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**REPORT ONLINE BUS MANAGE**

**DATABASE SYSTEM**

**Subject: DBI202 - Introduction to Database**

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**Class: SE18B03**

**GROUP 4**

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**ONLINE BUS MANAGE**

**I/ Presentation of the problem**

1. **Currently situation:**

FPT University is currently providing an excellent educational environment closely intertwined with practical experiences to stimulate the talents of students. This approach aims to nurture and enhance their potential, critical thinking, and receptiveness to information processing. Consequently, FPT University has become the top choice for many parents seeking a conducive learning environment for their children. Additionally, more and more students are opting for FPT University to develop their skills and achieve their post-graduation goals. However, the limitations in commuting and accessing practical experiences remain significant challenges for students.

1. **Drawbacks:**

* The geographical location of FPT University is quite distant from the city center, and commuting along the national highways poses significant risks.
* Students commuting from the urban area to FPT face considerable limitations during peak hours, often leading to delays. (Evidence: Students commuting from the urban area to FPT tend to arrive later compared to those residing in the dormitories...)
* The increasing number of students, coupled with FPT Quy Nhon's recent establishment, may necessitate transporting students to FPTSoftware for early education and internships. Hence, commuting along the mountainous national highways poses safety risks if students travel independently. (Evidence: FPT HCM has invested in transportation to facilitate students' commuting, offering monthly bus passes, which has been warmly welcomed by students.)
* As students progress through their academic terms, those specializing in certain fields have more classes at FSoft, making commuting from campus or the urban area inconvenient, especially during Quy Nhon's stormy seasons. (Evidence: This term, many students have classes at FSoft, but the dangerous road conditions and heavy traffic on the national highway could lead to congestion and reckless driving.)
* The majority of FS students are from Quy Nhon, so during the beginning and end of the week, students have to commute with their families, which is quite inconvenient for both students and parents.

1. **Proposed Features:**

* The online bus service management system will include the following key features:
* Real-time Tracking: Integration of GPS technology to track bus locations in real-time, enabling accurate estimation of arrival times and improved service reliability.
* Incident Reporting: A mechanism for drivers and passengers to report incidents or technical issues, facilitating swift response and resolution by relevant authorities.
* Passenger Information Services: Provision of user-friendly interfaces for passengers to access bus schedules, routes, and real-time updates via web portals or mobile applications.
* Data Analytics: Utilization of data analytics tools to analyze passenger trends, route performance, and operational efficiency, enabling informed decision-making and service improvements.

1. **Reason for database:**

* Efficient Management: A database helps organize information about buses, including schedules, operational status, current location, and operational history. This enhances efficient management and facilitates quick and accurate decision-making.
* Tracking Speed and Location of Buses: The database can store real-time information about the speed and location of buses. This improves the accuracy of arrival times and provides precise information to passengers.
* Managing Bus Operational Status: The database can record incidents or technical issues with buses, including start times, completion times, and remedial actions taken. This helps maintain stable bus operations and ensures passenger safety.
* Providing Information Services to Passengers: The database can provide information on schedules, locations, and estimated arrival times of buses to passengers through mobile applications or websites. This helps passengers easily track and manage their travel time.
* Analysis and Service Improvement: Data collected from the database can be used to analyze the performance of bus operations, identify high-demand areas, and propose improvements in public transportation services.

**II/ Description of the system's business:**