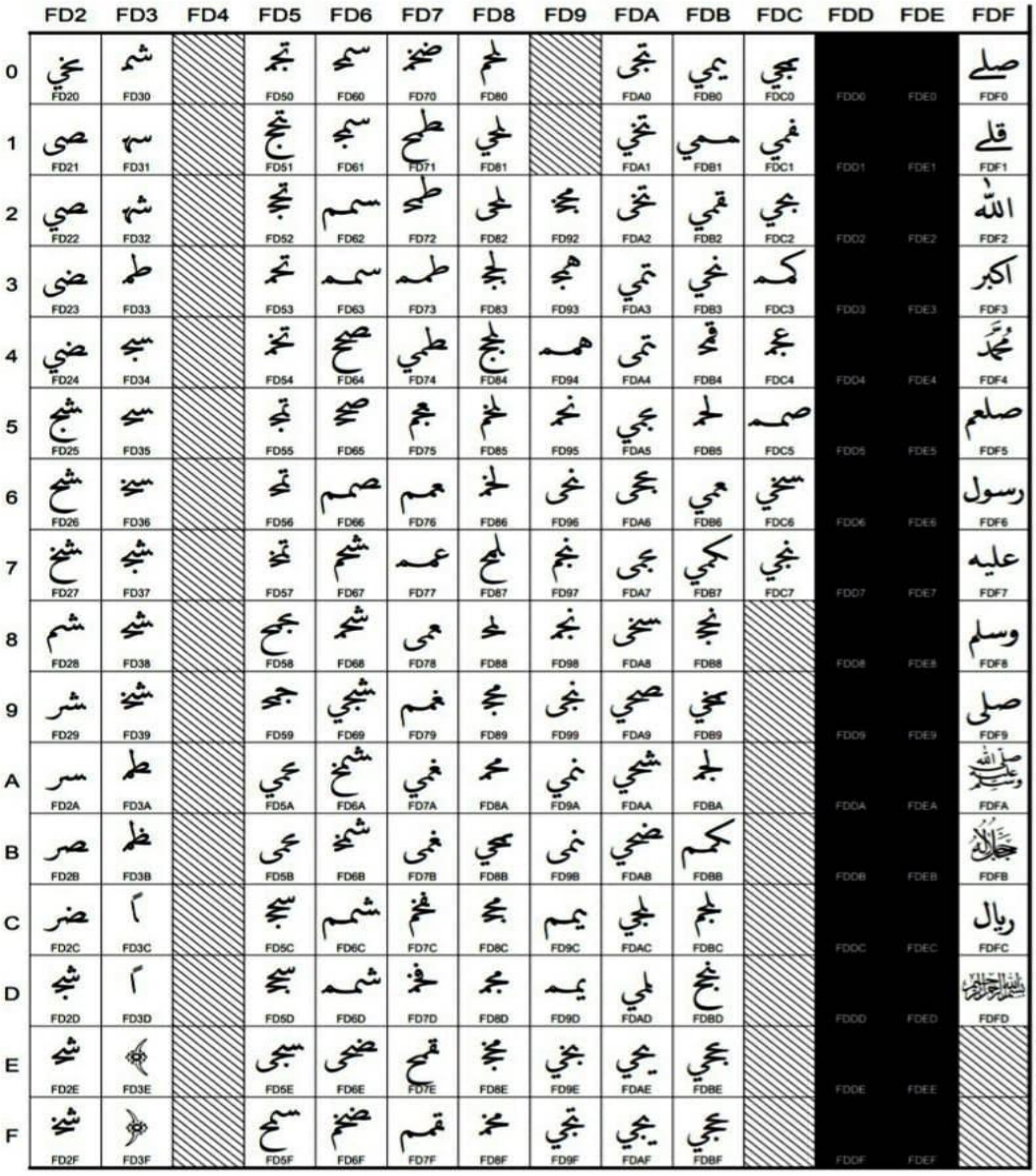
APPENDIX 1

UNICODE STANDARDS

FD20 **Arabic Presentation Forms-A** **FDFF**



	FD2	FD3	FD4	FD5	FD6	FD7	FD8	FD9	FDA	FDB	FDC	FDD	FDE	FDF
0	FD20	FD30		FD50	FD60	FD70	FD80		FDA0	FDB0	FDC0	FDD0	FDE0	FDF0
1	FD21	FD31		FD51	FD61	FD71	FD81		FDA1	FDB1	FDC1	FDD1	FDE1	FDF1
2	FD22	FD32		FD52	FD62	FD72	FD82	FD92	FDA2	FDB2	FDC2	FDD2	FDE2	FDF2
3	FD23	FD33		FD53	FD63	FD73	FD83	FD93	FDA3	FDB3	FDC3	FDD3	FDE3	FDF3
4	FD24	FD34		FD54	FD64	FD74	FD84	FD94	FDA4	FDB4	FDC4	FDD4	FDE4	FDF4
5	FD25	FD35		FD55	FD65	FD75	FD85	FD95	FDA5	FDB5	FDC5	FDD5	FDE5	FDF5
6	FD26	FD36		FD56	FD66	FD76	FD86	FD96	FDA6	FDB6	FDC6	FDD6	FDE6	FDF6
7	FD27	FD37		FD57	FD67	FD77	FD87	FD97	FDA7	FDB7	FDC7	FDD7	FDE7	FDF7
8	FD28	FD38		FD58	FD68	FD78	FD88	FD98	FDA8	FDB8		FDD8	FDE8	FDF8
9	FD29	FD39		FD59	FD69	FD79	FD89	FD99	FDA9	FDB9		FDD9	FDE9	FDF9
A	FD2A	FD3A		FD5A	FD6A	FD7A	FD8A	FD9A	FDAA	FDBA		FDDA	FDEA	FDFA
B	FD2B	FD3B		FD5B	FD6B	FD7B	FD8B	FD9B	FDAB	FDBB		FDDB	FDEB	FDFB
C	FD2C	FD3C		FD5C	FD6C	FD7C	FD8C	FD9C	FDAC	FDBC		FDDC	FDEC	FDFC
D	FD2D	FD3D		FD5D	FD6D	FD7D	FD8D	FD9D	FDAD	FDBD		FDDD	FDED	FDFD
E	FD2E	FD3E		FD5E	FD6E	FD7E	FD8E	FD9E	FDAE	FDBE		FDDE	FDEE	
F	FD2F	FD3F		FD5F	FD6F	FD7F	FD8F	FD9F	FDAF	FDBF		FDDF	FDEF	

Arabic Presentation Forms-B

	FE7	FE8	FE9	FEA	FEB	FEC	FED	FEE	FEF
0	ً FE70	ء FE80	ب FE90	ج FEA0	ز FEB0	ض FEC0	غ FED0	ﻠ FEE0	ى FEF0
1	ـً FE71	آ FE81	ﺑ FE91	ﺣ FEA1	س FEB1	ط FEC1	ف FED1	ﻡ FEE1	ي FEF1
2	ٌ FE72	آ FE82	ﺒ FE92	ﺤ FEA2	ﺱ FEB2	ﻂ FEC2	ﻒ FED2	ﻢ FEE2	ﻲ FEF2
3	﹃ FE73	أ FE83	ة FE93	ح FEA3	ﺳ FEB3	ﻃ FEC3	ﻓ FED3	ﻣ FEE3	ﻳ FEF3
4	ٍ FE74	أ FE84	ﺓ FE94	ﺣ FEA4	ﺴ FEB4	ﻄ FEC4	ﻔ FED4	ﻤ FEE4	ﻴ FEF4
5		ؤ FE85	ت FE95	خ FEA5	ش FEB5	ظ FEC5	ق FED5	ن FEE5	لآ FEF5
6	ﹶ FE76	ﺅ FE86	ﺗ FE96	ﺨ FEA6	ﺵ FEB6	ﻅ FEC6	ﻖ FED6	ﻥ FEE6	ﻵ FEF6
7	ـَ FE77	إ FE87	ﺕ FE97	ﺧ FEA7	ﺷ FEB7	ﻇ FEC7	ﻗ FED7	ﻧ FEE7	لأ FEF7
8	ُ FE78	ﺇ FE88	ﺖ FE98	ﺨ FEA8	ﺸ FEB8	ﻈ FEC8	ﻘ FED8	ﻨ FEE8	ﻷ FEF8
9	ـُ FE79	ئ FE89	ث FE99	د FEA9	ص FEB9	ع FEC9	ك FED9	ه FEE9	لإ FEF9
A	ﹻ FE7A	ﺋ FE8A	ﺚ FE9A	ﺪ FEAA	ﺺ FEBA	ﻊ FECA	ﻚ FEDA	ﻪ FEEA	ﻹ FEFA
B	ـِ FE7B	ﺌ FE8B	ﺛ FE9B	ذ FEAB	ﺻ FEBB	ﻋ FECB	ﻛ FEDB	ﻫ FEEB	لا FEFB
C	ّ FE7C	ﺊ FE8C	ﺜ FE9C	ﺬ FEAC	ﺼ FEBC	ﻌ FECC	ﻜ FEDC	ﻬ FEEC	ﻻ FEFC
D	ـّ FE7D	ا FE8D	ج FE9D	ر FEAD	ض FEBD	غ FECD	ل FEDD	و FEED	
E	ْ FE7E	ﺎ FE8E	ﺞ FE9E	ﺭ FEAE	ﺽ FEBE	ﻎ FECE	ﻞ FEDE	ﻮ FEEE	
F	ـْ FE7F	ب FE8F	ﺟ FE9F	ز FEAF	ﺿ FEBF	ﻏ FECF	ﻟ FEDF	ى FEEF	ZWNBSP FEFF

APPENDIX 2

LIST OF PUBLICATIONS

1- Ashraf Al-Omoush, Norita Md Norwawi, Ahmad Akmalludin bin Mazlan. (2018) Handling Words Duplication and Memory Management for Digital Quran Based On Hexadecimal Representation and Sparse Matrix (DQM) Journal of Telecommunication, Electronic and Computer Engineering ISSN: 2180 – 1843 e-ISSN: 2289-8131

2- Ashraf Al_Omoush, Norita Md Norwawi, Roesnita Ismail, Fauziah Abdul Wahid, & Ahmad Akmaluddin Mazlan. (2017). Storage optimization for digital quran using sparse matrix with hexadecimal representation in Zulikha, J. & N. H. Zakaria (Eds.), Proceedings of the 6th International Conference of Computing & Informatics (pp 167-174). Sintok: School of Computing.

3- N. Md Norwawi, M.A. Mohd Razif, M.W. Sempo S. Perumal., A.A Mazlan, A_Al-Omoush Interconnected Knowledge Repository With Seamless Content Management System for Heterogeneous Multi lingual Resources, FEIIC-International Conference on Engineering Education and Research 2017, Madinah, Kingdom of Saudi Arabia, 16-18 December 2017.

4- Ahmad Akmaluddin Mazlan, Norita Md Norwawi, Fauziah Abdul Wahid, Roesnita Ismail, & Ashraf Al Omoush. (2017).Query cost-reduction for quranic-arabic information retrieval using hexadecimal conversion algorithm in Zulikha, J. &N. H. Zakaria (Eds.), Proceedings of the 6th International Conference of Computing & Informatics (pp 91-98). Sintok:School of Computing.

5- Ashraf Al_Omoush1, Norita Md Norwawi , Rosenita Ismail, Fauziah Wahid, Ahmad Akmalludin Mazlan, Unicode Hexadecimal Representation for Digital Quranic Words, FEIIC-International Conference on Engineering Education and Research 2015, Madinah, Kingdom of Saudi Arabia, 19-21 December 2015.

6- Ruqaia J. Kadhim, Dr. Norita M. Norwawi, Dr. Adel M. Abdulaaziz, Ashraf Al_Omoush Extraction of Hadith Based on Semantic Annotation JCSN International Journal of Computer Science and Network, Volume 4, Issue 2, April 2015 ISSN (Online) : 2277-5420 www.IJCSN.org.

7- State of the Art of Information Retrieval for Semantic Search Techniques and Cross Language Approach, A. Al-Omoush, N. M. Norwawi, R. Ismail, R. Jwad, Postgraduate Colloquium 2014, Faculty Of Science And Technology (PCFST '14)] October 21, 201

APPENDIX 3

LIST OF AWARDS

- **Golden Medal**

Ashraf AL_Omoush, Norita Md. Norwawi, Roesnita Ismail, Fauziah Abdul Wahid & Ahmad Mazlan. (2015). Digital Quran Representation Using Kalimah Hexadecimal Unicode. 6th Exposition on Islamic Innovation (i-Inova) 2015. 24-25th October 2015,Dewan Tunku Canselor, Universiti Sains Islam Malaysia (USIM), Negeri Sembilan.

- **Silver Medal**

Ashraf AL_Omoush, Norita Md. Norwawi, Roesnita Ismail, Fauziah Abdul Wahid & Ahmad Mazlan. (2015). Digital Quran Representation Using Kalimah Hexadecimal Unicode. 14th International Conference and Exposition on Inventions by Institutions of Higher Learning (PECIPTA 2015) on the 4th – 6th December 2015 at Kuala Lumpur Convention Centre.Malaysia.

- **Bronze Medal**

Ashraf AL_Omoush, Norita Md. Norwawi, Roesnita Ismail, Fauziah Abdul Wahid & Ahmad Mazlan. (2017). Storage optimization for digital quran using sparse matrix with hexadecimal representation. 7th Exposition on Islamic Innovation (i-Inova) 2017. 24-25th October 2017,Dewan Tunku Canselor, Universiti Sains Islam Malaysia (USIM), Negeri Sembilan.

APPENDIX 4

CERTIFICATE of VALIDATION 1

Certificate of Validation

I hereby to certify the thesis under title SECURE DIGITAL QURAN MODEL WITH STORAGE OPTIMIZATION THROUGH DUPLICATION HANDLING AND COMPRESSED SPARSE MATRIX By the researcher Ashraf Saleh Mohammad Alomoush has been found to validate by me in terms of procedures, equipment's, materials, activities, system and continents are valid and completely acceptable.

Name : DR. Bashar Igried Deb Alkhawaldeh

Faculty of Prince Al-Hussein Bin Abdallah II For Information Technology

Department of Computer Science and Applications (CSA)

Hashemite University, Zarqa, Jordan.

Signitur :

Designation : Department Chair

E-mail : bashar.igried@hu.edu.jo

Hp:+962777411133

CERTIFICATE of VALIDATION 2

Certificate of Validation

This is to certify the thesis under title SECURE DIGITAL QURAN MODEL WITH STORAGE OPTIMIZATION THROUGH DUPLICATION HANDLING AND COMPRESSED SPARSE MATRIX
By the researcher Ashraf Saleh Mohammad Alomoush has been found to validate by me in terms of continent of holy Quran text (Surat al Baqarah and Alfatiha) as a case of study in addition to all figures, images, input and output forms are valid and completely acceptable.

Name : Mohammad Al Khaldy.

Signitur : khaldy 10.1.2022

Designation : Assistant Professor (Head of Department).

E-mail : m.khaldy@khawarizmi.edu.jo

Hp: 00962-777239139

APPENDIX 5

INTERVIEW QUESTIONS

No	Questions	Response from Experts
1	What is your opinion regarding the topic of the research from your perspective?	*Strong merit* Experts acknowledging the merits of the study and its contributions
2	What is your opinion regarding the given methodology of the research?	*Strongly agree* Experts support the methodology.
3	What is your view of the whole problem, and do you approve and validate the digital Quran content?	*Strongly acceptable* The items' content validity is acceptable
4	Do you approve database collection, experimentation, and evaluation of the proposed model?	*Strongly agree* They gave their views of the whole problem, approve the digital Quran content protection as the research scope, validated the content and ideas which could help improve the prototype significantly.
5	Do you agree that are the System and structure for digital Quran content can reduce or eliminate unreliable and invalid information from the sources?	*Strongly Agree* The structure for digital Quran content Improves safety measures. In addition, this in time can lead to the elimination of biased sources as there will be no usage due to an established system.
6	Do you agree that there is a need and requirement for further optimization in the field of digital Quran?	*Strongly Agree* There were several factors that can be influential from the perspective of consultants that are namely, anti-Islamic groups or movements, novice developers that can have errors in their development processes, data integration flaws in terms of coding, and data transmission or data flow malfunctions (both in terms of coding and or structure), which imply a need and requirement for further optimization.
7	Do you agree that the authenticity aspect is a matter that almost all applications and	*Strongly Agree* The authenticity aspect is a matter that

	platforms follow a strict structure to establish in software development specifically digital Quran?	almost all applications and platforms follow a strict structure to establish.
8	From your point of view is it a challenge for developers to establish software that can entail all aspects of current research?	The current identified limitations of this research create a pathway for future studies.
9	Is the process of develop the software, experiments, design, collect data and further optimize the software beyond the scope of the research?	This process is beyond the scope of current research
10	Is there a solid optimization system for digital content in general and specific to Quran?	The experts noted that an integrated holistic system should be implemented with clear standards and measures regarding development, transmission, translation, and other relevant factors. These standards should be agreed upon by authorities and Islamic governments so that documents