Introductory Computer Applications

for

Administrators

by

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"Relax, Computer bytes won't hurt you, but dog
bites may" — Sunny Okorie

INTRODUCTORY COMPUTER APPLICATIONS
FOR ADMINISTRATORS

First, let us look at "Computer Applications."

As you may have learnt from earlier lectures, Computers started out as "Difference"* engines, & number-crunching machines for scientic purposes like the determination of the trajectory of ballistic missiles, etc.

Later, we started using Computers to do "lesser scientific" work like accounting - payrolling, inventory, and as simple calculators for adding and subtracting prices of goods in a warehouse, or retail shop.

Today, computers are being put to use in almost all areas of life. For example we hear of administrative data processing, list and word processing, Information Management Systems, etc.

Indeed, the Information Age (launched in 1982 in Europe, or 1980 in U.S.A.) - which is essentially, the age of exploitation of Computers in almost all areas of life to amplify, assist, or aid the human users is indicative of the rapid growth rate for this applied technology, especially when one recalls that the first electronic computer - the ENIAC was built in 1946. Actually, Professor Aiken's Mark I, build in 1944 was the first general purpose computer, but it was electromechanical.

John Mauchly and J. Presper Eckert developed the 30 ton ENIAC which had about 18000 vacuum tubes and was 1000 times faster than Mark I when a similar operation was performed on both.

Today, general purpose Computers are not only small and portable, but are more personal in terms of their user "friendliness." They are friendly because they have built-in help facilities and walk-throughs which are able to assist the unfamiliar user. The key to this friendliness is the application Software which is rapidly getting sophisticated with advances in micro-electronics.

It is the systems support (Programs) software that are used by Programmers to 'develope' Program packages which assists non-computer experts to be better experts in their jobs. Computers have been applied over the year in scientific research, and more recently in administrative data processing, financial forecasting etc. Any Computer hardware can be programmed to do just about any job. However, its system software features, and the skill of the programmer developing the application software determines the overall systems flexibility and user-friendliness.

Now let us look at "Administration", and try to bring the Administration needs in perspective to see how we go about deciding what to computerize. Administration simply is another way of saying "resource management." So, an Administrator naturally would want to be able to manage his/her resources the best way possible. One of the goals in management is by objective — "MBO." Thus, if Company "X", or FUTO in this case sets the goal that it wants to cut operating cost by 5% during the 1985/86 budget year, it has set a clearly defined objective which its administrators would implement by shrewed management of all resources. If there is a process that is routine, tedious, time-consuming and expensive, them Company "X" should consider computer-izing if it would help it realize the 5% cost savings goal it set.

* Difference Engine was invented by Charles Babbage (1792-1871).

MANAGEMENT - Data Tools

TOOLS
- Management Information Systems (MIS)
- Administrative Data Processing (ADP)

MIS
- Various Applications/Packages
  - Often provided with a Company Database
  - Query Answering Capabilities
  - Decision Support System
  - Report Generators
  - Word Processing Capabilities, etc.
- For Business, Commercial, or Institutional Data Processing/ Information Management
- User Friendly Systems Possible
- Top Executives can use with Ease

ADP
- Various Applications/Packages
  - Not usually directly coupled with Company Database
  - No query answering services with immediate response
  - Reports are batched
  - Usually fast document processing not possible
  - Best for financial reporting/accounting.

Some Considerations for Computerization

1. What is the primary area in which plan is being made to use the Computer?

   a.   Home/Family   b.   Business   c.   Education/Schools
   d.   Scientific/Industrial.

2. What three (or so) applications are most important to you?

   a.   Personal Finance   b.   Computer Education
   c.   Database Management   d.   News/Information
   e.   Entertainment   f.   Business Accounting
   g.   Business Modelling/
        Planning   h.   Word Processing
   i.   Inventory   j.   Engineering
   k.   Lab. Measurement/Control, etc.

3. What three (key) features (or so) are most important to you?

   a.   Graphics   b.   Colour
   c.   Application software (S/W) d.   System S/W
   e.   Peripherals (I/O)   f.   Price
   g.   Fortran Language   h.   Pascal Language
   i.   Other Special Languages   j.   Service & Support
   k.   Portability

4. Is the desired application feasible in the following areas:
    a. Technically?   b. Economically?
    c. Operationally?

* Technically - the question is whether it is possible within the limits of available technology and resources?

* Economically - will it return more value in benefits than the development will cost (Cost/Benefit Ratio)?

* Operationally - will it be successfully used? Will Managers/Administrators adapt to the system? Will it be resisted?

COMPUTER APPLICATION OPPORTUNITIES IN THE UNIVERSITY ENVIRONMENT

First of all, let us define the following terms that appear often:

1. Application Program: A program that puts the resources and Capabilities of the Computer to use for some specific purpose or task, such as word processing, graphics, telecommunications, or data - base Management.

2. Application Software: This is the Component of a Computer System Consisting of application programs.

3. Data-base: A collection of information, or data organised in a form that can be processed by a Computer System.

4. Hardware: The physical electronic, or Mechanical Components of a Computer System.

5. Programming Language: A set of rules or conventions for writing programs.

6. Program: A set of instructions, conforming to the rules and conventions of a particular programming Language, describing actions for a Computer to perform to accomplish some task.

Computer Application in the University Environment

Most Beneficial areas are:

(a) Academic Applications

- Examination Management
- Students Academic Records/Transcripts
- Students Registration
- Scheduling of Course Time Tables and Instructor/ Classroom Venues
- Academic Advisor Assignment
- Research & Development Tracking
- Course Generation & Updating

(b) Financial Management

- General Ledger
- Accounts Receiveables & Payables
- Inventory Management System & University Purchasing
- Financial Reports
- Miscelleneous Accounting

(c)   Administrative Data Processing

- Personnel Management & Records
- Budgeting & Control
- Word Processing/Fast Document Processing
- News/Information dissemination
- Electronic Mailing System
- Staff Housing Management
- University Estate & Security Management - Maintenance Database & Information System.
- University Physical Planning & Projections
- Transportation & Car pool Management
- Student's Affairs & Welfare
- Central Admin. Resource Pool.
- Filing System/Organiser

(d)   University Health Services

- Students Health/Medical Records
- Staff Health/Medical Records
- Laboratory Data Processing (advanced place)
- Use of Medical "Expert" Systems for Diagnosis & Treatment
- Health Services Reports

(e)   Registry

- Admissions & Admission Criteria
- WAEC/JAMB Results Validations
- Alumni Mailing List/Database
- Academic Awards & Achievements Records
- Academic Events/Calendar
- Registrar's Reports

(f)   Library Support

- Tracking books on loan
- Cataloging
- Periodicals and Journal Data base
- Inter-University Book loans

(g)   UniTech Laboratory & Research Management

- Equipment Data base
- Per... ... ... Training

* Miscellaneous.

In Conclusion, Computer literacy and Computer Education should be encouraged by the University for its administrators and other policy makers.

The information age, already lunched in the developed countries is exploding at us at 60 seconds/minute. Therefore when the future arrives, the time for us humans (administrators, etc) to decide what to do about it is long past, for by that time our control over it has been used up. We then can only react and correct.

It is therefore being recommended that the University should embark on Computerization for increased efficiency, Capacity, Speed/timelyness, and better delivery of services to Students and Staff. This evolutionary process could begin with Examinations Management and extend rapidly (hopefully) with time to other areas of application touched upon in this lecture. Thank you and please get a computer byte!