**Student Declaration**

I confirm the following details:

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| I have read and understood both NCC Education’s *Academic Misconduct Policy* and the *Referencing and Bibliographies* document. To the best of my knowledge my work has been accurately referenced and all sources cited correctly.  I confirm that this is my own work and that I have not colluded or plagiarised any part of it. | |
| **Candidate Signature:** | A black background with a black background  Description automatically generated |
| **Date:** | **01.09.2024** |

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# Task 1: Application Software and Business Processes

## Introduction

This report provides an overview of the essential business processes and information systems necessary for managing Greenfield Construction Ltd., a mid-sized construction company with a workforce of over 100 employees. In order to guarantee an integrated, organizational-wide approach, the report also makes recommendations for application software to support each business process, along with the costs involved.

## Key Business Processes

1. **Human Resource Management (HRM)**
   * **Process Overview:** HRM is essential for payroll, hiring, onboarding, attendance, performance reviews, and benefits administration in addition to managing employee data.
   * **Information System:** These procedures might be streamlined by a capable Human Resource Management System (HRMS), such as SAP SuccessFactors or BambooHR, which would decrease manual labor, automate repetitive tasks, and boost overall productivity.
     + **Cost:** BambooHR costs approximately $6 per employee per month, while SAP SuccessFactors starts at around $84 per user per month.
2. **Financial Management**
   * **Process Overview:** This process entails managing accounts payable and receivable, budgeting, financial reporting, and regulatory compliance. It is critical for Greenfield Construction to keep track of expenses, project costs, and cash flow.
   * **Information System:** QuickBooks and Xero are examples of software that can manage financial transactions, streamline accounting tasks, and provide real-time financial reporting.
     + **Cost:** QuickBooks starts at $25 per month, while Xero runs around $12 per month for basic services.
3. **Project Management**
   * **Process Overview:** Effective project management is essential for planning, scheduling, budgeting, and overseeing construction projects from start to finish. Tasks include allocating resources, tracking progress, and managing risks.
   * **Information System:** Construction project management tools such as Procore and Microsoft Project can assist with real-time tracking, collaboration features, and reporting.
     + **Cost:** Procore typically charges around $375 per month per project, while Microsoft Project starts at $10 per user per month.
4. **Customer Relationship Management (CRM)**
   * **Process Overview:** The CRM process involves managing customer interactions, tracking sales, communicating with clients, and providing post-project support. Greenfield Construction believes that maintaining strong relationships with clients and contractors is critical to its success.
   * **Information System:** Salesforce or Zoho CRM can help manage customer data, track sales opportunities, and enhance client communication.
     + **Cost:** Salesforce Essentials costs $25 per user per month, while Zoho CRM starts at $14 per user per month.
5. **Supply Chain and Inventory Management**
   * **Process Overview:** This process involves managing suppliers, inventory, purchase orders, and timely delivery of materials and equipment to construction sites.
   * **Information System:** Utilize an ERP system, such as SAP S/4HANA or Oracle NetSuite, for real-time inventory tracking, automated purchase orders, and supplier management.
     + **Cost:** SAP S/4HANA costs between $100-$300 per user per month, while Oracle NetSuite can cost around $99 per user per month, depending on the modules used.
6. **Health and Safety Management**
   * **Process Overview:** Compliance with safety regulations and workplace safety are critical in the construction industry. This includes tracking safety training, monitoring incidents, and keeping compliance records.
   * **Information System:** Utilize specialized tools like eCompliance or SafetyCulture to manage health and safety records, receive real-time updates, and automate inspections.
     + **Cost:** eCompliance typically costs around $7 per user per month, while SafetyCulture offers plans starting at $19 per user per month.
7. **Document Management and Collaboration**
   * **Process Overview:** Proper document management is essential for keeping track of project-related documents such as blueprints, contracts, and permits. Efficient collaboration within project teams is also required.
   * **Information System:** Software such as Microsoft SharePoint or Dropbox Business can improve document management and team collaboration by offering a centralized platform for storage and sharing.
     + **Cost:** Microsoft SharePoint costs $5 per user per month, while Dropbox Business starts at $15 per user per month.

## Recommended Application Software and Costs

1. **Human Resource Management Software: *BambooHR***
   * **Features:** Employee database management, time tracking, payroll processing, performance management.
   * **Cost:** $6 per employee per month.
2. **Financial Management Software: *QuickBooks***
   * **Features:** Accounting, invoicing, payroll, financial reporting, tax management.
   * **Cost:** Starting at $25 per month.
3. **Project Management Software: *Procore***
   * **Features:** Project planning, resource allocation, real-time collaboration, progress tracking.
   * **Cost:** $375 per month per project.
4. **Customer Relationship Management Software: *Salesforce***
   * **Features:** Sales tracking, customer support, marketing automation.
   * **Cost:** $25 per user per month for the Essentials plan.
5. **Inventory and Supply Chain Management Software: *SAP S/4HANA***
   * **Features:** Real-time inventory tracking, supplier management, automated reordering.
   * **Cost:** $100-$300 per user per month, depending on the modules used.
6. **Health and Safety Management Software: *eCompliance***
   * **Features:** Safety record management, compliance tracking, safety training management.
   * **Cost:** $7 per user per month.
7. **Document Management and Collaboration Software: *Microsoft SharePoint***
   * **Features:** Document storage, sharing, version control, team collaboration tools.
   * **Cost:** $5 per user per month.

## Conclusion

Greenfield Construction Ltd. believes that an integrated approach to managing key business processes is critical to achieving operational efficiency and remaining competitive. The recommended software solutions, which range from HRM and financial management to project and document management, provide comprehensive features that are specifically tailored to the needs of the construction industry. The costs of each software have been calculated to fall within the typical budget constraints of a mid-sized organization, ensuring both affordability and scalability. By implementing these solutions, Greenfield Construction Ltd. will be better able to manage its workforce, finances, projects, and customer relationships effectively.

# Task 2: End-User Development

“Greenfield Construction Ltd.” is a medium-sized construction company with a workforce of over 100 staff members. Greenfield has a diverse range of roles, such as site managers, engineers, laborers, and administrative staff, which all necessitates a performing Human Resource Information System (HRIS) to efficiently process its assigned progresses.

## a) Database Design for Human Resource Information System (Conceptual)

To develop a Microsoft Access database for the HRIS of Greenfield Construction Ltd., the following data entities are suggestively proposed:

**Employee Table**

* **Key Fields:** EmployeeID (Primary Key), FirstName, LastName, DateOfBirth, Gender, Address, Contact, Email, DepartmentID (Foreign Key), PositionID (Foreign Key), HireDate, Note
* **Description:** This entity stores the required personal details of each employee in the organization including their department and position information.

**LeaveRecord Table**

* **Key Fields:** LeaveID (Primary Key), EmployeeID (Foreign Key), LeaveType, LeaveReason, StartDate, EndDate, LeaveStatus
* **Description:** Stores all leave records for employees, including different kinds of leave (e.g., holidays, sick leave).

**Department Table**

* **Key Fields:** DepartmentID (Primary Key), DepartmentName, ManagerID (Foreign Key)
* **Description:** This entity facilitates information about different departments within the organization.

**Position Table**

* **Key Fields:** PositionID (Primary Key), PositionName, SalaryRange
* **Description:** Contains details about different job positions such as site manager, engineer, or laborer, along with their associated salary ranges.

**WorkAssignment Table**

* **Key Fields:** AssignmentID (Primary Key), EmployeeID (Foreign Key), ProjectName, Description, StartDate, EndDate, Status
* **Description:** Stores information about the various work assignments or tasks assigned to employees, including project details and task status.

**AppraisalRecord Table**

* **Key Fields:** AppraisalID (Primary Key), EmployeeID (Foreign Key), Date, PerformanceScore, Comments, ReviewerID (Foreign Key)
* **Description:** Contains annual appraisal records and performance scores for each employee, along with comments and the ID of the reviewer.

**Reviewer Table**

* **Key Fields:** ReviewerID (Primary Key), Name, PositionID (Foreign Key)
* **Description:** Records the reviewers responsible for conducting appraisals, including their names and positions.

## b) Advantages and Disadvantages of Using Microsoft Access vs Excel for HRIS

### Disadvantages of Using Microsoft Access:

1. **Limited Scalability**: Access is not well-suited for large-scale databases, and performance may degrade with an expanding number of users or data.
   * **Reduction Strategy:** Regularly archive old data and optimize queries to enhance performance.
2. **Platform Dependence**: Access is primarily designed for Windows; cross-platform use is limited.
   * **Reduction Strategy:** If cross-platform compatibility is needed, consider using a web-based front-end.
3. **Security Concerns**: While Access offers some security features, they are not yet as robust as those in larger database management systems.
   * **Reduction Strategy:** Apply strong password policies and control access at the application level.

### Advantages of Using Microsoft Excel for HRIS:

1. **Ease of Use**: Excel is widely familiar to users and easy to set up for simple data management.
2. **Flexibility**: Excel is highly flexible for small datasets and quick, ad-hoc data analysis.
3. **Integration**: Excel integrates well with other Microsoft Office applications for data exchange and reporting.

### Disadvantages of Using Microsoft Excel for HRIS:

1. **Data Integrity Issues:** Manual data entry can lead to errors and data inconsistency.
2. **Lack of Scalability and Performance:** Excel is not designed to handle large datasets or multiple users, which may lead to performance degradation.
3. **Limited Functionality for Relational Data:** Excel lacks robust support for complex relational data and is prone to errors in cases requiring many-to-many relationships.

## c) Recommendations for Ensuring Success in End-User Development

1. **Comprehensive Requirements Gathering**:
   * Work closely with end-users to understand their needs and document all requirements. Take workshops and interviews with HR staff to identify the necessary features.
2. **Training and Support**:
   * Offer training sessions to help users become comfortable with Access or any other tools being used. Create simple user guides and manuals.
3. **Iterative Development with User Feedback**:
   * Use a step-by-step development process, establishing prototypes and acquiring constant feedback from users. This approach helps to build a system and meets user needs.
4. **Data Validation and Error Handling**:
   * Build strict rules to verify data for accuracy and create processes to handle errors. Ensure clear error messages are provided to prevent incorrect data entry.
5. **Support and Maintenance After Deployment**:
   * Develop a solid plan for supporting the system after it is published, including regular updates and patches, fixing bugs, and optimizing performance. Set up a help desk for quick problem-solving.
6. **Data Backup and Recovery Planning**:
   * Create a strong plan for backing up and recovering data to avoid loss and ensure the system keeps running smoothly. Regularly back up the database and test recovery methods.
7. **Security Measures**:
   * Develop a security plan that includes user authentication, access controls, and data encryption to protect sensitive information.

By following these recommendations, the end-user development process for the HRIS using Microsoft Access or any other tool will be more effective and will result in a system that is reliable, efficient, and trustworthy by its users.

# Task 3: Advanced Features and Functions of Microsoft Word

## a) Staff Details Tables (Excel)

To develop the Human Resource Information System (HRIS), data tables in separate sheets of an Excel workbook: `Staff\_Details` and `Leave\_Data` are thoughtfully generated. These tables can serve to effectively manage and store employee information such as personal details, leave records, and employment statuses.

The `Staff\_Details` table comprises fields such as `Employee ID`, `First Name`, `Last Name`, `Department`, `Position`, and `Email`. Each record uniquely identifies an individual employee, defined by the `Employee ID` which serves as the primary key.

The following is the generated `Staff\_Details` table with populated data:

A screenshot of a computer

Description automatically generated

**Staff\_Details Table**

The `Leave\_Data` table tracks each employee’s leave data with fields including `Employee ID`, `Leave Type`, `Leave Start Date`, `Leave End Date`, etc. The `Employee ID` serves as a foreign key, establishing a relationship with the `Staff\_Details` table to connect each leave record to the corresponding employee.

The following table shows the `Leave\_Data` Excel Table with some populated data:

A screenshot of a computer

Description automatically generated

**Leave\_Data Table**

To enhance usability and ensure accuracy, several functions have been implemented in the Leave\_Data table to automate the population of specific columns. These functions simplify the process of calculating and displaying leave-related data.

**Days of Leave**: This function calculates the total number of days between the Leave Start Date and Leave End Date. The formula used is:  


**Remaining Days of Leave**: This function determines the number of days left in the leave period relative to the current date. The formula is:



## b) MailMerge for Annual Leave Slips

The task involves developing a MailMerge letter template for sending annual leave slips to employees, which summarize all leave taken during the year, including individual leave records, total leave taken, and outstanding leave. The MailMerge template is intended to dynamically populate data for each employee, replacing placeholders with actual data from a structured data source, such as an Excel spreadsheet or Access database.

A black screen with white text

Description automatically generated

**Annual Leave Slips Template (MailMerge)**

A test plan has been created to ensure that MailMerge works properly. This includes three test cases: verifying MailMerge's basic functionality to ensure data is accurately populated, checking data formatting to confirm that dates and figures are displayed consistently and correctly, and validating that multiple records are handled properly with no data overlap or errors.

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Description automatically generated

**Template Test Case 1: EMP003**

A screenshot of a computer screen

Description automatically generated

**Template Test Case 2: EMP005**

A screenshot of a black and white message

Description automatically generated

**Template Test Case 3: EMP006**

After validation, all the letters can be automatically sent with one click via `Finish & Merge` feature of Microsoft Word.

A screenshot of a computer

Description automatically generated

**Email options to choose before sending**

The automation also improves data accuracy by accessing directly from a central data source, ensuring that leave information is always current and correct. It eliminates redundant manual entry processes, which could result in inconsistencies or errors in leave records. Furthermore, the MailMerge process is scalable, allowing for future employee growth while not significantly increasing the administrative workload.

Automating this process creates a dependable and consistent method for disseminating critical HR communications, which can be replicated for other HR activities like performance reviews or benefit updates. This consistent communication strategy promotes trust and clarity within the organization, thereby improving overall employee satisfaction and retention. As a result, this streamlined approach not only improves HR operations but also positively influences organizational culture.

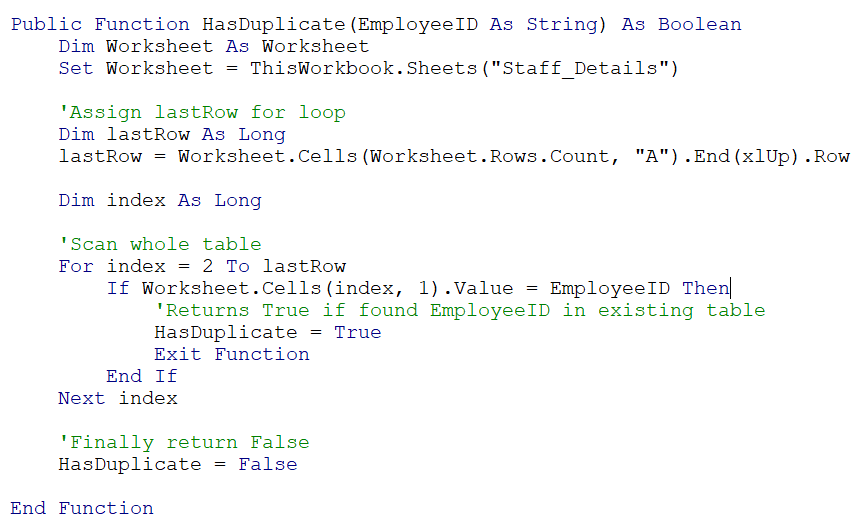
# Task 4: Advanced Features and Functions of Microsoft Excel

## a) Macro for Adding Staff Details

A macro is designed with Visual Basic for Applications (VBA) to capture staff details via a user form and insert the new data into the “Staff\_Details” table in Excel. The form is requested by a button on the spreadsheet.

### Key Features:

* **Duplication Check:** The macro includes a validation function, `HasDuplicate`. Should a duplicate be detected, an error message will be shown, and the data is not added.



**Function for checking duplicates**

* **Data Insertion:** The macro inserts the newly submitted staff details into the table using the following function.

A white background with colorful text

Description automatically generated

**Function to insert staff data**

### Macro Demo

* **One-click macro:** Upon clicking the `Add Employee` Button, a `New Employee` form will pop-up.

A screenshot of a computer

Description automatically generated

* **On-Submit:**

A screenshot of a computer

Description automatically generated

**Data is Filled in the Form**

**A screenshot of a computer

Description automatically generated**

**Submitted and Inserted New Staff**

**A screenshot of a computer program

Description automatically generated**

**Back-bone Code of Registration Form**

## b) Design and Usability Principles

### Design Principles:

1. **Clarity:** The user form is designed with clear labels for each input field, ensuring that users can easily understand what information is required.
2. **Validation:** Essential input validation is incorporated to ensure accurate data entry. This includes checks for missing fields and duplicate records.

### Merits and Demerits of Macros:

**Merits:**

* **Automation:** Macros automate repetitive tasks, reducing manual effort and minimizing the likelihood of errors.
* **Integration:** Macros integrate seamlessly with Excel, facilitating efficient data management within a familiar environment.

**Demerits:**

* **Complexity:** Setting up macros can be complex and requires a good understanding of VBA (Visual Basic for Applications).
* **Maintenance:** Changes to data structures or requirements may necessitate updates to the macro code, which can be time-consuming.

Overall, while macros offer powerful automation capabilities and customization, careful design and security considerations are essential to ensure their effectiveness and safety.