction on how to apply, manage and renew a license to operate a zoo. It also includes regulations on how animals are to be managed and handled during their stay at a zoo. Furthermore, it includes a requirement for a zoo to have appropriate educational resources related to the zoo and to the animals, such as biodiversity, habitats, behaviour, etc.

**Project Requirements**

The following sections below will explain what is needed for a user to operate the application. It will include various requirements needed for the projects to be efficiently and effectively implemented, it includes information related to what type of hardware is required to run the application, what software is used to produce and operate the application along with what systems need to be implemented into the application to fulfil the requirements that has been specified by the client.

**Hardware Requirements**

To successfully implement and support the proposed digital solution for RZA, we need to detail the necessary hardware requirements for both the client-side environment, where users will access the web application and the server-side environment, where the application will be hosted and managed.

**Client-Side Hardware Requirements**

**1. User Devices:**

* **Desktops/Laptops:**
  + **Minimum Specifications:**
    - **Processor:** Intel Core i3 or equivalent processor with a baseline performance capability.
    - **RAM:** A minimum of 4 GB of RAM to support basic web browsing and application functionality.
    - **Storage:** At least 10 GB of available storage space for the operating system and the application cache.
    - **Display Resolution:** Minimum display resolution of 1366 x 768 pixels to ensure proper rendering of web content.
  + **Recommended Specifications:**
    - **Processor:** Intel Core i5 or equivalent for enhanced performance and multitasking capability.
    - **RAM:** 8 GB of RAM or more, which will significantly improve the processing speed and multitasking.
    - **Storage:** Solid State Drive (SSD) preferred to provide faster boot times and quicker access to data.
    - **Display Resolution:** Full HD (1920 x 1080 pixels) for optimal visual experience.
* **Mobile Devices (Smartphones/Tablets):**
  + **Minimum Specifications:**
    - **Operating System:** iOS 12 or Android 8 and above, ensuring compatibility with modern web standards.
    - **RAM:** 2 GB of RAM to enable basic applications to run smoothly.
    - **Storage:** Minimum of 10 MB for the application and cached content.
  + **Recommended Specifications:**
    - **Operating System:** iOS 14 or Android 10 and higher for enhanced features and security.
    - **RAM:** 3 GB or more to support richer content and multi-app usage.
    - **Storage:** Minimum of 50 MB to accommodate app updates and additional content.

**2. Internet Connectivity:**

* **Bandwidth Requirements:**
  + A high-speed internet connection with a minimum download speed of 5 Mbps is required to ensure a smooth user experience.
  + A Wi-Fi or wired Ethernet connection is recommended for desktops and laptops to maintain stable and fast connectivity.

**3. Browser Compatibility:**

* Latest versions of major web browsers (such as Google Chrome, Mozilla Firefox, Safari, and Microsoft Edge) to ensure full functionality and access to all features.
* Full support for HTML5, CSS3, and JavaScript frameworks necessary for interactive and dynamic content.

**4. Accessibility Devices (if applicable):**

* Screen readers (e.g., JAWS, NVDA) to facilitate access for users with visual impairments.
* Alternative input devices (e.g., adaptive keyboards or voice recognition software) to support users with physical disabilities.

**Server-Side Hardware Requirements**

**1. Web Server:**

* **Processor:**
  + **Minimum:** A quad-core processor (e.g., Intel Xeon or AMD Ryzen) to handle multiple simultaneous user requests.
  + **Recommended:** An eight-core processor to facilitate higher performance during peak times and resource-intensive operations.
* **RAM:**
  + **Minimum:** 16 GB of RAM to accommodate basic operations and initial traffic.
  + **Recommended:** 32 GB or more to effectively manage concurrent access, caching, and data processing.

**2. Storage:**

* **Type:**
  + SSD (Solid State Drive) for significantly improved read/write speeds compared to traditional hard drives.
* **Capacity:**
  + **Minimum:** 500 GB of storage capacity to host essential application files, user data, and transactional databases.
  + **Recommended:** 1 TB or larger to provide scalability for future expansion and to accommodate growing multimedia content.

**3. Network Infrastructure:**

* **Bandwidth Requirements:**
  + A minimum of 100 Mbps dedicated internet connection to ensure quick data transfers and reduced latency for end users.
* **Firewall:**
  + A hardware firewall to enhance the security posture and control traffic flowing into and out of the server.

**4. Database Server:**

* **Processor:**
  + **Minimum:** Dual-core processor for basic database operations.
  + **Recommended:** Quad-core or higher to manage complex queries and high data loads efficiently.
* **RAM:**
  + **Minimum:** 8 GB of RAM to support average transaction loads.
  + **Recommended:** 16 GB or more, allowing for optimal performance during peak usage times.

**5. Backup and Redundancy:**

* Implementation of secondary storage solutions (such as external HDDs or cloud storage) to ensure data redundancy and facilitate disaster recovery protocols.

**6. Content Delivery Network (CDN) (optional but recommended):**

* Employing a CDN can significantly enhance load times and optimize access speeds globally, thereby improving user experience for visitors from diverse geographical locations.

**Software Requirements**

To successfully implement the proposed digital solution for Riget Zoo Adventures (RZA), the following software requirements must be considered. These requirements encompass the development environment, application software, database systems, server operating systems, and additional tools necessary for a fully functional web application.

**Frontend**

This will be presented in a table below containing a list of programming languages, frameworks and libraries that are required and will be used to implement the projects UI (User Interface). Each of the items below and renowned, and well tested and various developed software, allowing for easy development of the frontend part of the application.

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **Information** |
| HTML | Markup Language | This is a core component for the application as it will specify the structure and layout of the page. This makes it an absolute requirement for the web-based system, due to the fact that all web browsers rely on HTML to structure the site. |
| CSS | Stylesheet Language | This isa core component that will be used to determine how the site will look and what various parts of the sites layout visually look along wit what effect they have when they are interacted with such as when hovered, clicked, focused, etc. This another absolute requirement for the modern web-based systems that are to be shown via web browsers. |
| JavaScript (JS) | Programming Language | JavaScript is a core component that ensure the applications frontend operate and functions as intended. JavaScript allows for easy and efficient code o be developed on the websites frontend to add further functionality to the application, an example of this would be making a popup appear on the site when a button is clicked, or a certain part of the site is hovered on. |
| Bootstrap | Frontend Framework | Bootstrap is a popular open-source front-end framework that facilitates the development of responsive and visually appealing web applications. Originally developed by Twitter, Bootstrap has become one of the leading frameworks for building modern web interfaces due to its ease of use, customizability, and extensive feature set. |
| jQuery | Programming Library | jQuery is a fast, small, and feature-rich JavaScript library that simplifies HTML document traversing, event handling, animating, and Ajax interactions for rapid web development. Since its release in 2006, jQuery has become one of the most popular JavaScript libraries due to its ease of use and cross-browser compatibility. |
| Font Awesome | Icon Library | FontAwesome is a popular icon toolkit and font library that provides easy access to a collection of scalable vector icons that can be customized with CSS. It enhances your web projects by allowing you to use icons instead of images, which helps improve load times and scalability across devices. |

**Backend**

In the table below is a list of programming languages, frameworks and libraries that required and will be used to implement the projects backend. Each of the items on the table are well tested and developed pieces of software, allowing for each development of the back-end portion of the application.

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **Information** |
| C# | Programming Language | C# (C Sharp) is a modern, object-oriented programming language developed by Microsoft as part of the .NET framework. It is known for its versatility, performance, and strong support for modern programming paradigms. C# is widely used in backend development, particularly for building scalable web applications, desktop applications, mobile applications, and game development. |
| ASP.NET | Backend Framework | ASP.NET is the underlying web framework that will be used for the proposed solution, this framework was chosen as it is a highly efficient and developed framework with a long history of handling back-end webservers. It can also be easily expanded upon with other frameworks or custom code for the development of the server due to it being a very expandable framework. By using this framework, it will provide a very stable foundation for the rest of the solution to build off. |
| Microsoft SQL Server | Database | Microsoft SQL Server is a relational database management system (RDBMS) developed by Microsoft. It is designed to handle a wide variety of data management tasks, from enterprise-level applications to small-scale websites. SQL Server uses a structured query language (SQL) for accessing and manipulating data, which is a standard language for relational database systems. |
| NuGet | Package Manager | NuGet is the package manager for .NET, designed to facilitate the sharing, consumption, and management of packages (libraries or tools) within .NET applications. It provides developers with a streamlined way to add, update, and manage third-party libraries and tools, promoting code reuse and reducing the burden of manually handling library dependencies. |
| Entity Framework | Backend Framework | Entity Framework (EF) is an Object-Relational Mapping (ORM) framework for .NET applications. It provides a streamlined way to interact with databases by allowing developers to work with data in terms of objects rather than the traditional database tables and records. This reduces the amount of data access code that needs to be written and makes the process of working with databases more intuitive. Below, I will provide a detailed overview of Entity Framework, including its features, benefits, and common use cases. |

**Key Performance Indicators (KPIs)**

Key Performance Indicators (KPIs) are essential metrics that enable RZA to assess the performance and success of its digital solution. By tracking and analysing these KPIs, RZA can gain valuable insights into user engagement, application efficiency, and overall business effectiveness.

Among the primary KPIs for RZA are concurrent users, which monitor the number of users logged into the application at any given time, and new user registrations, which track the growth of the user base as well as the effectiveness of marketing strategies. Load time measures how quickly different sections of the application load, helping to identify potential performance bottlenecks. Revenue generated is crucial for assessing the financial viability of the application and understanding whether it meets its financial targets, while total sales transactions provide important insights into consumer purchasing behaviour, guiding sales strategies.

User retention rate is another crucial KPI, indicating the percentage of users who return to the application, which informs engagement and loyalty programs. Finally, the Customer Satisfaction Score (CSAT) evaluates user satisfaction and helps identify areas in need of improvement.

By regularly monitoring these KPIs, RZA can make data-driven business decisions, enhance user experiences, and promote strategic growth, ultimately ensuring the long-term success and sustainability of the digital solution.

**User Acceptance Criteria**

User Acceptance Criteria are critical to ensuring that both users and administrators can effectively utilize the application. Key considerations include the overall User Interface (UI) and User Experience (UX), considering the technical skills of users and any potential disabilities they may have. Additionally, specific features and data access for administrators compared to standard users must also be addressed.

The application should prioritize a user-friendly layout that is easy to navigate, allowing users to quickly learn and interact with its content. Consistency in the layout is important, particularly for navigation elements that should remain unchanged across all pages to facilitate user interaction. Moreover, the application must be accessible remotely, ideally as a web-based solution, enabling users to access it anytime and from anywhere with an internet connection and up-to-date browser.

Another essential feature is the ability for users to easily book zoo tickets and hotel accommodations, along with tools for managing their bookings. Administrators should also have access to appropriate tools to assist customers regarding their bookings. The application must provide comprehensive resources regarding the zoo, including operational details such as hours and location, as well as information on attractions and facilities to foster user interest. Furthermore, it is crucial to include accurate educational resources about the animals and attractions, adhering to legal requirements such as the Zoo Licensing Act of 1981. All these considerations are vital for designing, implementing, and deploying the application to meet both client and end-user expectations effectively.

**Project Risks**

1. **Cybersecurity Risks/Attacks**: Malicious actors can gain unauthorized access to private sensitive data or internal systems, potentially leading to data theft, ransom demands, or financial losses.
2. **Unsanitised User Input - SQL Attack**: Improperly sanitized user input can lead to SQL injection attacks, allowing malicious actors to steal sensitive data or disrupt the application.
3. **Unsanitised User Input - XSS Attack**: Cross-Site Scripting attacks can be launched through unsanitised user input, potentially leading to data theft, session hijacking, or reputation damage.
4. **Malware**: Malicious software can infect systems, steal sensitive data, or disrupt operations, potentially leading to financial losses or reputational damage.
5. **DDoS (Distributed Denial of Service) Attack**: Overwhelming network traffic can bring systems offline, disrupting operations and potentially leading to financial losses or reputational damage.
6. **Man-In-The-Middle (MITM) Attack**: attackers can intercept network communications, potentially stealing login credentials or sensitive data.

To mitigate these risks, the following measures can be implemented:

**Cybersecurity Risks/Attacks**

* Implement robust access controls and authentication mechanisms.
* Conduct regular security audits and vulnerability assessments.
* Develop incident response and crisis management plans.

**Unsanitised User Input - SQL Attack**

* Sanitize all user input before processing.
* Implement parameterized queries to prevent SQL injection.
* Regularly update and patch database systems.

**Unsanitised User Input - XSS Attack**

* Implement Content Security Policies (CSP) to prevent XSS attacks.
* Regularly update and patch application systems.
* Use secure coding practices to prevent XSS vulnerabilities.

**Malware**

* Implement robust endpoint security measures (e.g., antivirus software).
* Conduct regular security awareness training for employees.
* Develop incident response and crisis management plans.

**DDoS Attack**

* Implement traffic filtering and rate limiting to prevent DDoS attacks.
* Use Cloud-Based DDoS protection services to mitigate attacks.
* Regularly update and patch application systems.

**MITM Attack**

* Implement secure networking protocols (e.g., HTTPS).
* Use encryption algorithms to secure network communications.
* Regularly update and patch network systems.