

Introduction:

The college management system has different sorts of aspects which should be kept in mind while making the system. Some aspects include social aspect, legal aspect, ethical aspect, and security aspect. All these aspects directly or indirectly affect the outcome of the system. The system mainly depends on all these aspects. The more systems look into these aspects the more the system will be user friendly. Social aspects include all the social things like user experience, the effect of the system in society, and so on. The legal aspect includes all the legal things like copyright on image, texts etc. Or in other words legal approach of system to make it run legally avoiding all the illegal approach. The ethical aspect includes all the ethical things like data prevention form sharing, fairness in using data, avoiding discrimination and so on. Security aspect includes all the security aspects that have been used in the system including password hashing, user authentication and user access, firewall etc. All the aspects in term of the system have been explained below.

Social Aspect:

The college management system may have some major social issues including data privacy and accessibility. The major concern for social issues is data privacy. Since college management system is a system majorly made for the students for their better experience. For this the students may provide different sorts of data like their email address, contact details, passwords etc. So, it's very important to protect the data of the students. Accessibility is another important social issue. Accessibility includes the services that should be accessible for all students. For every disability the system should provide an accessible environment. There may be impact on the traditional learning styles since students may get the materials for study via system. There will be a virtual environment of college instead of traditional educational system, this may affect the physical communication of students.

The system on the other hand provides better communication between the students and teachers for sharing the academic materials. The teachers may provide notices or updates to students which will help in maintaining the coordination between the students and teachers. It may promote remote learning where students will get academic materials outside college premises as well.

Another important social aspect of this system is transparent academic process, this includes transparency in assignment , course scheduling and so on. This helps students to easily track their academic materials whenever needed.

The college management system on the other hand helps administrators to collect the information or data of the students and try to figure out what faculty students prefer to join the college and so on. This is how an administration gets the important information like the location of the students, their past learning faculties, and so on which will surely help them to enhance their advertisement in those areas.

Students in some cases not being able to attend class and get the materials in classroom can easily get access to the materials via remote this will help students a lot in improving their academic status.

Legal Aspect:

The college management system will be 100% legal. There will not be any sort of illegal activities being followed till the completion of the system. All the data will be legally used in the system. The most common mistake made on different websites is related to using images for a site. Using images in a system is very important for user experience and good visualization. But it's not correct to use any images from the internet without having access to it. (Bolin, n.d.) There are copyright acts that may clearly affect the system if we are using the images from any source without having access to them. To solve this issue, we can implement some best ways to get the image instead of extracting image randomly from internet without having access. (Bolin, n.d.) Some of the ways includes:

- Clicking image by ourselves.
- Creating original images by drawing
- Using licensed images
- Free images off the internet

These are the best ways to be prevented from any copyright act in terms of images. Another legal issue anyone faces while creating any web systems is while using texts. The texts should not be directly copy pasted from anywhere without permission or having license to that text. Same as images it also provides copyright issues if we use text without permission. (Bolin, n.d.) To prevent this problem, it's best to use your own words as text or hiring an author or copywriter to write text for the system. Another problem that may arise is using other's scripts and applets without permission. It is also the violation of the copyright law to use someone else's scripts and applets without permission. To solve this problem, we can use publicly available scripts and applets. (Bolin, n.d.)

Similar to images and texts there is a trademark concern where we cannot use any trademark used by other sites. Using the same trademark, slogan or logo of other sites creates a trademark infringement which will lead to confusion for the users to use the system. (Bolin, n.d.) Suppose I am making a college management system whose logo and slogan is similar to canvas. This will surely make the user confused with which one is canvas which one is another college management system. For this many websites have made **inappropriate claims of trademark infringement** every time they see their logo/ trademarks in any other websites. So, to prevent this the best way is to use your own slogan and logo which doesn't look like any other's logo or slogan. (Bolin, n.d.)

The next thing which should be taken in mind is defamation, which means false statements made about some organization that is questioning their reputation. Such things come under the law of defamation. Such a thing should be considered and should be avoided in the system. (Bolin, n.d.)

Ethical Aspect:

The college management system may have some ethical aspects. These aspects may include fair use of technology, data privacy and security and so on. Talking about data privacy and security, it's the most important point in ethical aspect. The students' and staff's information should be secure; we should not share the data of students and staff for false meaning. All the data should be secured. The principle of ethical aspect includes respect for privacy so it's important to respect the privacy of students and teachers by securing their data. In terms of the college management system the data that needs to be safeguarded may include attendance records of students, personal details like email, passwords, contact details etc. (corewave, n.d.)

The second consideration in ethical aspect can be fairness in decision making. The major goal of this consideration is fairness and justice. In the college management system teachers provide assignments and other teaching materials to students so that should be provided equally to all the students. There should not be any bias condition where only some students are getting the materials or suppose in grading system there should not be bias anywhere every student should be treated equally. (corewave, n.d.)

Next is transparency in data use. This is one of the important considerations of the ethical aspects. Every user of the system, either student or teacher, should be ensured that their data is in safe hands. We should inform them if their data is going to be used outside the system, or it's better if we can hold the data inside the system only. (corewave, n.d.)

Next is preventing discrimination. This is one of another important considerations of ethical aspects. The system must ensure that there is no contribution to discrimination in terms of race, gender, culture etc. The system should identify such discriminating activities and should be removed from the system.

Security Aspect:

Security aspect is an important aspect of the college management system. Security aspect ensures the security of sensible data of the users (staff or students). The main considerations of security aspects may include data encryption, Authentication , data backup and so on. (illusionfact, 2020) Talking about data encryption, the system is using “bcrypt” to encrypt and decrypt the password, which is also known as password hashing. In this process the user password will be encrypted and stored in database and whenever we need to deal with that password suppose while changing the password we will decrypt it and then we will get the original password entered by the user. (illusionfact, 2020)

Next security consideration includes access control and authentication. In this system have applied the authentication of user via JWT token. This token will help in authentication of the user. By this method we can restrict the user based on their role. The specific user with specific logged in data will only be accessed to the page. This helps in preventing all users from getting access to the page. This method is very important to restrict the user. (illusionfact, 2020)

Proper security testing and debugging is necessary to provide security for the data. For every technology it's very important to provide time to time testing and debugging the error. This will help in identifying and solving the issue if any. (illusionfact, 2020)

Creating a backup of data can be a good idea to keep data secured somewhere, if the data is deleted or destroyed that may help in recovering data. But it should also be kept in mind to keep those backup data secured as well. (illusionfact, 2020)

Keeping software frameworks up to date will help in not degrading the security of the system. Sometimes some updates of software and frameworks will enhance the security system, such updates will help in improving the security of the system. (illusionfact, 2020)

Using firewall and intrusion detection system if possible. Using such systems will help to check if there are any injections or attack in the system. This can be the best way to check the system status.

Conclusion:

To conclude this report there are mainly 4 aspects discussed in this report showcasing how it is being used in our system. The aspect includes social aspect, legal aspect, ethical aspect, and security aspect. Social aspect used in our system is communication between the students and teachers via providing and receiving academic materials, providing updates and notices to the students. Securing the data of students or staff like location, contact details without sharing it anywhere. The legal aspect used in our system is all the images and texts are self-generated and do not contain any copyright issues. Our system will be 100% legal and there will not be any sort of issue legally while deploying the system. Also, the slogan and trademark used in this system is self-made so there is not any issue with that as well. The ethical aspect used in our system is the data of the students will not be shared anywhere, it will be used inside the system only it will not be transferred or used by any other systems. This system will not participate in any sort of discrimination activities any way. The security aspect used in our system is, securing the user data. Password has been encrypted and only kept in the database. There is user authentication system to authenticate the user and only allowing selected user to enter in the system this helps in keeping system away from any sort of injection or attacks.

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