Verification and Validation

Errors: Errors are a part of any computer information processing system.

Examples:

Transcription Errors: This results from misreading or mistyping data. E.g. typing the digit 5 as the letter S.

Transposition Errors: This occurs when two digits or letters are swapped around. E.g. the operator enters 32 rather than 23.

Typographical Errors: A mistake in printing, typesetting, or typing, especially one caused by striking an incorrect key on a keyboard.

Accidental Errors: Data entered incorrectly or a command is issued by mistake.

Software Errors: Program malfunctions resulting in data being erased or corrupts previously entered data.

Hardware Errors: Bad sectors on a hard disk or bad memory. A power surge may corrupt data.

Transmission Errors: Data sent from one computer is not the same as the data obtain at the receiving computer.

Read Errors: Input device is unable to read the input medium correctly.

Verification and Validation methods may be used to reduce errors.

Verification: The process of ensuring that data are accurate when it is copied from one medium to another.

Methods of Verification:

- **Double Entry/ Dual Input:** Data are entered twice and compared for any discrepancies. Only accurate data are accepted for further processing.
- **Proofreading:** Checking what was typed against the original document.
- **Visual Check:** Entered data appears on the screen and the user is prompted to confirm that it matches the data on the input form.

Validation: The checking of input data for errors by a program before it is processed.

Methods of Validation:

- **Data Type/Character/Alphanumeric Check:** Ensures that the data entered corresponds with the data type of the field. E.g. numbers are entered in the Percentage field.
- **Consistency/Inconsistency Checks**: Compares the contents of two or more fields to make sure that they make sense. For example, Gender: Male, Title: Mr.
- **Range Check:** The field is checked against an upper and lower limit e.g. age >12 and age < 20.
- **Reasonableness Test:** A type of test that determines if a value falls within a range considered normal or logical.