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**TUGAS PRAKTIKUM SISTEM OPERASI**

1. ASCII

**ASCII** (*American Standard Code for Information Interchange*) merupakan suatu standar internasional dalam kode huruf dan simbol seperti Hex dan Unicode tetapi ASCII lebih bersifat universal, contohnya 41 adalah untuk karakter "A". Ia selalu digunakan oleh komputer dan alat komunikasi lain untuk menunjukkan teks. Kode ASCII sebenarnya memiliki komposisi bilangan biner sebanyak 7 bit. Namun, ASCII disimpan sebagai sandi 8 bit dengan menambakan satu angka 0 sebagai bit significant paling tinggi. Bit tambahan ini sering digunakan untuk uji prioritas. Karakter control pada ASCII dibedakan menjadi 5 kelompok sesuai dengan penggunaan yaitu berturut-turut meliputi logical communication, Device control, Information separator, Code extention, dan physical communication. Code ASCII ini banyak dijumpai pada papan ketik (keyboard) computer.

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| **Nilai ANSI ASCII (Desimal)** | **Nilai Unicode (Heksa Desimal)** | **Karakter** | **Keterangan** |
| 0 | 0000 | NUL | Null (tidak terlihat) |
| 1 | 0001 | SOH | Start of heading (tidak terlihat) |
| 2 | 0002 | STX | Start of text (tidak terlihat) |
| 3 | 0003 | ETX | End of text (tidak terlihat) |
| 4 | 0004 | EOT | End of transmission (tidak terlihat) |
| 5 | 0005 | ENQ | Enquiry (tidak terlihat) |
| 6 | 0006 | ACK | Acknowledge (tidak terlihat) |
| 7 | 0007 | BEL | Bell (tidak terlihat) |
| 8 | 0008 | BS | Backspace |
| 9 | 0009 | HT | Horizontal tabulation |
| 10 | 000A | LF | Pergantian baris (Line feed) |
| 11 | 000B | VT | Tabulasi vertikal |
| 12 | 000C | FF | Pergantian baris (Form feed) |
| 13 | 000D | CR | Pergantian baris (carriage return) |
| 14 | 000E | SO | Shift out (tidak terlihat) |
| 15 | 000F | SI | Shift in (tidak terlihat) |
| 16 | 0010 | DLE | Data link escape (tidak terlihat) |
| 17 | 0011 | DC1 | Device control 1 (tidak terlihat) |
| 18 | 0012 | DC2 | Device control 2 (tidak terlihat) |
| 19 | 0013 | DC3 | Device control 3 (tidak terlihat) |
| 20 | 0014 | DC4 | Device control 4 (tidak terlihat) |
| 21 | 0015 | NAK | Negative acknowledge (tidak terlihat) |
| 22 | 0016 | SYN | Synchronous idle (tidak terlihat) |
| 23 | 0017 | ETB | End of transmission block (tidak terlihat) |
| 24 | 0018 | CAN | Cancel (tidak terlihat) |
| 25 | 0019 | EM | End of medium (tidak terlihat) |
| 26 | 001A | SUB | Substitute (tidak terlihat) |
| 27 | 001B | ESC | Escape (tidak terlihat) |
| 28 | 001C | FS | File separator |
| 29 | 001D | GS | Group separator |
| 30 | 001E | RS | Record separator |
| 31 | 001F | US | Unit separator |
| 32 | 0020 | spasi | Spasi |
| 33 | 0021 | ! | Tanda seru (exclamation) |
| 34 | 0022 | “ | Tanda kuti dua |
| 35 | 0023 | # | Tanda pagar (kres) |
| 36 | 0024 | $ | Tanda mata uang dolar |
| 37 | 0025 | % | Tanda persen |
| 38 | 0026 | & | Karakter ampersand (&) |
| 39 | 0027 | ‘ | Karakter Apostrof |
| 40 | 0028 | ( | Tanda kurung buka |
| 41 | 0029 | ) | Tanda kurung tutup |
| 42 | 002A | \* | Karakter asterisk (bintang) |
| 43 | 002B | + | Tanda tambah (plus) |
| 44 | 002C | , | Karakter koma |
| 45 | 002D | - | Karakter hyphen (strip) |
| 46 | 002E | . | Tanda titik |
| 47 | 002F | / | Garis miring (slash) |
| 48 | 0030 | 0 | Angka nol |
| 49 | 0031 | 1 | Angka satu |
| 50 | 0032 | 2 | Angka dua |
| 51 | 0033 | 3 | Angka tiga |
| 52 | 0034 | 4 | Angka empat |
| 53 | 0035 | 5 | Angka lima |
| 54 | 0036 | 6 | Angka enam |
| 55 | 0037 | 7 | Angka tujuh |
| 56 | 0038 | 8 | Angka delapan |
| 57 | 0039 | 9 | Angka sembilan |
| 58 | 003A | : | Tanda titik dua |
| 59 | 003B | ; | Tanda titik koma |
| 60 | 003C | < | Tanda lebih kecil |
| 61 | 003D | = | Tanda sama dengan |
| 62 | 003E | > | Tanda lebih besar |
| 63 | 003F | ? | Tanda tanya |
| 64 | 0040 | @ | A keong (@) |
| 65 | 0041 | A | Huruf latin A kapital |
| 66 | 0042 | B | Huruf latin B kapital |
| 67 | 0043 | C | Huruf latin C kapital |
| 68 | 0044 | D | Huruf latin D kapital |
| 69 | 0045 | E | Huruf latin E kapital |
| 70 | 0046 | F | Huruf latin F kapital |
| 71 | 0047 | G | Huruf latin G kapital |
| 72 | 0048 | H | Huruf latin H kapital |
| 73 | 0049 | I | Huruf latin I kapital |
| 74 | 004A | J | Huruf latin J kapital |
| 75 | 004B | K | Huruf latin K kapital |
| 76 | 004C | L | Huruf latin L kapital |
| 77 | 004D | M | Huruf latin M kapital |
| 78 | 004E | N | Huruf latin N kapital |
| 79 | 004F | O | Huruf latin O kapital |
| 80 | 0050 | P | Huruf latin P kapital |
| 81 | 0051 | Q | Huruf latin Q kapital |
| 82 | 0052 | R | Huruf latin R kapital |
| 83 | 0053 | S | Huruf latin S kapital |
| 84 | 0054 | T | Huruf latin T kapital |
| 85 | 0055 | U | Huruf latin U kapital |
| 86 | 0056 | V | Huruf latin V kapital |
| 87 | 0057 | W | Huruf latin W kapital |
| 88 | 0058 | X | Huruf latin X kapital |
| 89 | 0059 | Y | Huruf latin Y kapital |
| 90 | 005A | Z | Huruf latin Z kapital |
| 91 | 005B | [ | Kurung siku kiri |
| 92 | 005C | / | Garis miring terbalik (*backslash*) |
| 93 | 005D | ] | Kurung sikur kanan |
| 94 | 005E | ^ | Tanda pangkat |
| 95 | 005F | \_ | Garis bawah (underscore) |
| 96 | 0060 | ` | Tanda petik satu |
| 97 | 0061 | a | Huruf latin a kecil |
| 98 | 0062 | b | Huruf latin b kecil |
| 99 | 0063 | c | Huruf latin c kecil |
| 100 | 0064 | d | Huruf latin d kecil |
| 101 | 0065 | e | Huruf latin e kecil |
| 102 | 0066 | f | Huruf latin f kecil |
| 103 | 0067 | g | Huruf latin g kecil |
| 104 | 0068 | h | Huruf latin h kecil |
| 105 | 0069 | i | Huruf latin i kecil |
| 106 | 006A | j | Huruf latin j kecil |
| 107 | 006B | k | Huruf latin k kecil |
| 108 | 006C | l | Huruf latin l kecil |
| 109 | 006D | m | Huruf latin m kecil |
| 110 | 006E | n | Huruf latin n kecil |
| 111 | 006F | o | Huruf latin o kecil |
| 112 | 0070 | p | Huruf latin p kecil |
| 113 | 0071 | q | Huruf latin q kecil |
| 114 | 0072 | r | Huruf latin r kecil |
| 115 | 0073 | s | Huruf latin s kecil |
| 116 | 0074 | t | Huruf latin t kecil |
| 117 | 0075 | u | Huruf latin u kecil |
| 118 | 0076 | v | Huruf latin v kecil |
| 119 | 0077 | w | Huruf latin w kecil |
| 120 | 0078 | x | Huruf latin x kecil |
| 121 | 0079 | y | Huruf latin y kecil |
| 122 | 007A | z | Huruf latin z kecil |
| 123 | 007B | { | Kurung kurawal buka |
| 124 | 007C | | | Garis vertikal (pipa) |
| 125 | 007D | } | Kurung kurawal tutup |
| 126 | 007E | ~ | Karakter gelombang (tilde) |
| 127 | 007F | DEL | Delete |
| 128 | 0080 | € | Euro sign |
| 129 | 0081 |  |  |
| 130 | 0082 | ‚ | Single low-9 quotation mark |
| 131 | 0083 | ƒ | Latin small letter f with hook |
| 132 | 0084 | „ | Double low-9 quotation mark |
| 133 | 0085 | … | Horizontal ellipsis |
| 134 | 0086 | † | Dagger |
| 135 | 0087 | ‡ | Double dagger |
| 136 | 0088 | ˆ | Modifier letter circumflex accent |
| 137 | 0089 | ‰ | Per mille sign |
| 138 | 008A | Š | Latin capital letter S with caron |
| 139 | 008B | ‹ | Single left-pointing angle quotation |
| 140 | 008C | Œ | Latin capital ligature OE |
| 141 | 008D |  |  |
| 142 | 008E | Ž | Latin captial letter Z with caron |
| 143 | 008F |  |  |
| 144 | 0090 |  |  |
| 145 | 0091 | ‘ | Left single quotation mark |
| 146 | 0092 | ’ | Right single quotation mark |
| 147 | 0093 | “ | Left double quotation mark |
| 148 | 0094 | ” | Right double quotation mark |
| 149 | 0095 | • | Bullet |
| 150 | 0096 | – | En dash |
| 151 | 0097 | — | Em dash |
| 152 | 0098 | ˜ | Small tilde |
| 153 | 0099 | ™ | Trade mark sign |
| 154 | 009A | š | Latin small letter S with caron |
| 155 | 009B | › | Single right-pointing angle quotation mark |
| 156 | 009C | œ | Latin small ligature oe |
| 157 | 009D |  |  |
| 158 | 009E | ž | Latin small letter z with caron |
| 159 | 009F | Ÿ | Latin capital letter Y with diaeresis |
| 160 | 00A0 |  | Spasi yang bukan pemisah kata |
| 161 | 00A1 | ¡ | Tanda seru terbalik |
| 162 | 00A2 | ¢ | Tanda sen (Cent) |
| 163 | 00A3 | £ | Tanda Poundsterling |
| 164 | 00A4 | ¤ | Tanda mata uang (Currency) |
| 165 | 00A5 | ¥ | Tanda Yen |
| 166 | 00A6 | ¦ | Garis tegak putus-putus |
| 167 | 00A7 | § | Section sign |
| 168 | 00A8 | ¨ | Spacing diaeresis - umlaut |
| 169 | 00A9 | © | Tanda hak cipta (Copyright) |
| 170 | 00AA | ª | Feminine ordinal indicator |
| 171 | 00AB | « | Left double angle quotes |
| 172 | 00AC | ¬ | Not sign |
| 173 | 00AD |  | Tanda strip (hyphen) |
| 174 | 00AE | ® | Tanda merk terdaftar |
| 175 | 00AF | ¯ | Spacing Macron (Macron) |
| 176 | 00B0 | ° | Tanda derajat |
| 177 | 00B1 | ± | Tanda kurang lebih (plus-minus) |
| 178 | 00B2 | ² | Tanda kuadrat (pangkat dua) |
| 179 | 00B3 | ³ | Tanda kubik (pangkat tiga) |
| 180 | 00B4 | ´ | Acute accent |
| 181 | 00B5 | µ | Micro sign |
| 182 | 00B6 | ¶ | Pilcrow sign |
| 183 | 00B7 | · | Middle dot |
| 184 | 00B8 | ¸ | Spacing cedilla |
| 185 | 00B9 | ¹ | Superscript one |
| 186 | 00BA | º | Masculine ordinal indicator |
| 187 | 00BB | » | Right double angle quotes |
| 188 | 00BC | ¼ | Fraction one quarter |
| 189 | 00BD | ½ | Fraction one half |
| 190 | 00BE | ¾ | Fraction three quarters |
| 191 | 00BF | ¿ | Inverted question mark |
| 192 | 00C0 | À | Latin capital letter A with grave |
| 193 | 00C1 | Á | Latin capital letter A with acute |
| 194 | 00C2 | Â | Latin capital letter A with circumflex |
| 195 | 00C3 | Ã | Latin capital letter A with tilde |
| 196 | 00C4 | Ä | Latin capital letter A with diaeresis |
| 197 | 00C5 | Å | Latin capital letter A with ring above |
| 198 | 00C6 | Æ | Latin capital letter AE |
| 199 | 00C7 | Ç | Latin capital letter C with cedilla |
| 200 | 00C8 | È | Latin capital letter E with grave |
| 201 | 00C9 | É | Latin capital letter E with acute |
| 202 | 00CA | Ê | Latin capital letter E with circumflex |
| 203 | 00CB | Ë | Latin capital letter E with diaeresis |
| 204 | 00CC | Ì | Latin capital letter I with grave |
| 205 | 00CD | Í | Latin capital letter I with acute |
| 206 | 00CE | Î | Latin capital letter I with circumflex |
| 207 | 00CF | Ï | Latin capital letter I with diaeresis |
| 208 | 00D0 | Ð | Latin capital letter ETH |
| 209 | 00D1 | Ñ | Latin capital letter N with tilde |
| 210 | 00D2 | Ò | Latin capital letter O with grave |
| 211 | 00D3 | Ó | Latin capital letter O with acute |
| 212 | 00D4 | Ô | Latin capital letter O with circumflex |
| 213 | 00D5 | Õ | Latin capital letter O with tilde |
| 214 | 00D6 | Ö | Latin capital letter O with diaeresis |
| 215 | 00D7 | × | Multiplication sign |
| 216 | 00D8 | Ø | Latin capital letter O with slash |
| 217 | 00D9 | Ù | Latin capital letter U with grave |
| 218 | 00DA | Ú | Latin capital letter U with acute |
| 219 | 00DB | Û | Latin capital letter U with circumflex |
| 220 | 00DC | Ü | Latin capital letter U with diaeresis |
| 221 | 00DD | Ý | Latin capital letter Y with acute |
| 222 | 00DE | Þ | Latin capital letter THORN |
| 223 | 00DF | ß | Latin small letter sharp s - ess-zed |
| 224 | 00E0 | à | Latin small letter a with grave |
| 225 | 00E1 | á | Latin small letter a with acute |
| 226 | 00E2 | â | Latin small letter a with circumflex |
| 227 | 00E3 | ã | Latin small letter a with tilde |
| 228 | 00E4 | ä | Latin small letter a with diaeresis |
| 229 | 00E5 | å | Latin small letter a with ring above |
| 230 | 00E6 | æ | Latin small letter ae |
| 231 | 00E7 | ç | Latin small letter c with cedilla |
| 232 | 00E8 | è | Latin small letter e with grave |
| 233 | 00E9 | é | Latin small letter e with acute |
| 234 | 00EA | ê | Latin small letter e with circumflex |
| 235 | 00EB | ë | Latin small letter e with diaeresis |
| 236 | 00EC | ì | Latin small letter i with grave |
| 237 | 00ED | í | Latin small letter i with acute |
| 238 | 00EE | î | Latin small letter i with circumflex |
| 239 | 00EF | ï | Latin small letter i with diaeresis |
| 240 | 00F0 | ð | Latin small letter eth |
| 241 | 00F0 | ñ | Latin small letter n with tilde |
| 242 | 00F0 | ò | Latin small letter o with grave |
| 243 | 00F0 | ó | Latin small letter o with acute |
| 244 | 00F0 | ô | Latin small letter o with circumflex |
| 245 | 00F0 | õ | Latin small letter o with tilde |
| 246 | 00F0 | ö | Latin small letter o with diaeresis |
| 247 | 00F0 | ÷ | Division sign |
| 248 | 00F0 | ø | Latin small letter o with slash |
| 249 | 00F0 | ù | Latin small letter u with grave |
| 250 | 00F0 | ú | Latin small letter u with acute |
| 251 | 00F0 | û | Latin small letter u with circumflex |
| 252 | 00F0 | ü | Latin small letter u with diaeresis |
| 253 | 00F0 | ý | Latin small letter y with acute |
| 254 | 00F0 | þ | Latin small letter thorn |
| 255 | 00F0 | ÿ | Latin small letter y with diaeresis |

1. Daftar Instruksi Bahasa Assembly

|  |  |
| --- | --- |
| **Assembly Directive** | **Keterangan** |
| EQU | Pendefinisian konstanta |
| DB | Pendefinisian data dengan ukuran satuan 1 byte |
| DW | Pendefinisian data dengan ukuran satuan 1 word |
| DBIT | Pendefinisian data dengan ukuran satuan 1 bit |
| DS | Pemesanan tempat penyimpanan data di RAM |
| ORG | Inisialisasi alamat mulai program |
| END | Penanda akhir program |
| CSEG | Penanda penempatan di code segment |
| XSEG | Penanda penempatan di external data segment |
| DSEG | Penanda penempatan di internal direct data segment |
| ISEG | Penanda penempatan di internal indirect data segment |
| BSEG | Penanda penempatan di bit data segment |
| CODE | Penanda mulai pendefinisian program |
| XDATA | Pendefinisian external data |
| DATA | Pendefinisian internal direct data |
| IDATA | Pendefinisian internal indirect data |
| BIT | Pendefinisian data bit |
| #INCLUDE | Mengikutsertakan file program lain |

**Daftar Instruksi**

|  |  |
| --- | --- |
| **Instruksi** | **Keterangan Singkatan** |
| ACALL | Absolute Call |
| ADD | Add |
| ADDC | Add with Carry |
| AJMP | Absolute Jump |
| ANL | AND Logic |
| CJNE | Compare and Jump if Not Equal |
| CLR | Clear |
| CPL | Complement |
| DA | Decimal Adjust |
| DEC | Decrement |
| DIV | Divide |
| DJNZ | Decrement and Jump if Not Zero |
| INC | Increment |
| JB | Jump if Bit Set |
| JBC | Jump if Bit Set and Clear Bit |
| JC | Jump if Carry Set |
| JMP | Jump to Address |
| JNB | Jump if Not Bit Set |
| JNC | Jump if Carry Not Set |
| JNZ | Jump if Accumulator Not Zero |
| JZ | Jump if Accumulator Zero |
| LCALL | Long Call |
| LJMP | Long Jump |
| MOV | Move from Memory |
| MOVC | Move from Code Memory |
| MOVX | Move from Extended Memory |
| MUL | Multiply |
| NOP | No Operation |
| ORL | OR Logic |
| POP | Pop Value From Stack |
| PUSH | Push Value Onto Stack |
| RET | Return From Subroutine |
| RETI | Return From Interrupt |
| RL | Rotate Left |
| RLC | Rotate Left through Carry |
| RR | Rotate Right |
| RRC | Rotate Right through Carry |
| SETB | Set Bit |
| SJMP | Short Jump |
| SUBB | Subtract With Borrow |
| SWAP | Swap Nibbles |
| XCH | Exchange Bytes |
| XCHD | Exchange Digits |
| XRL | Exclusive OR Logic |