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S2G1  
BITZ

**Tutorial 1 Radix 64**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Visual Character 64 | |  |  |  |  |  |  |  |  |  |  |  |
| i | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|  | M | u | h | a | m | m | a | d |  | I | z | h |
| ASCII | 77 | 117 | 104 | 97 | 109 | 109 | 97 | 100 | 32 | 73 | 122 | 104 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Bit Pattern | 01001101 | 01110101 | 01101000 | 01100001 | 01101101 | 01101101 | 01100001 | 01100100 | 00100000 | 01001001 | 01111010 | 01101000 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 010011 | 01 |  | 011000 | 01 |  | 011000 | 01 |  | 010010 | 01 |  |
|  |  | 0111 | 101000 |  | 0110 | 101101 |  | 0110 | 100000 |  | 0111 | 101000 |
|  |  | 0101 | 01 |  | 1101 | 01 |  | 0100 | 00 |  | 1010 | 01 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

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| Index | 19 | 23 | 21 | 40 | 24 | 22 | 53 | 45 | 24 | 22 | 16 | 32 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| radix64 | T | X | V | o | Y | W | 1 | t | Y | W | Q | g |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Index binary | 010011 | 010111 | 010101 | 101000 | 011000 | 010110 | 110101 | 101101 | 011000 | 010110 | 010000 | 100000 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Split to 8 bits | 1001101 | 1110101 | 1101000 | 1100001 | 1101101 | 1101101 | 1100001 | 1100100 | 100000 | 1001001 | 1111010 | 1101000 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Decoded characters | M | u | h | a | m | m | a | d |  | I | z | h |
|  |  |  |  |  |  |  |  |  |  |  |  |

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| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| a | m |  | B | i | n |  | N | o | r | h | a | m |
| 97 | 109 | 32 | 66 | 105 | 110 | 32 | 78 | 111 | 114 | 104 | 97 | 109 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| 01100001 | 01101101 | 00100000 | 01000010 | 01101001 | 01101110 | 00100000 | 01001110 | 01101111 | 01110010 | 01101000 | 01100001 | 01101101 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| 011000 | 01 |  | 010000 | 10 |  | 001000 | 00 |  | 011100 | 10 |  | 011011 |
|  | 0110 | 100000 |  | 0110 | 101110 |  | 0100 | 101111 |  | 0110 | 100001 |  |
|  | 1101 | 00 |  | 1001 | 01 |  | 1110 | 01 |  | 1000 | 01 |  |

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| 18 | 23 | 41 | 40 | 24 | 22 | 52 | 32 | 16 | 38 | 37 | 46 | 8 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| S | X | p | o | Y | W | 0 | g | Q | m | l | u | I |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| 010010 | 010111 | 101001 | 101000 | 011000 | 010110 | 110100 | 100000 | 010000 | 100110 | 100101 | 101110 | 001000 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1100001 | 1101101 | 100000 | 1000010 | 1101001 | 1101110 | 100000 | 1001110 | 1101111 | 1110010 | 1101000 | 1100001 | 1101101 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| a | m |  | B | i | n |  | N | o | r | h | a | m |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
| a |  | S | M | K |  | T | u | n |  | P | e |
| 97 | 32 | 83 | 77 | 75 | 32 | 84 | 117 | 110 | 32 | 80 | 101 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 01100001 | 00100000 | 01010011 | 01001101 | 01001011 | 00100000 | 01010100 | 01110101 | 01101110 | 00100000 | 01010000 | 01100101 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 01 |  | 010100 | 11 |  | 001000 | 00 |  | 011011 | 10 |  | 011001 |
| 0110 | 100000 |  | 0100 | 001011 |  | 0101 | 110101 |  | 0010 | 010000 |  |
| 0001 | 00 |  | 1101 | 01 |  | 0100 | 01 |  | 0000 | 01 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | 57 | 47 | 28 | 38 | 33 | 33 | 27 | 22 | 4 | 32 | 20 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| E | 5 | v | c | m | h | h | b | W | E | g | U |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 000100 | 111001 | 101111 | 011100 | 100110 | 100001 | 100001 | 011011 | 010110 | 000100 | 100000 | 010100 |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1100001 | 100000 | 1010011 | 1001101 | 1001011 | 100000 | 1010100 | 1110101 | 1101110 | 100000 | 1010000 | 1100101 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| a |  | S | M | K |  | T | u | n |  | P | e |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 38 | 39 | 40 |  |  |
| r | a | k |  |  |
| 114 | 97 | 107 |  |  |
|  |  |  |  |  |
| 01110010 | 01100001 | 01101011 | |  |
|  |  |  |  |  |
| 01 |  | 011010 | 11 |  |
| 0111 | 100001 |  | 0000 | 000000 |
| 0010 | 01 |  | 0000 | 00 |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 52 | 53 | 11 | 8 | 5 | 17 | 53 | 27 | 34 | 1 | 16 | 25 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 0 | 1 | L | I | F | R | 1 | b | i | B | Q | Z |

|  |  |  |
| --- | --- | --- |
| 1110010 | 1100001 | 1101011 |
|  |  |  |
| r | a | k |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 23 | 9 | 33 | 26 | 48 | 0 | 0 |
|  |  |  |  |  |  |  |
| X | J | h | a | w | = | = |
|  |  |  |  |  |  |  |
| 010111 | 001001 | 100001 | 011010 | 110000 | 000000 | 000000 |

**Character:**

Muhammad Izham Bin Norhama SMK Tun Perak

**Base64:**

TXVoYW1tYWQgSXpoYW0gQmluIE5vcmhhbWEgU01LIFR1biBQZXJhaw==