Introduction

In 1995 a Lotus spreadsheet application was written which uses macros to determine the amount of radiation to be given to cancer patients. The standard unit of measurement for radiation is the Monitor unit. Empirical data was taken at different field widths, depths, and radiation intensity. This information is currently stored in the form of Lotus spreadsheets which are accessed by the main spreadsheet application to calculate the Monitor Units to be used. For each macro, there is a simple user interface which takes patient information from the therapist and fills in the spreadsheet accordingly.

The Union hospital has recently updated their computer system. The version of Lotus which they were using will not run on their new system. A newer version of Lotus runs on the system, but does not properly run the spreadsheet application

User Characteristics

Users

The primary users of this application are radiology therapists, who may or may not be computer literate. The interface should be such that it resembles the current interface (which the therapists are already familiar with) and any changes are easy to adapt to.

Requirements

External Interfaces

User interfaces are to reflect the interfaces from the previous software as closely as possible. That is not to say they have to be exactly as they were before. However, if in fact direct substitutes are found for the previous Lotus commands, this will happen naturally.

The program interfaces with a series of spreadsheets to look up values to be used in the calculations. These spreadsheets will be used in their current format. This may prove problematic if it is found that the new version of Lotus cannot properly access the old sheets. There are no hardware or communication dependencies.

Functional Requirements

- **Response**
  - **Isocentric Field Calculation**
    - If the prescription is prescribed to isocenter or to a value/line relative to isocenter (normalization) only.
    - Inputs and outputs listed on pages 2-4 of the user manual.
  - **SSD Calculation**

- If the dose prescribed is at any point along the CAX or a value/line relative to that point (normalization).
- Inputs and outputs listed on pages 5-7 of the user manual.
  - **OAR Calculation**
    - If the point of calculation is NOT along the CAX, but anywhere in the treatment volume, at any depth.
    - Inputs and outputs listed on pages 8-10 of the user manual.
  - **Electron Field Data Macro**
    - Used for electron calculations at Dmax or a value/line relative to Dmax.
    - Inputs and outputs listed on pages 11-13 of the user manual.
  - **Checksum Macro**
    - Used to ensure that the data in the data files has not changed.
    - No inputs or outputs

Performance Requirements

Based upon the client meeting several weeks ago, it is apparent that this software, although very important, will not be used with much frequency. When it is used, there will not be more than one user.