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PIONEERING EDUCATIONAL PERSPECTIVES

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Chief Editors:
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Preface

Pioneering Educational Perspectives: Series 2025 is a collection of thought-provoking insights and research contributions exploring contemporary educational trends and practices. This eBook presents a diverse range of perspectives on innovative teaching methodologies, digital learning strategies, and transformative approaches in education. Designed to serve as a resource for educators, researchers, and practitioners, it aims to inspire meaningful discussions and advancements in the field. Through carefully curated chapters, this publication offers fresh ideas and practical solutions to enhance learning experiences in an ever-evolving educational landscape.

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ASSESSMENT MARKS MADE EASY: THE EXCEL VBA SOLUTION

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ABSTRACT

The integration of Teaching and Learning (T&L) technology, exemplified by platforms like UiTM's e-Result Exam System (eRES), has revolutionized course grade administration in higher education, streamlining data storage, analysis, and result generation. However, the advent of Outcome Based Education (OBE) and specific accreditation requirements has introduced complexities in data input, often necessitating manual preprocessing of raw assessment marks to align with system requirements. This manual intervention can introduce inaccuracies and inconsistencies, diminishing the benefits of automation. To address this challenge, we propose an innovative Excel VBA-based program designed to automate the transformation of raw assessment marks into formats compatible with integrated systems like eRES. This tool enhances efficiency and accuracy by accommodating diverse assessment structures, question breakdowns, label descriptors, and weighting schemes. Additionally, it offers flexibility in handling multiple contributors, assessments, and varying grading approaches. By seamlessly integrating with existing systems, this solution improves computational accuracy and resolves data input complexities, ultimately saving time and resources for educational institutions.

KEYWORDS: Assessment Marks, Excel VBA, Outcome Based Education, Data Transformation, Automation.

PROBLEM AND OBJECTIVE

Campbell (2005) presented an ICT assessment tool with the primary objective of minimizing the labour-intensive tasks associated with grading, record-keeping, and delivering feedback on assessments. In contrast, Koushik et al. (2022) put forward an automated system employing character recognition techniques for the purpose of handling grades extracted from handwritten answer scripts. This system holds the potential to significantly economize both time and effort for evaluators long used to conventional or manual processes so prevalent at one time in the education sector.

On this note, UiTM developed and implemented the e-Result Exam System (eRES), a web-based platform that enables students to access their examination results. Students can log into eRES using their Student Information Management System (SIMS) account credentials. eRES serves as UiTM's primary system for managing student academic data. In addition to eRES, UiTM offers a mobile application called MyStudent, which allows students to access essential student-related information, including details about their current courses, class schedules, and examination results for the ongoing semester.

From the perspective of instructors, while integrated learning management systems like UiTM's eRES have made grade administration more efficient, the requirement for derived data input necessitates manual preprocessing of raw assessment marks, which can be prone to errors.

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To address this, an Excel VBA-based tool is proposed to automate this transformation, aiming to:

- Enhance accuracy and efficiency in data input.
- Ensure compatibility with eRES.
- Improve flexibility to accommodate diverse assessment structures.
- Empower instructors by simplifying data management tasks.

Excel VBA offers a powerful and adaptable solution for automating data preprocessing tasks for systems like eRES (Grafton, 2001). Its automation capabilities streamline repetitive tasks, reduce errors, and improve efficiency. VBA's customization allows for tailored solutions, while its scalability makes it suitable for large datasets. Additionally, its user-friendly interface within Excel ensures accessibility for users with varying technical expertise.

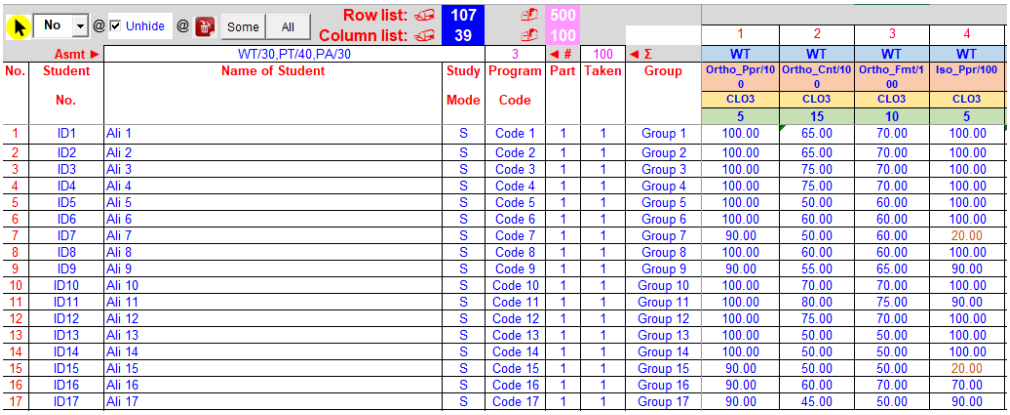
DESIGN DESCRIPTION

The assessment marks tool was developed using the Waterfall Model (Adenowo & Adenowo, 2013), a structured approach suitable for projects with well-defined requirements. This model consists of five sequential phases:

- Requirements Gathering: Detailed specifications for the tool were established, including input data, desired output, and required calculations.
- Design: A blueprint was created for the tool's architecture, data structures, and logic flow, incorporating a user-friendly interface and error handling.
- Implementation: VBA code was written, tested, and refined based on the design, ensuring functionality, accuracy, and Excel compatibility.
- Verification: Comprehensive testing was conducted to identify and rectify errors or inconsistencies in the tool's performance.
- Maintenance: The tool is deployed, with ongoing support and updates to address issues, accommodate changes, and incorporate user feedback.

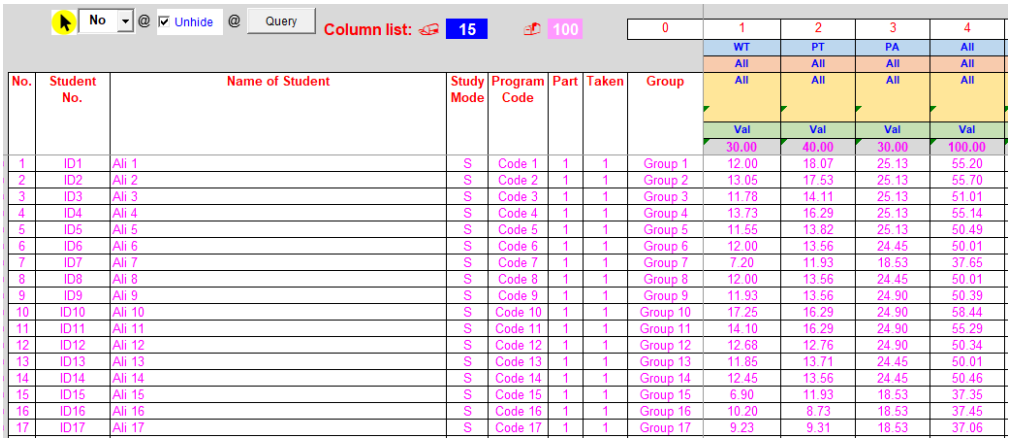
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VISUALS



No.	Student No.	Name of Student	Study Mode	Program Code	Part	Taken	Group	1 WT Ortho_Ppr/100 CLO3 5	2 WT Ortho_Cnt/100 CLO3 15	3 WT Ortho_Fmt/100 CLO3 10	4 WT Iso_Ppr/100 CLO3 5
	Asmt ►	WT/30,PT/40,PA/30		3	◄ #	100	◄ Σ				
1	ID1	Ali 1	S	Code 1	1	1	Group 1	100.00	65.00	70.00	100.00
2	ID2	Ali 2	S	Code 2	1	1	Group 2	100.00	65.00	70.00	100.00
3	ID3	Ali 3	S	Code 3	1	1	Group 3	100.00	75.00	70.00	100.00
4	ID4	Ali 4	S	Code 4	1	1	Group 4	100.00	75.00	70.00	100.00
5	ID5	Ali 5	S	Code 5	1	1	Group 5	100.00	50.00	60.00	100.00
6	ID6	Ali 6	S	Code 6	1	1	Group 6	100.00	60.00	60.00	100.00
7	ID7	Ali 7	S	Code 7	1	1	Group 7	90.00	50.00	60.00	20.00
8	ID8	Ali 8	S	Code 8	1	1	Group 8	100.00	60.00	60.00	100.00
9	ID9	Ali 9	S	Code 9	1	1	Group 9	90.00	55.00	65.00	90.00
10	ID10	Ali 10	S	Code 10	1	1	Group 10	100.00	70.00	70.00	100.00
11	ID11	Ali 11	S	Code 11	1	1	Group 11	100.00	80.00	75.00	90.00
12	ID12	Ali 12	S	Code 12	1	1	Group 12	100.00	75.00	70.00	100.00
13	ID13	Ali 13	S	Code 13	1	1	Group 13	100.00	50.00	50.00	100.00
14	ID14	Ali 14	S	Code 14	1	1	Group 14	100.00	50.00	50.00	100.00
15	ID15	Ali 15	S	Code 15	1	1	Group 15	90.00	50.00	50.00	20.00
16	ID16	Ali 16	S	Code 16	1	1	Group 16	90.00	60.00	70.00	70.00
17	ID17	Ali 17	S	Code 17	1	1	Group 17	90.00	45.00	50.00	90.00

Figure 1: Input Interface



No.	Student No.	Name of Student	Study Mode	Program Code	Part	Taken	Group	1 WT All Val 30.00	2 PT All Val 40.00	3 PA All Val 30.00	4 All All Val 100.00
1	ID1	Ali 1	S	Code 1	1	1	Group 1	12.00	18.07	25.13	55.20
2	ID2	Ali 2	S	Code 2	1	1	Group 2	13.05	17.53	25.13	55.70
3	ID3	Ali 3	S	Code 3	1	1	Group 3	11.78	14.11	25.13	51.01
4	ID4	Ali 4	S	Code 4	1	1	Group 4	13.73	16.29	25.13	55.14
5	ID5	Ali 5	S	Code 5	1	1	Group 5	11.55	13.82	25.13	50.49
6	ID6	Ali 6	S	Code 6	1	1	Group 6	12.00	13.56	24.45	50.01
7	ID7	Ali 7	S	Code 7	1	1	Group 7	7.20	11.93	18.53	37.65
8	ID8	Ali 8	S	Code 8	1	1	Group 8	12.00	13.56	24.45	50.01
9	ID9	Ali 9	S	Code 9	1	1	Group 9	11.93	13.56	24.90	50.39
10	ID10	Ali 10	S	Code 10	1	1	Group 10	17.25	16.29	24.90	58.44
11	ID11	Ali 11	S	Code 11	1	1	Group 11	14.10	16.29	24.90	55.29
12	ID12	Ali 12	S	Code 12	1	1	Group 12	12.68	12.76	24.90	50.34
13	ID13	Ali 13	S	Code 13	1	1	Group 13	11.85	13.71	24.45	50.01
14	ID14	Ali 14	S	Code 14	1	1	Group 14	12.45	13.56	24.45	50.46
15	ID15	Ali 15	S	Code 15	1	1	Group 15	6.90	11.93	18.53	37.35
16	ID16	Ali 16	S	Code 16	1	1	Group 16	10.20	8.73	18.53	37.45
17	ID17	Ali 17	S	Code 17	1	1	Group 17	9.23	9.31	18.53	37.06

Figure 2: Output Interface

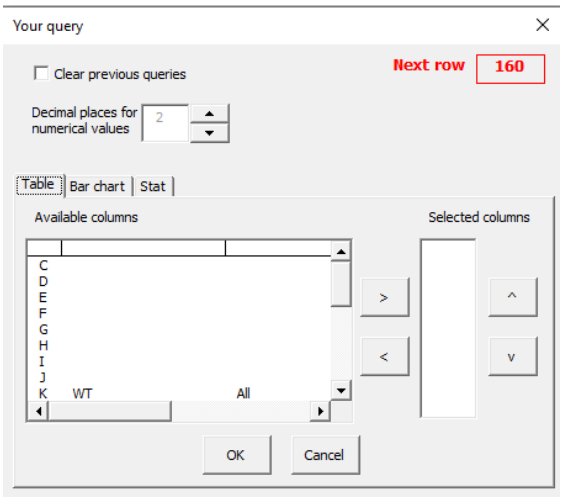
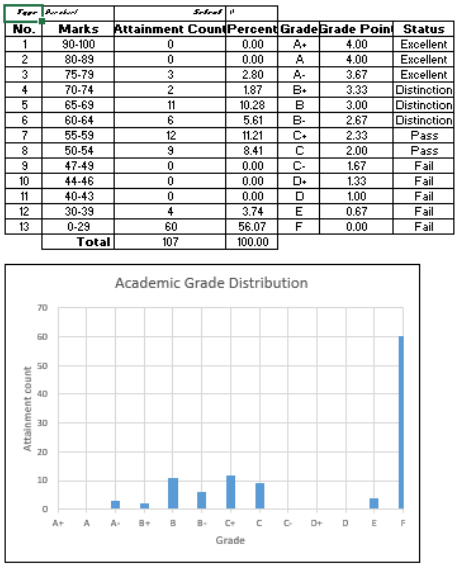


Figure 3: Query Form



No.	Marks	Attainment Count	Percent	Grade	Grade Point	Status
1	90-100	0	0.00	A+	4.00	Excellent
2	80-89	0	0.00	A	4.00	Excellent
3	75-79	3	2.80	A-	3.67	Excellent
4	70-74	2	1.87	B+	3.33	Distinction
5	65-69	11	10.28	B	3.00	Distinction
6	60-64	6	5.61	B-	2.67	Distinction
7	55-59	12	11.21	C+	2.33	Pass
8	50-54	9	8.41	C	2.00	Pass
9	47-49	0	0.00	C-	1.67	Fail
10	44-46	0	0.00	D+	1.33	Fail
11	40-43	0	0.00	D	1.00	Fail
12	30-39	4	3.74	E	0.67	Fail
13	0-29	60	56.07	F	0.00	Fail
	Total	107	100.00			

Figure 4: Query Results

NOVELTY AND UNIQUENESS

This Excel VBA-based assessment marks management tool offers a unique approach through its three-section architecture: data, calculation, and query. The data section centralizes all relevant information, streamlining input for instructors. The calculation section automates

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grading, ensuring accuracy and minimizing errors. The query section provides unique data analysis capabilities, allowing educators to extract valuable insights for data-driven decision-making.

BENEFITS TO MANKIND

The Excel VBA-based assessment marks management tool offers benefits to instructors (reduced administrative burden), students (fair and transparent assessments, insights for improvement), institutions (streamlined processes, efficiency, cost savings), and the overall educational ecosystem (enhanced quality and outcomes).

COMMERCIAL POTENTIAL

The Excel VBA-based assessment marks management tool demonstrates significant commercial potential within the education sector due to its unique features and ability to address a critical need for efficient and accurate assessment data management. This potential can be realized through various revenue streams, including licensing/subscription fees, customization services, training and support, and integration with existing Learning Management System (LMS) platforms. The tool's scalability across diverse educational institutions and departments, coupled with its intuitive interface and minimal technical requirements, further enhances its market appeal.

CONCLUSION

The Excel VBA-based assessment marks management tool has exceeded expectations, proving effective in automating data transformation for integrated systems. It reduces administrative burden, enhances accuracy, and facilitates informed decision-making. This success highlights the potential of VBA solutions in optimizing academic workflows.

REFERENCES

Adenowo, A., & Adenowo, B. A. (2013). Software Engineering Methodologies: A Review of the Waterfall Model and Object-Oriented Approach Malaria detection software tools View project Software Engineering Methodologies: A Review of the Waterfall Model and Object-Oriented Approach. *International Journal of Scientific & Engineering Research*, *4*(7), 427–434.

Campbell, A. (2005). Application of ICT and Rubrics to the Assessment Process where Professional Judgement is Involved: The Features of an E-Marking Tool. *Assessment and Evaluation in Higher Education*, *30*(5), 529–537. https://doi.org/10.1080/02602930500187055

Grafton, C. (2001). VBA for Modelers: Developing Decision Support Systems With Microsoft Excel. *Social Science Computer Review*, *19*(3), 388–390. https://doi.org/10.1177/089443930101900317

Koushik, K. S., Chengappa, B., & Chendan, R. (2022). *Automated Marks Entry Processing in Handwritten Answer Scripts using Character Recognition Techniques*. https://doi.org/10.1109/ICESC54411.2022.9885493