Nama   : Resky Budi Nugroho

NIM   : L200180018

1. Pengertian ASCII adalah kode Standar Amerika untuk Pertukaran Informasi atau sebuah standar internasional dalam pengkodean huruf dan simbol seperti Unicode dan Hex tetapi ASCII lebih bersifat universal.

   a. Karakter kontrol ASCII (kode karakter 0-31)

   32 karakter pertama dalam tabel ASCII adalah kode kontrol yang tidak dapat dicetak dan digunakan untuk mengontrol periferal seperti printer.

DEC	OCT	HEX	BIN	Symbol	Description
0	000	00	00000000	NUL	Null char
1	001	01	00000001	SOH	Start of Heading
2	002	02	00000010	STX	Start of Text
3	003	03	00000011	ETX	End of Text
4	004	04	00000100	EOT	End of Transmission
5	005	05	00000101	ENQ	Enquiry
6	006	06	00000110	ACK	Acknowledgment
7	007	07	00000111	BEL	Bell
8	010	08	00001000	BS	Back Space
9	011	09	00001001	HT	Horizontal Tab
10	012	0A	00001010	LF	Line Feed
11	013	0B	00001011	VT	Vertical Tab

DEC	OCT	HEX	BIN	Symbol	Description
12	014	0C	00001100	FF	Form Feed
13	015	0D	00001101	CR	Carriage Return
14	016	0E	00001110	SO	Shift Out / X-On
15	017	0F	00001111	SI	Shift In / X-Off
16	020	10	00010000	DLE	Data Line Escape
17	021	11	00010001	DC1	Device Control 1 (oft. XON)
18	022	12	00010010	DC2	Device Control 2
19	023	13	00010011	DC3	Device Control 3 (oft. XOFF)
20	024	14	00010100	DC4	Device Control 4
21	025	15	00010101	NAK	Negative Acknowledgement
22	026	16	00010110	SYN	Synchronous Idle
23	027	17	00010111	ETB	End of Transmit Block
24	030	18	00011000	CAN	Cancel
25	031	19	00011001	EM	End of Medium
26	032	1A	00011010	SUB	Substitute
27	033	1B	00011011	ESC	Escape
28	034	1C	00011100	FS	File Separator
29	035	1D	00011101	GS	Group Separator
30	036	1E	00011110	RS	Record Separator
31	037	1F	00011111	US	Unit Separator

b. Karakter yang dapat dicetak ASCII (kode karakter 32-127)

c.	DEC	OCT	HEX	BIN	Symbol	Description
	32	040	20	00100000		Space
	33	041	21	00100001	!	Exclamation mark
	34	042	22	00100010	"	Double quotes (or speech marks)
	35	043	23	00100011	#	Number
	36	044	24	00100100	$	Dollar
	37	045	25	00100101	%	Per cent sign
	38	046	26	00100110	&	Ampersand
	39	047	27	00100111	'	Single quote
	40	050	28	00101000	(	Open parenthesis (or open bracket)
	41	051	29	00101001	)	Close parenthesis (or close bracket)
	42	052	2A	00101010	*	Asterisk
	43	053	2B	00101011	+	Plus
	44	054	2C	00101100	,	Comma
	45	055	2D	00101101	-	Hyphen
	46	056	2E	00101110	.	Period, dot or full stop
	47	057	2F	00101111	/	Slash or divide
	48	060	30	00110000	0	Zero
	49	061	31	00110001	1	One
	50	062	32	00110010	2	Two
	51	063	33	00110011	3	Three
	52	064	34	00110100	4	Four
	53	065	35	00110101	5	Five

c.	DEC	OCT	HEX	BIN	Symbol	Description
	54	066	36	00110110	6	Six
	55	067	37	00110111	7	Seven
	56	070	38	00111000	8	Eight
	57	071	39	00111001	9	Nine
	58	072	3A	00111010	:	Colon
	59	073	3B	00111011	;	Semicolon
	60	074	3C	00111100	<	Less than (or open angled bracket)
	61	075	3D	00111101	=	Equals
	62	076	3E	00111110	>	Greater than (or close angled bracket)
	63	077	3F	00111111	?	Question mark
	64	100	40	01000000	@	At symbol
	65	101	41	01000001	A	Uppercase A
	66	102	42	01000010	B	Uppercase B
	67	103	43	01000011	C	Uppercase C
	68	104	44	01000100	D	Uppercase D
	69	105	45	01000101	E	Uppercase E
	70	106	46	01000110	F	Uppercase F
	71	107	47	01000111	G	Uppercase G
	72	110	48	01001000	H	Uppercase H
	73	111	49	01001001	I	Uppercase I

c.	DEC	OCT	HEX	BIN	Symbol	Description
74		112	4A	01001010	J	Uppercase J
75		113	4B	01001011	K	Uppercase K
76		114	4C	01001100	L	Uppercase L
77		115	4D	01001101	M	Uppercase M
78		116	4E	01001110	N	Uppercase N
79		117	4F	01001111	O	Uppercase O
80		120	50	01010000	P	Uppercase P
81		121	51	01010001	Q	Uppercase Q
82		122	52	01010010	R	Uppercase R
83		123	53	01010011	S	Uppercase S
84		124	54	01010100	T	Uppercase T
85		125	55	01010101	U	Uppercase U
86		126	56	01010110	V	Uppercase V
87		127	57	01010111	W	Uppercase W
88		130	58	01011000	X	Uppercase X
89		131	59	01011001	Y	Uppercase Y
90		132	5A	01011010	Z	Uppercase Z
91		133	5B	01011011	[	Opening bracket
92		134	5C	01011100	\	Backslash

c.	DEC	OCT	HEX	BIN	Symbol	Description
93	135	5D	01011101	]	Closing bracket
94	136	5E	01011110	^	Caret - circumflex
95	137	5F	01011111	_	Underscore
96	140	60	01100000	`	Grave accent
97	141	61	01100001	a	Lowercase a
98	142	62	01100010	b	Lowercase b
99	143	63	01100011	c	Lowercase c
100	144	64	01100100	d	Lowercase d
101	145	65	01100101	e	Lowercase e
102	146	66	01100110	f	Lowercase f
103	147	67	01100111	g	Lowercase g
104	150	68	01101000	h	Lowercase h
105	151	69	01101001	i	Lowercase i
106	152	6A	01101010	j	Lowercase j
107	153	6B	01101011	k	Lowercase k
108	154	6C	01101100	l	Lowercase l
109	155	6D	01101101	m	Lowercase m
110	156	6E	01101110	n	Lowercase n
111	157	6F	01101111	o	Lowercase o
112	160	70	01110000	p	Lowercase p
113	161	71	01110001	q	Lowercase q
114	162	72	01110010	r	Lowercase r
115	163	73	01110011	s	Lowercase s
116	164	74	01110100	t	Lowercase t

c. DEC	OCT	HEX	BIN	Symbol	Description
117	165	75	01110101	u	Lowercase u
118	166	76	01110110	v	Lowercase v
119	167	77	01110111	w	Lowercase w
120	170	78	01111000	x	Lowercase x
121	171	79	01111001	y	Lowercase y
122	172	7A	01111010	z	Lowercase z
123	173	7B	01111011	{	Opening brace
124	174	7C	01111100			Vertical bar
125	175	7D	01111101	}	Closing brace
126	176	7E	01111110	~	Equivalency sign - tilde
127	177	7F	01111111		Delete

DEC	OCT	HEX	BIN	Symbol	Description
128	200	80	10000000	€	Euro sign
129	201	81	10000001		
130	202	82	10000010	‚	Single low-9 quotation mark
131	203	83	10000011	ƒ	Latin small letter f with hook
132	204	84	10000100	„	Double low-9 quotation mark
133	205	85	10000101	…	Horizontal ellipsis
134	206	86	10000110	†	Dagger
135	207	87	10000111	‡	Double dagger
136	210	88	10001000	ˆ	Modifier letter

DEC	OCT	HEX	BIN	Symbol	Description
					circumflex accent
137	211	89	10001001	‰	Per mille sign
138	212	8A	10001010	Š	Latin capital letter S with caron
139	213	8B	10001011	‹	Single left-pointing angle quotation
140	214	8C	10001100	Œ	Latin capital ligature OE
141	215	8D	10001101		
142	216	8E	10001110	Ž	Latin capital letter Z with caron
143	217	8F	10001111		
144	220	90	10010000		
145	221	91	10010001	'	Left single quotation mark
146	222	92	10010010	'	Right single quotation mark
147	223	93	10010011	"	Left double quotation mark
148	224	94	10010100	"	Right double quotation mark
149	225	95	10010101	•	Bullet
150	226	96	10010110	–	En dash
151	227	97	10010111	—	Em dash
152	230	98	10011000	˜	Small tilde
153	231	99	10011001	™	Trade mark sign

DEC	OCT	HEX	BIN	Symbol	Description
154	232	9A	10011010	š	Latin small letter S with caron
155	233	9B	10011011	›	Single right-pointing angle quotation mark
156	234	9C	10011100	œ	Latin small ligature oe
157	235	9D	10011101		
158	236	9E	10011110	ž	Latin small letter z with caron
159	237	9F	10011111	Ÿ	Latin capital letter Y with diaeresis
160	240	A0	10100000		Non-breaking space
161	241	A1	10100001	¡	Inverted exclamation mark
162	242	A2	10100010	¢	Cent sign
163	243	A3	10100011	£	Pound sign
164	244	A4	10100100	¤	Currency sign
165	245	A5	10100101	¥	Yen sign
166	246	A6	10100110	¦	Pipe, Broken vertical bar
167	247	A7	10100111	§	Section sign
168	250	A8	10101000	¨	Spacing diaeresis - umlaut
169	251	A9	10101001	©	Copyright sign

DEC	OCT	HEX	BIN	Symbol	Description
170	252	AA	10101010	ª	Feminine ordinal indicator
171	253	AB	10101011	«	Left double angle quotes
172	254	AC	10101100	¬	Not sign
173	255	AD	10101101		Soft hyphen
174	256	AE	10101110	®	Registered trade mark sign
175	257	AF	10101111	¯	Spacing macron - overline
176	260	B0	10110000	°	Degree sign
177	261	B1	10110001	±	Plus-or-minus sign
178	262	B2	10110010	²	Superscript two - squared
179	263	B3	10110011	³	Superscript three - cubed
180	264	B4	10110100	´	Acute accent - spacing acute
181	265	B5	10110101	µ	Micro sign
182	266	B6	10110110	¶	Pilcrow sign - paragraph sign
183	267	B7	10110111	·	Middle dot - Georgian comma
184	270	B8	10111000	¸	Spacing cedilla
185	271	B9	10111001	¹	Superscript one

DEC	OCT	HEX	BIN	Symbol	Description
186	272	BA	10111010	º	Masculine ordinal indicator
187	273	BB	10111011	»	Right double angle quotes
188	274	BC	10111100	¼	Fraction one quarter
189	275	BD	10111101	½	Fraction one half
190	276	BE	10111110	¾	Fraction three quarters
191	277	BF	10111111	¿	Inverted question mark
192	300	C0	11000000	À	Latin capital letter A with grave
193	301	C1	11000001	Á	Latin capital letter A with acute
194	302	C2	11000010	Â	Latin capital letter A with circumflex
195	303	C3	11000011	Ã	Latin capital letter A with tilde
196	304	C4	11000100	Ä	Latin capital letter A with diaeresis
197	305	C5	11000101	Å	Latin capital letter A with ring above
198	306	C6	11000110	Æ	Latin capital letter AE

DEC	OCT	HEX	BIN	Symbol	Description
199	307	C7	11000111	Ç	Latin capital letter C with cedilla
200	310	C8	11001000	È	Latin capital letter E with grave
201	311	C9	11001001	É	Latin capital letter E with acute
202	312	CA	11001010	Ê	Latin capital letter E with circumflex
203	313	CB	11001011	Ë	Latin capital letter E with diaeresis
204	314	CC	11001100	Ì	Latin capital letter I with grave
205	315	CD	11001101	Í	Latin capital letter I with acute
206	316	CE	11001110	Î	Latin capital letter I with circumflex
207	317	CF	11001111	Ï	Latin capital letter I with diaeresis
208	320	D0	11010000	Ð	Latin capital letter ETH
209	321	D1	11010001	Ñ	Latin capital letter N with tilde
210	322	D2	11010010	Ò	Latin capital letter O with grave

DEC	OCT	HEX	BIN	Symbol	Description
211	323	D3	11010011	Ó	Latin capital letter O with acute
212	324	D4	11010100	Ô	Latin capital letter O with circumflex
213	325	D5	11010101	Õ	Latin capital letter O with tilde
214	326	D6	11010110	Ö	Latin capital letter O with diaeresis
215	327	D7	11010111	×	Multiplication sign
216	330	D8	11011000	Ø	Latin capital letter O with slash
217	331	D9	11011001	Ù	Latin capital letter U with grave
218	332	DA	11011010	Ú	Latin capital letter U with acute
219	333	DB	11011011	Û	Latin capital letter U with circumflex
220	334	DC	11011100	Ü	Latin capital letter U with diaeresis
221	335	DD	11011101	Ý	Latin capital letter Y with acute
222	336	DE	11011110	Þ	Latin capital letter THORN
223	337	DF	11011111	ß	Latin small letter sharp s - ess-zed

DEC	OCT	HEX	BIN	Symbol	Description
224	340	E0	11100000	à	Latin small letter a with grave
225	341	E1	11100001	á	Latin small letter a with acute
226	342	E2	11100010	â	Latin small letter a with circumflex
227	343	E3	11100011	ã	Latin small letter a with tilde
228	344	E4	11100100	ä	Latin small letter a with diaeresis
229	345	E5	11100101	å	Latin small letter a with ring above
230	346	E6	11100110	æ	Latin small letter ae
231	347	E7	11100111	ç	Latin small letter c with cedilla
232	350	E8	11101000	è	Latin small letter e with grave
233	351	E9	11101001	é	Latin small letter e with acute
234	352	EA	11101010	ê	Latin small letter e with circumflex
235	353	EB	11101011	ë	Latin small letter e with diaeresis

DEC	OCT	HEX	BIN	Symbol	Description
236	354	EC	11101100	ì	Latin small letter i with grave
237	355	ED	11101101	í	Latin small letter i with acute
238	356	EE	11101110	î	Latin small letter i with circumflex
239	357	EF	11101111	ï	Latin small letter i with diaeresis
240	360	F0	11110000	ð	Latin small letter eth
241	361	F1	11110001	ñ	Latin small letter n with tilde
242	362	F2	11110010	ò	Latin small letter o with grave
243	363	F3	11110011	ó	Latin small letter o with acute
244	364	F4	11110100	ô	Latin small letter o with circumflex
245	365	F5	11110101	õ	Latin small letter o with tilde
246	366	F6	11110110	ö	Latin small letter o with diaeresis
247	367	F7	11110111	÷	Division sign
248	370	F8	11111000	ø	Latin small letter o with slash

DEC	OCT	HEX	BIN	Symbol	Description
249	371	F9	11111001	ù	Latin small letter u with grave
250	372	FA	11111010	ú	Latin small letter u with acute
251	373	FB	11111011	û	Latin small letter u with circumflex
252	374	FC	11111100	ü	Latin small letter u with diaeresis
253	375	FD	11111101	ý	Latin small letter y with acute
254	376	FE	11111110	þ	Latin small letter thorn
255	377	FF	11111111	ÿ	Latin small letter y with diaeresis

2. Daftar perintah bahasa assembly untuk mesin intel keluaran x86

a. Assembly Directive (yaitu merupakan kode yang menjadi arahan bagi assembler/compiler untuk menata program)

Instruksi	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

b. Instruksi (yaitu kode yang harus dieksekusi oleh CPU mikrokontroler dengan melakukan operasi tertentu sesuai dengan daftar yang sudah tertanam dalam CPU)

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