Enhancing Healthcare Data Processing Using VBA

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INTRODUCTION

This project harnesses the power of Visual Basic for Applications (VBA), a versatile and cost-effective tool to enhance data processing in the Division of Medicine. VBA empowers healthcare professionals to achieve greater efficiency and accuracy, driving significant improvements in their operational performance.
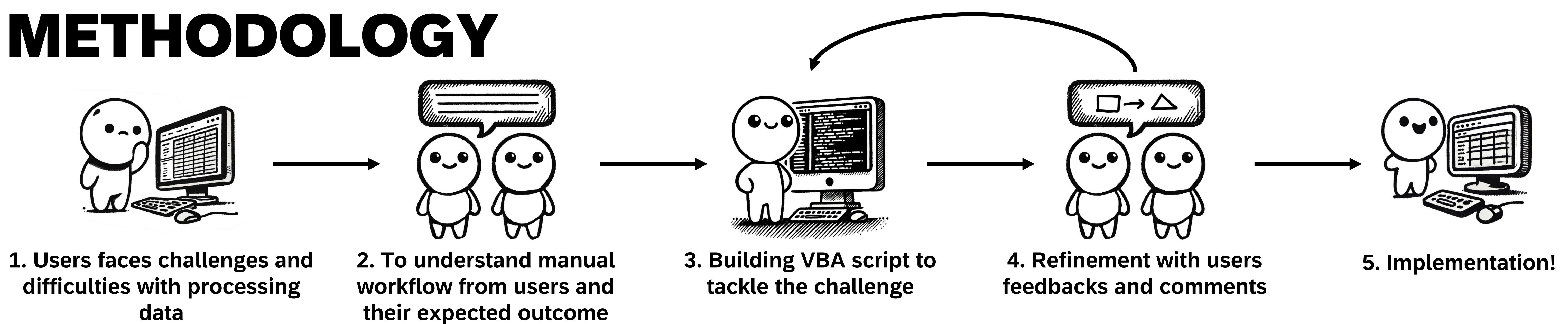
Challenges Users Faced During Data Processing

- Unfamiliar with advanced Excel formulas for complex tasks
- Excel formulas are limited in text data processing ability
- Human errors leading to inaccurate and inconsistent data
- Time-consuming manual processing, especially for large dataset

Four Benefits
Of using VBA for Data Processing

Cost-Effective
No additional expenditure, utilizing existing Microsoft Office infrastructure

Time-Saving
Reduces time spent on manually processing data

Improved Accuracy
Minimizes risk of human error in data processing

User-Friendly
Minimal training needed to guide non-IT trained staff to run macros, often only requiring minimal clicks and inputs

METHODOLOGY

1. Users faces challenges and difficulties with processing data

2. To understand manual workflow from users and their expected outcome

3. Building VBA script to tackle the challenge

4. Refinement with users feedbacks and comments

5. Implementation!

RESULTS

Case #1: Youth Well-Being Questionnaire Data Processing
Children's Emergency (CE)

- Questionnaire responses are free text stored in CE clinical notes.
- Utilized regular expression in VBA script to separate out the responses into respective columns for further analysis

ILLUSTRATION OF QUESTIONNAIRE PROCESSING AND OUTPUT

Questionnaire

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam semper neque id neque dignissim malesuada. Phasellus pharetra, erat a ullamcorper varius, quam nisi vestibulum dolor, sed vestibulum nisi nulla sit amet nunc. Proin orci mi, volutpat nec velit sed, sagittis malesuada nibh. Quisque vel porttitor sem, eu rhoncus dolor. Quisque cursus ultrices sapien, non tristique dui tempus vitae. Integer a purus faucibus, sagittis ante at, cursus purus. Maecenas ullamcorper diam id dolor interdum ultrigies. Orci varius natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus.

A   B   C   D

Aliquam semper neque id neque dignissim malesuada	Phasellus pharetra, erat a ullamcorper varius, quam nisi vestibulum dolor	Proin orci mi, volutpat nec velit sed, sagittis malesuada nibh	Quisqu porttito eu rhon dolor

Before	After	Estimated monthly time-saving
6 mins per entry	**30 secs** for **100** entries	**9** man-hours

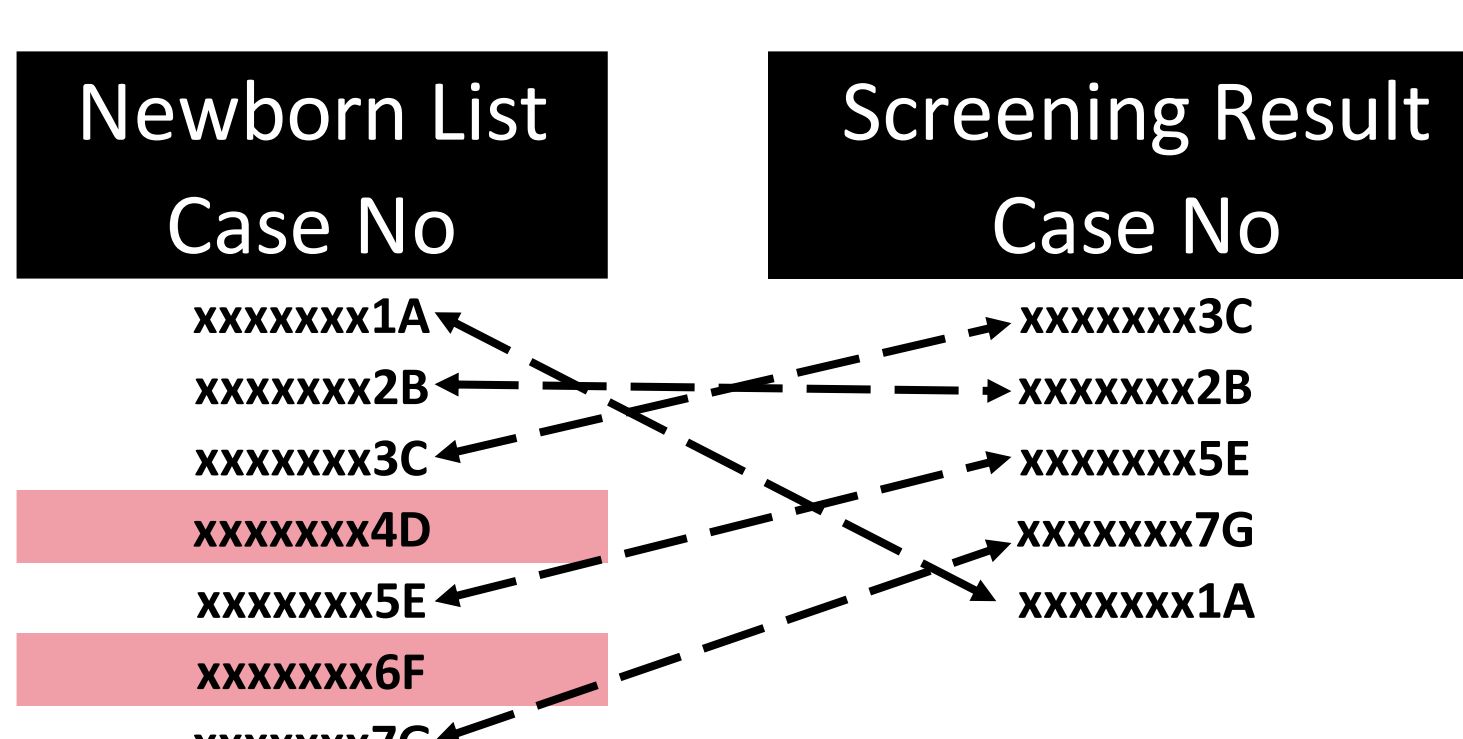## Case #2: Generation of Missed Cases List
Universal Newborn Hearing Screening (UNHS)

- Utilized VBA scripting to handle logic for identifying cases that missed their screenings through Data Matching between 2 datasets (Newborn List and Screening Results)
- Eliminated human error

ILLUSTRATION OF GENERATING A MISSED CASES LIST

Newborn List Case No	Screening Result Case No
xxxxxxx1A	xxxxxxx3C
xxxxxxx2B	xxxxxxx2B
xxxxxxx3C	xxxxxxx5E
xxxxxxx4D	xxxxxxx7G
xxxxxxx5E	xxxxxxx1A
xxxxxxx6F	
xxxxxxx7G	

After	Estimated monthly time-saving	Accuracy
20 secs per month	**3** man-hours	**100%**

CONCLUSION

The implementation of VBA scripts for data processing in the Division of Medicine has markedly improved time and cost efficiency, significantly reducing the administrative burden on healthcare workers. This innovation leverages our existing Microsoft Office subscription to maximize resources. By eliminating human error, we ensure more accurate and reliable data processing. Additionally, the user-friendly functionality allows even non-IT trained staff to utilize this tool with minimal training. This strategic approach underscores our commitment to operational excellence.