

计算机原理第三次实验报告

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2017 年 4 月 20 日

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01 DATA SEGMENT
02 MESSAGE0 DB 'INPUT 10 DECIMAL NUMBER:',0DH,0AH,'$'
03 MESSAGE1 DB 'YOU HAVE INPUT: ','$'
04 MESSAGE2 DB 0DH,0AH,'YOU HAVE TO INPUT ANOTHER $'
05 MESSAGE3 DB ' NUMBERS.',0DH,0AH,'$'
06 ERROR1 DB 0DH,0AH,'NOT DECIMAL NUMBER!',0DH,0AH,'$'
07 ERROR2 DB 0DH,0AH,'TOO MANY DIGITS',0DH,0AH,'$'
08 SORT DB '>>>> AFTER SORTED <<<',0DH,0AH,'$'
09 MAX DB '>>>> MAX NUMBER: ','$'
10 AUX DB '10'
11 ORG 1000H
12 NUMBERS DB 10 DUP(?)
13 DATA ENDS
14
15 STACK SEGMENT PARA STACK
16 DB 10 DUP(?)
17 STACK ENDS
18
19 CODE SEGMENT
20 ASSUME ES:DATA,DS:DATA,CS:CODE,SS:STACK
21 START:
22 MOV AX,DATA
23 MOV ES,AX
24 MOV DS,AX
25 MOV AX,STACK
26 MOV SS,AX
27 LEA DI,NUMBERS
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28 MOV CL,4
29 ;READ IN 10 NUMBERS
30 MOV DX,OFFSET MESSAGE0
31 MOV AH,09H
32 INT 21H
33 ADD DI,09H
34 L1:
35 ;IO AND REFINE THE FORMAT
36 MOV AH,08H
37 INT 21H
38 MOV DL,AL
39 CMP DL,0DH
40 JNE L2
41 MOV DL,' '
42 L2:
43 MOV AH,02H
44 INT 21H
45 ;WORD IN DL
46 ;SET THE WORD IN DH
47 CMP DL,030H
48 JB NOTNUM
49 CMP DL,039H
50 JA NOTNUM
51 ;NOW THE INPUT SHOULD BE A NUMBER
52 ;CHECK THE DH
53 CMP DH,00FH
54 JA OVER
55 ;NOW EVERYTHING OK
56 AND DL,00FH
57 SHL DH,CL
58 ADD DH,DL
59 JMP L1
60 NOTNUM:
61 ;CHECK THE ' '
62 CMP DL,' '
63 JE L3

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64  MOV DX,OFFSET ERROR1
65  MOV AH,09H
66  INT 21H
67  JMP L6
68  OVER:
69  MOV DX,OFFSET ERROR2
70  MOV AH,09H
71  INT 21H
72  L6:
73  CALL CORRECT
74  JMP L1
75  L3:
76  CMP DH,0
77  JE L1
78  OUTPUT:
79  MOV BYTE PTR [DI],DH
80  DEC DI
81  MOV DH,0
82  CMP DI,OFFSET NUMBERS
83  JNB L1
84  MOV BX,OFFSET MESSAGE1
85  CALL WHOLE
86  L11:
87  MOV DL,0
88  MOV CX,9
89  LEA DI,NUMBERS
90  L12:
91  MOV AX,[DI]
92  CMP AL,AH
93  JNA NORM
94  MOV DL,1
95  XCHG AL,AH
96  MOV [DI],AX
97  NORM:
98  INC DI
99  LOOP L12
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```
100  CMP DL,0
101  JNE L11
102  MOV CL,4
103  MOV AH,02H
104  MOV DL,0DH
105  INT 21H
106  MOV DL,0AH
107  INT 21H
108  MOV DX,OFFSET MAX
109  MOV AH,09H
110  INT 21H
111  MOV AH,02H
112  LEA SI,NUMBERS
113  ADD SI,09H
114  MOV AH,02H
115  MOV DL,BYTE PTR [SI]
116  MOV DH,DL
117  SHR DL,CL
118  JZ L13
119  ADD DL,030H
120  INT 21H
121  L13:
122  AND DH,00FH
123  ADD DH,030H
124  MOV DL,DH
125  INT 21H
126  MOV DL,0DH
127  INT 21H
128  MOV DL,0AH
129  INT 21H
130
131  MOV BX,OFFSET SORT
132  CALL WHOLE
133  MOV AL,0
134  MOV AH,04CH
135  INT 021H
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136
137 CORRECT:
138 CALL SHOW
139 MOV DX,OFFSET MESSAGE2
140 MOV AH,09H
141 INT 21H
142 MOV DX,DI
143 SUB DX,OFFSET NUMBERS
144 INC DL
145 CMP DL,0AH
146 JNE L4
147 MOV DX,OFFSET AUX
148 MOV AH,09H
149 JMP L5
150 L4:
151 ADD DL,030H
152 MOV AH,02H
153 L5:
154 INT 21H
155 MOV DX,OFFSET MESSAGE3
156 MOV AH,09H
157 INT 21H
158 RET
159
160 SHOW:
161 MOV DX,OFFSET MESSAGE1
162 MOV AH,09H
163 INT 21H
164 LEA SI,NUMBERS
165 ADD SI,09H
166 MOV AH,02H
167 L7:
168 MOV DL,BYTE PTR [SI]
169 MOV DH,DL
170 SHR DL,CL
171 JZ L10
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```
172  ADD DL,030H
173  INT 21H
174  L10:
175  AND DH,00FH
176  ADD DH,030H
177  MOV DL,DH
178  INT 21H
179  MOV DL,' '
180  INT 21H
181  DEC SI
182  CMP SI,DI
183  JNE L7
184  RET
185  WHOLE:
186  MOV AH,02H
187  MOV DL,0DH
188  INT 21H
189  MOV DL,0AH
190  INT 21H
191  MOV DX,BX
192  MOV AH,09H
193  INT 21H
194  MOV AH,02H
195  MOV DL,0DH
196  INT 21H
197  MOV DL,0AH
198  INT 21H
199  LEA SI,NUMBERS
200  ADD SI,09H
201  MOV AH,02H
202  L8:
203  MOV DL,BYTE PTR [SI]
204  MOV DH,DL
205  SHR DL,CL
206  JZ L9
207  ADD DL,030H
```

```
208  INT 21H
209  L9:
210  AND DH,00FH
211  ADD DH,030H
212  MOV DL,DH
213  INT 21H
214  MOV DL,0DH
215  INT 21H
216  MOV DL,0AH
217  INT 21H
218  DEC SI
219  CMP SI,OFFSET NUMBERS
220  JNS L8
221  RET
222 CODE ENDS
223 END START
```