Collaborative Discussion 1: Information System failure

Initial Post

Information System failure: a case study for a British organization

Today, different software systems are used around the world. Among them, information systems are popular which are developed for organizations to facilitate processes. Some of the information systems are large, complex, and adapted to the company needs. This adaptability is to the extent that the entire company is dependent on the system and have limited functionality. Therefore, reliability and security are of high priority for these systems. The more system is reliable and dependable, the less it causes physical or economic damage in the event of failure (Sommerville, 2016).

Across the world, information system failure is reported in different organizations. This essay refers to a system failure in British Airways which affected many passengers in 2019. The failure involved two systems of check-in and flight departure. More than 100 flights were cancelled. The airline had to revert to manual check-in which caused long queues at airports. Some passengers had to rebook their flights. Travellers expressed “their frustration in social media” (BBC, 2019). Some passengers missed their connecting flights; For Alex Brayson and his partner missing flight from Newcastle enroute to their wedding in Slovenia was a disaster. Some were stuck at the airport because their flight and its replacement were cancelled; For British wheelchair tennis player Abbie Breakwell who was supposed to play in a tournament in Belgium, the situation was very tragic. All her trainings for the tournament were wasted. Others were angry because the airline had not informed them of the delay (BBC, 2019).

To look closely, it is concluded that many big organizations experience IT failures and British Airways is not the exception. British Airways has experienced many significant outages and the reason behind most of them is data centre technical issues which the company could neither resolve nor shift to backup facility (Data Centre Dynamics, 2022). The outage of 2019 cost the company about £8 million (International Airport Review, 2019).

References

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Peer Response

Peer response to Emmanuel essay

Hi Emmanuel,

Thank you for your essay.

Software has always shipped with bugs (Palmer, 2022) and no company can escape the vulnerability in their codes. Different companies reflect to the vulnerabilities differently; for example, Microsoft urged its developers to develop more secure software after discovering security problems in its operating system. Many companies do the software development the way that leads them to more bugs and defects. The speed of work and moving faster than other competitors affects the quality of software. According to Gartner as an IT research and consultancy company, “Perfect security and zero risk are impossible”. (Armerding, 2020)

References

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Peer response to Solomon Kanihiro essay

Hi Solomon,

Thank you for your essay.

Lack of software engineering techniques can be the reason behind the problem. Software engineering is an approach to the production of a software that considers cost and time management as well as the needs of different stakeholders. (Sommerville, 2016). A suitable technique of software engineering leads to a reliable software, lower costs, and effective communication with the stakeholders from the start of the project. Having a clear idea about the software, its requirements and its delivering time can prevent delay, cost overruns and failure of the project. (IBM, 2022)

References

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Summary Post

Today, software is everywhere. So, software engineering plays an important role because it deals with all the aspects of software development. A systematic approach that is used in software engineering is called a software process. Four common software processes include *specification*, *development*, *validation,* and *evolution*. Software engineering has been facing challenges like increasing complexity, reducing delivery time, reducing costs, and developing reliable software. To address these challenges, software engineering has taken advantage of combined old and new techniques. There are different techniques for different software. Nevertheless, there are software engineering fundamentals that can be applied to all kinds of software systems whether it is an embedded system or an information system. (Sommerville, 2016). Among the software systems, information system is one of the most important systems. Information system is made up of three elements: *technology (hardware, software, data, and network)*, *people* and *process*. These elements work together to collect, process and store information for decision-making purposes in organizations. As the technology has evolved, the role of information system became prominent. The implementation of information system brought the businesses competitive advantages; as an example, Walmart's use of information system in 2012 turned it into the world's leading retailer. (Bourgeois et al., 2014: chapter 1). Today, information systems are used around the world. Some of them are large, complex, and adapted to the company needs. This adaptability is to the extent that the entire company is dependent on the system and have limited functionality. Therefore, reliability and security are of high priority for these systems. Across the world, information system failure has been reported in different organizations. For example, a system failure happened in British Airways which

affected many passengers in 2019. The failure involved two systems of check-in and flight departure. More than 100 flights were cancelled. The airline had to revert to manual check-in which caused long queues at airports. Some passengers had to rebook their flights. Travellers expressed “their frustration in social media” (BBC, 2019). The outage of 2019 cost the company about £8 million (International Airport Review, 2019). To look closely, it is concluded that software system failures have also negative impact on people lives and companies’ reputation.

References

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Collaborative Discussion 2: Alternatives to SQL

Initial Post

NoSQL technologies: a trend toward more efficiency

Due to increasing volume of data, the traditional method of classifying and retrieving data for companies was not viable. The enterprises needed an effective, error-free, and reliable data management system which offered them the market competitiveness. To meet this demand, database was emerged; A shared collection of logically related data that could change the way the organizations operated (Connolly et al., 2014). The database needed a system to manage it, so DBMS was emerged. Since 1970, the relational database model has been the most effective and viable DBMS. However, to be compatible with the complexities of new applications and big data, the DBMS has constantly been evolving. The outcome of these changes has been the emergence of non-relational databases (often called NoSQL databases). Comparing the traditional relational model, the NoSQL stores data in a non-tabular form which makes it more flexible (MongoDB, 2022). Moreover, non-relational databases proved to be appropriate for diverse and constantly changing data. Among non-relational databases, Object model is a database to store data in objects which support fast query between complex relationships (MongoDB, 2022); Therefore, there is no need for tables, columns, rows, or foreign keys. Furthermore, Object databases are used with object-oriented programming languages.

It is clear that businesses need new technologies like NoSQL to meet their needs and stay competitive in the market.

References

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Peer Response

Peer response to Mohammad essay

Hi Mohammad,

Thank you for your essay.

It is a good idea to add that object models are considered a revolution which integrated object-oriented concepts with database systems; and one of the reasons behind their emergence was the inadequacy of relational models for some complex applications (Connolly et al., 2014). From the advantage and disadvantage viewpoint, it is good to refer to object model's rich and flexible type system and their

compatibility with object-oriented programming languages as advantages and not relying on mathematical base as disadvantages. (Stajano, 1998).

References

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Summary Post

Databases are the fundamental component of information systems. Their lifecycles are also heavily interconnected. Design is one of the stages in the lifecycle of databases which allows communication between users and designers. To facilitate this communication, data models have been emerged. Entity-Relationship (ER) is the most popular data model in designing databases. In ER model, the focus is on data (entities) and the relationships between them. More information about data (attributes) can be added to the model. In ER modelling, entities represent objects which play a key role. Among data models, relationals are the ones which are used by relational database management systems (RDMBS). Relational databases have been prominent for a long time; All data are kept in relations (tables). To update or

retrieve data, different relational languages can be used; Structured Query Language (SQL) has been the most used language. (Connolly et al., 2014). However, it was inadequate for some complex applications. In response to this weakness, NoSQL databases (non-relational databases) have been emerged. Comparing the traditional relational model, the NoSQL stores data in a non-tabular form which makes it more flexible (MongoDB, 2022). Moreover, Roberto Cappiello noted that NoSQL databases are ideal for diverse and constantly changing data sets because of their horizontal scalability; This feature gives them the ability to support the increasing traffic using other servers.

Among non-relational databases, Object model is a database to store data in objects which support fast query between complex relationships (MongoDB, 2022); Therefore, there is no need for tables, columns, rows, or foreign keys. Furthermore, Object databases are used with object-oriented programming languages.

Considering different NoSQL databases, Rachel Doherty noted that there is no clear method for prioritising one and the reason behind it is that data is still emerging in different forms. However, paying attention to data feature and data environment can be factors which help to choose the best service.

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