**Cavendish University Uganda**

**Faculty of science and technology**

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Course: BCS

Module: Database development and management 1

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1. A suitable relational database management system for the academic institution such as Cavendish University, could be MySQL, PostgreSQL, Microsoft SQL, or Oracle Database. The choice of the system would depend on factors like scalability, cost, and the specific requirements of the institution.
2. Entities and entries involved:
3. Student Entity:

* Student ID number (Primary key)
* Student name
* Telephone number
* Address
* Data of birth

1. Course Entity:

* Course ID (Primary Key)
* Course name
* Course duration

1. Course Registration Entity:

* Registration ID (Primary key)
* Student number
* Course ID

1. Payment Entity:

* Payment ID (Primary)
* Amount Paid
* Student Number
* Course ID
* Date of payment

1. Relationship between the tables

* The student and course entities can have a many-to-many relationship through the course registration entity, representing the courses that a student is registered for.
* The payment entity can have foreign keys referencing both the student and course entities, indicating which student made a payment for a particular course.

1. Problems faced without a database system:

* Data redundancy:

Without a database. Data might be duplicated across various files and spreadsheets, leading to inconsistences and data errors.

* Data inconsistency:

Data might be inconsistent and outdated if multiple copies are maintained.

* Limited access control:

Access to sensitive information might not be adequately controlled.

* Inefficient data retrieval:

Retrieving specific information about students, courses and payments would be cumbersome without a database.

* Lack of data integrity:

Ensuring data accuracy and integrity would be challenging.

1. ER diagram illustrating how the tables are related

