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1 Turbo Assembler Version 2.0 12/15/08 01:00:18 Page 1
2 ASM_KSTA.ASM
3
4 1 ;
5 2 ; Kestutis Stankevicius, II-06/3
6 3 ; Asemblerinis programavimas
7 4 ;
8 5 ; 10/A Auditorijos darbas:
9 6 ;
10 7 ; x=a+b kur a,b ivedami skaiciai, kurie gali buti ir neigiami
11 8 ;
12 9 0000 stekas SEGMENT STACK
13 10 0000 0100*(??) DB 256 DUP (?) ; isskiriame atmintyje 256 baitus
14 11 0100 stekas ENDS
15 12
16 13 = 000D CR EQU 13
17 14 = 000A LF EQU 10
18 15 ; konstantos
19 16 = 002B plus EQU '+'
20 17 = 002D minus EQU '-'
21 18
22 19 0000 duomenys SEGMENT
23 20 ; aprasome kintamuosius
24 21 0000 05 ?? 05*(??) ivsr DB 5, ?, 5 DUP(?)
25 22 0007 0D 0A 49 76 65 73 6B+ pra1 DB CR, LF, 'Iveskite skaiciu a: ','$'
26 23 69 74 65 20 73 6B 61+
27 24 69 63 69 75 20 61 3A+
28 25 20 24
29 26 001E 0D 0A 49 76 65 73 6B+ pra2 DB CR, LF, 'Iveskite skaiciu b: ','$'
30 27 69 74 65 20 73 6B 61+
31 28 69 63 69 75 20 62 3A+
32 29 20 24
33 30 0035 0D 0A 20 pra3 DB CR, LF, ' '
34 31 0038 0D 0A 20 20 52 65 7A+ DB CR, LF, ' Rezultatas: a+b=','$'
35 32 75 6C 74 61 74 61 73+
36 33 3A 20 61 2B 62 3D 24
37 34
38 35 004D 0D 0A 4B 6C 61 69 64+ klaidpr DB CR, LF, 'klaida!'
39 36 61 21
40 37
41 38 0056 00 a DB 0
42 39 0057 00 b DB 0
43 40
44 41 0058 04*(20) 24 x DB 4 DUP (' '), '$'
45 42
46 43 005D 0A desimt DB 10
47 44
48 45 005E duomenys ENDS
49 46
50 47 0000 programa SEGMENT
51 48
52 49 ASSUME CS:programa, DS:duomenys, SS:stekas
53 50
54 51 ; Procedura IVEDIMAS
55 52 0000 Ivedimas PROC
56 53 0000 BA 0000r LEA DX, ivsr
57 54 0003 B4 0A MOV AH, 0Ah
58 55 0005 CD 21 INT 21h
59 56 0007 C3 RET
60 57 0008 Ivedimas ENDP
61 58
62 59 ; Procedura KONVERTUOTI
63 60 0008 Konvertuoti PROC
64 61
65 62 0008 8A 0E 0001r MOV CL, ivsr+1 ; ciklu skaicius
66 63 000C B5 00 MOV CH, 0
67 64 000E B4 00 MOV AH, 0
68 65 0010 BE 0002r LEA SI, ivsr+2
69 66 0013 8A 3C MOV BH, [SI]
70 67 ; tikrinam ar neigiamas ivestas
71 68 0015 80 FF 2D CMP BH, minus
72 69 0018 74 24 JE Neig

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73      70      ;
74      71 001A      ; Tigr:
75      72 001A E8 002C      CALL Tikrinimas
76      73
77      74 001D 8A C7      MOV AL, BH
78      75 001F FE C9      DEC CL
79      76 0021 80 F9 00      CMP CL, 0
80      77 0024 74 17      JE Return
81      78
82      79 0026 46      ciklas: INC SI
83      80 0027 8A 3C      MOV BH, [SI]
84      81      ;
85      82 0029 E8 001D      CALL Tikrinimas
86      83
87      84 002C F6 26 005Dr      MUL desimt
88      85 0030 02 C7      ADD AL, BH
89      86 0032 70 23      JO Klaidal
90      87 0034 E2 F0      LOOP ciklas
91      88      ; tikrinam ar neigiamas ivestas
92      89 0036 80 3E 0002r 2D      CMP ivsr+2, minus
93      90 003B 74 08      JE Neigg
94      91 003D      Return:
95      92 003D C3      RET
96      93 003E      Neig:
97      94 003E 46      INC SI
98      95 003F 8A 3C      MOV BH, [SI]
99      96 0041 FE C9      DEC CL
100     97 0043 EB D5      JMP Tigr
101     98 0045      Neigg:
102     99 0045 F6 D8      NEG AL
103     100 0047 EB F4      JMP Return
104     101 0049      Konvertuoti ENDP
105     102
106     103      ; Procedura TIKRINIMAS
107     104 0049      Tikrinimas PROC
108     105
109     106 0049 80 FF 30      CMP BH, 30h
110     107 004C 7C 09      JL Klaidal
111     108 004E 80 FF 39      CMP BH, 39h
112     109 0051 7F 04      JG Klaidal
113     110 0053 80 EF 30      SUB BH, 30h
114     111 0056 C3      RET
115     112 0057      Tikrinimas ENDP
116     113
117     114      ; I Klaida
118     115 0057 E9 008B      Klaidal: JMP Klaida
119     116
120     117      ; Procedura SPAUSDINTI
121     118 005A      Spausdinti PROC
122     119
123     120      ; kuriam rezultata
124     121 005A B4 00      MOV AH, 0
125     122      ; sveika dalis
126     123 005C F6 36 005Dr      DIV desimt
127     124 0060 88 26 005Br      MOV x+3,AH
128     125 0064 80 06 005Br 30      ADD x+3,30h
129     126 0069 B4 00      MOV AH, 0
130     127
131     128 006B F6 36 005Dr      DIV desimt
132     129 006F 88 26 005Ar      MOV x+2,AH
133     130 0073 80 06 005Ar 30      ADD x+2,30h
134     131 0078 B4 00      MOV AH, 0
135     132
136     133 007A F6 36 005Dr      DIV desimt
137     134 007E 88 26 0059r      MOV x+1,AH
138     135 0082 80 06 0059r 30      ADD x+1,30h
139     136
140     137      ; pranesimas3
141     138 0087 B4 09      MOV AH, 09h
142     139 0089 BA 0035r      LEA DX, pra3
143     140 008C CD 21      INT 21H
144     141

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145      142      ; spausdinimas
146      143      008E B4 09      MOV AH, 09h
147      144      0090 BA 0058r   LEA DX, x
148      145      0093 CD 21      INT 21h
149      146
150      147      0095 C3          RET
151      148      0096          Spausdinti ENDP
152      149
153      150      0096          START:
154      151      ; pradzia
155      152      0096 B8 0000s   MOV AX, duomenys
156      153      0099 8E D8      MOV DS, AX
157      154
158      155      ; isvalyti ekrana
159      156      009B B8 0002   MOV AX, 0002h
160      157      009E CD 10      INT 10h
161      158
162      159      ; pranesimas1
163      160      00A0 B4 09      MOV AH, 09h
164      161      00A2 BA 0007r   LEA DX, pra1
165      162      00A5 CD 21      INT 21h
166      163
167      164      ; Ivedimas a
168      165      00A7 E8 FF56   CALL Ivedimas
169      166      00AA E8 FF5B   CALL Konvertuoti
170      167      00AD A2 0056r   MOV a, AL
171      168
172      169      ; pranesimas2
173      170      00B0 B4 09      MOV AH, 09h
174      171      00B2 BA 001Er   LEA DX, pra2
175      172      00B5 CD 21      INT 21h
176      173
177      174      ; Ivedimas b
178      175      00B7 E8 FF46   CALL Ivedimas
179      176      00BA E8 FF4B   CALL Konvertuoti
180      177      00BD A2 0057r   MOV b, AL
181      178
182      179      ; a+b
183      180      00C0 00 06 0056r ADD a, AL ; a+b
184      181      ; Rezultata pervedam atgal i AL
185      182      00C4 A0 0056r   MOV AL, a
186      183
187      184      ; tikrinam ar neigiamas
188      185      00C7 3C 00      CMP AL, 0
189      186      00C9 7C 0C      JL Neigiamas
190      187      ; Parodom, kad teigiamas
191      188      00CB B7 2B      MOV BH, plus
192      189      00CD 88 3E 0058r MOV x, BH
193      190
194      191      ; Spausdiname
195      192      00D1 E8 FF86   CALL Spausdinti
196      193
197      194      ; sokam i Pabaiga
198      195      00D4 EB 16 90   JMP Pabaiga
199      196
200      197      ; Perdarome i Neigiamas
201      198      00D7          Neigiamas:
202      199      00D7 B7 2D      MOV BH, minus
203      200      00D9 88 3E 0058r MOV x, BH
204      201      ; * (-1) AL
205      202      00DD F6 D8      NEG AL
206      203      ; Spausdiname
207      204      00DF E8 FF78   CALL Spausdinti
208      205      ; sokam i Pabaiga
209      206      00E2 EB 08 90   JMP Pabaiga
210      207
211      208      00E5          klaida:
212      209
213      210      00E5 B4 09      MOV AH, 09h
214      211      00E7 BA 004Dr   LEA DX, klaidpr
215      212      00EA CD 21      INT 21h
216      213

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217      214 00EC      Pabaiga:
218      215      ; paspausti bet koki klavisa
219      216 00EC B4 07      MOV AH, 07h
220      217 00EE CD 21      INT 21h
221      218
222      219      ; iseiti is programos
223      220 00F0 B4 4C      MOV AH, 4ch
224      221 00F2 CD 21      INT 21h
225      222
226      223 00F4      programa ENDS
227      224
228      225      END START
229 Symbol Table
230
231 Symbol Name      Type      Value
232
233 ??DATE           Text      "12/15/08"
234 ??FILENAME       Text      "ASM_KSTA"
235 ??TIME           Text      "01:00:18"
236 ??VERSION        Number  0200
237 @CPU             Text      0101h
238 @CURSEG          Text      PROGRAMA
239 @FILENAME         Text      ASM_KSTA
240 @WORDSIZE        Text      2
241 A               Byte      DUOMENYS:0056
242 B               Byte      DUOMENYS:0057
243 CIKLAS          Near      PROGRAMA:0026
244 CR              Number  000D
245 DESIMT          Byte      DUOMENYS:005D
246 IVEDIMAS        Near      PROGRAMA:0000
247 IVSR            Byte      DUOMENYS:0000
248 KLAIDA          Near      PROGRAMA:00E5
249 KLAIDA1         Near      PROGRAMA:0057
250 KLAIDPR         Byte      DUOMENYS:004D
251 KONVERTUOTI     Near      PROGRAMA:0008
252 LF              Number  000A
253 MINUS           Number  002D
254 NEIG            Near      PROGRAMA:003E
255 NEIGG           Near      PROGRAMA:0045
256 NEIGIAMAS       Near      PROGRAMA:00D7
257 PABAIGA         Near      PROGRAMA:00EC
258 PLIUS           Number  002B
259 PRA1            Byte      DUOMENYS:0007
260 PRA2            Byte      DUOMENYS:001E
261 PRA3            Byte      DUOMENYS:0035
262 RETURN          Near      PROGRAMA:003D
263 SPAUSDINTI      Near      PROGRAMA:005A
264 START           Near      PROGRAMA:0096
265 TIKR            Near      PROGRAMA:001A
266 TIKRINIMAS      Near      PROGRAMA:0049
267 X               Byte      DUOMENYS:0058
268
269 Groups & Segments      Bit Size Align  Combine Class
270
271 DUOMENYS              16 005E Para      none
272 PROGRAMA              16 00F4 Para      none
273 STEKAS                16 0100 Para      Stack

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