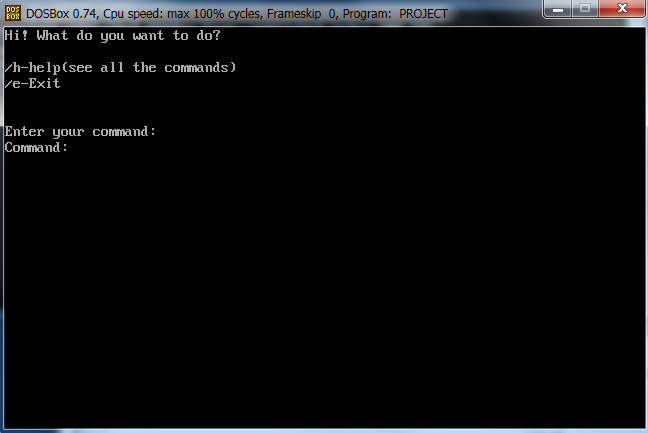
**פרוייקט אסמבלי**

**קונסולה**



**שם:** ניר גרוטל

**כיתה:** י8

**שם המורה:** טבלין איזבלה

**בית ספר:** דה שליט-רחובות

**נושא העבודה:** קונסולה-Console

**שם הקובץ –** Project.asm

**סביבת העבודה –** turbo assembler

**סביבת הפיתוח –** notepad++

**סביבת הרצה** **–** DosBox

**תקציר הפרוייקט:**

קונסולה אשר מבצעת 6 פעולות,יציאה מתוכנה,כתיבת Hello world!, יצירת קובץ, כתיבה בקובץ, קריאה מקובץ, ומחיקת קובץ.

**תוכן עניינים:**

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**נושא העבודה:**

הפרוייקט הוא בעצם סוג של קונסולה,כמו מערכת הפעלה DOS קטנה, עם מספר פעולות חשובות לעבודה במחשב,כגון פעולות לעבודה עם קבצים ,כתיבת פלט ידידותי ויציאה מהתוכנה.

**הפקודות:**

**/h**- מדפיס למסך את רשימת הפקודות של הקונסולה

**/1** - מדפיס למסך 'Hello World!'

**/e**- יוצא מהקונסולה

**/c** - מקבל שם של קובץ המכיל עד 8 תווים(כולל .txt לדוגמה) ויוצר את הקובץ

**/w** - מקבל שם של הקובץ ואז מקבל טקסט לכתיבה בתוכו

**/r** - מקבל שם של קובץ ואז מדפיס את הטקסט שלו למסך(עד 255 תווים)

**/d**- מקבל שם של קובץ ומוחק אותו

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**תרשים זרימה:**

**F:\אסמבלי_י\Flow Chart Final (1).png**

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**רשימת פרוצדורות**

* ExitP-אומר להתראות, מחכה ללחיצת על כפתור כלשהו,ואז יוצא מהתוכנה
* Exitp1-אומר להתראות, מחכה ללחיצת על כפתור כלשהו, ואז יוצא מהתוכנה
* WipeClean-מנקה את filestring
* WipeCleanWrite- מנקה את writestr
* proc OpenFile-פותח את הקובץ
* CreateFile-יוצר קובץ
* ReadFile-קורא קובץ
* DeleteFile-מוחק קובץ
* DisplayFileString- מציג FILESTRING
* DisplayWriteStr-מציג WRITESTR
* DisplayFileName-מציג FILENAMESTR
* KeyStroke1-מחכה ללחיצה על כפתור
* KeyStroke-מחכה ללחיצה על כפתור
* WriteToFile-כותב בתוך קובץ
* CloseFile-סוגר קובץ

**5**

**תיעוד**

;----------------by: Nir Grotel

IDEAL

MODEL small

STACK 100h

DATASEG

szMsg1 db "Hi! What do you want to do?",10,13,10,13,"/h-help(see all the commands)",10,13,"/e-Exit",10,13,10,13,"$" ;Start Message

szHelloWorld db 10,13,"Hello World!",10,13,"$" ;String contains the text: Hello World!

ErrorMsg db 10,13,"Illegal Command,Try again!",10,13,"$" ;String contains the text :Illegal Command,Try again!

filenameStr db 13,0,13 dup("$");string that will get the name of the file from input

help db 10,13,"HELP LIST:",10,13,"-----------",10,13,"Commands are:",10,13," /e-Exit",10,13," /h-help",10,13," /1-Says: 'Hello World!'",10,13," /c - Create a file",10,13," /w-Write to file",10,13," /r-Read file",10,13," /D-Delete file",10,13,"$" ;string that shows the commands

filehandle dw 0;file handle

ErrorOpenMsg db 'Error',10,13,'$' ;string contains :Error

FileNameLength db "(file name consists of 4 letters MUST!! (template: 'test.tst'))","$" ;string contains the instructor of the commands

**6**

r db 10,13,"/r/ ","$";string contains /r/

c db ,10,13,"/c/ ","$";string contains /c/

w db ,10,13,"/w/ ","$";string contains /w/

d db ,10,13,"/d/ ","$";string contains /d/

GoodBye db 10,13,"Good Bye! ","$";string contains Good Bye

KeyStrokeMsg db 10,13,"Press Any Key To Continue! ","$";string contains Press Any Key To Continue!

fileString db 255 dup (0);string that will contain the string inside the file

space db " ","$";string that makes space

CommandMsg db 10,13,"Enter your command:",10,13,"Command: ","$",10,13;string that contains: Enter your command: command:

filereaderline db "file's text:","$" ;string that contains: file's text. writes it for some procedures

WriteStr db 0,255 dup ("$") ; string that may contain 100 letters, used for writing in file

endchar db '$' ;stops WriteStr from writing more

CODESEG

proc Exitp ;says Good Bye, waits for KeyStroke and Exits Procedure

mov dx,offset GoodBye

mov ah,9h

**7**

int 21h

call KeyStroke

mov ax, 4c00h

int 21h

endp Exitp

proc Exitp1 ;says Good Bye, waits for KeyStroke and Exits Procedure

mov dx,offset GoodBye

mov ah,9h

int 21h

call KeyStroke1

mov ax, 4c00h

int 21h

endp Exitp1

proc WipeClean ;cleans fileString for future uses

mov [byte ptr fileString + bx], 0

inc bx

cmp bx, 255

jb WipeClean

ret

endp WipeClean

**8**

proc WipeCleanWrite ;cleans WriteStr for future uses

mov [byte ptr WriteStr + bx], 0

inc bx

cmp bx, 255

jb WipeClean

ret

endp WipeCleanWrite

proc OpenFile ;Open file

mov ah,3Dh

mov al,2

lea dx,[filenameStr+2]

int 21h

jc openerror

mov [filehandle],ax

ret

openerror:

mov dx,offset ErrorOpenMsg

mov ah,9h

int 21h

call Exitp1

ret

**9**

endp OpenFile

proc CreateFile ;create File

mov ah,3ch

mov cx,00000000b

lea dx,[filenameStr+2]

int 21h

jc CreateError

mov [filehandle],ax

ret

CreateError:

mov dx,offset ErrorOpenMsg

mov ah,9h

int 21h

ret

endp CreateFile

proc ReadFile ;read file

mov ah,3fh

mov bx,[filehandle]

mov cx,255

lea dx,[fileString]

int 21h

**10**

ret

endp ReadFile

proc DeleteFile ;delete file

mov ah,41h

lea dx,[filenameStr+]]

int 21h

ret

endp DeleteFile

proc DisplayFileString ;display the string (fileString)

mov dl, 10

mov ah, 2

int 21h

mov dl, 13

mov ah, 2

int 21h

mov ah,09h

lea dx,[fileStrin]]

int 21h

**11**

mov dl, 10

mov ah, 2

int 21h

mov dl, 13

mov ah, 2

int 21h

ret

endp DisplayFileString

proc DisplayWriteStr;display the string (WriteStr)

mov dl, 10

mov ah, 2

int 21h

mov dl, 13

mov ah, 2

int 21h

mov ah,09h

lea dx,[WriteStr+]]

int 21h

ret

**12**

endp DisplayWriteStr

proc DisplayFileName;display the string (filenameStr)

mov dl, 10

mov ah, 2

int 21h

mov dl, 13

mov ah, 2

int 21h

mov ah,09h

lea dx,[filenameStr]

int 21h

ret

endp DisplayFileName

proc KeyStroke1 ;wait for key press and restard program

mov dx,offset KeyStrokeMsg

mov ah,9h

int 21h

xor ax,ax

**13**

int 16h

jmp start

ret

endp KeyStroke1

proc KeyStroke ;wait for key press

mov dx,offset KeyStrokeMsg

mov ah,9h

int 21h

xor ax,ax

int 16h

ret

endp KeyStroke

proc WriteToFile;write to file

mov ah,40h

mov bx,[filehandl]]

mov cx,255

lea dx,[WriteStr+]]

int 21h

ret

endp WriteToFile

**14**

proc CloseFile ;close file

mov ah,3Eh

mov bx,[filehandl]]

int 21h

ret

endp CloseFile

start:

mov ax, @data

mov ds, ax

mov ah,0 ;cleans the screen

mov al,2

int 10h

mov dx,offset szMsg1 ;prints start message to screen

mov ah,9h

int 21h

jmp GetCommandLetter

PrintLine: ;prints Hello World! to screen

mov dx, offset sz HelloWorld

mov ah, 9h

**15**

int 21h

jmp GetCommandLetter

\_Error: ;prints Error message to screen

mov dx,offset ErrorMsg

mov ah,9h

int 21h

mov bl, 0

mov bh, 0

xor ax,ax

xor bx,bx

GetCommandLetter: ;get 2 letter commands and jumps to the right label for the command

mov dx,offset CommandMsg

mov ah,9h

int 21h

mov ah, 1h

**16**

int 21h

mov bl,al

mov ah, 1h

int 21h

mov bh,al

compare:

cmp bl,'/' ;checks if the first letter is /

jne \_Error;if not than jumps to \_Error label to print Error on screen

cmp bh,'h' ;if the second letter is h than jumps to \_help to print the help string on screen

je \_help

cmp bh,'H';if the second letter is h than jumps to \_help to print the help string on screen

je \_help

cmp bh,'1' ;if the second letter equals to 1 than prints Hello World!

je PrintLine

cmp bh,'e' ;if the second letter equals to e than jumps to exit procedure to exit the program

**17**

je \_Exitp

cmp bh,'E';if the second letter equals to e than jumps to exit procedure to exit the program

je \_Exitp

mov dx,offset space ;prints space to screen

mov ah,9h

int 21h

mov dx,offset FileNameLength ;prints Filename Length instructor message to screen

mov ah,9h

int 21h

cmp bh,'c' ;if the second letter equals to c than jumps to CreatingFile to create a file

je CreatingFile

cmp bh,'C';if the second letter equals to c than jumps to CreatingFile to create a file

je CreatingFile

**18**

cmp bh,'r';if the second letter equals to r than jumps to GetFileName to read a file

je GetFileName

cmp bh,'R';if the second letter equals to r than jumps to GetFileName to read a file

je GetFileName

cmp bh,'w';if the second letter equals to w than jumps to WritingToFile to write to file

je jmpToWritingFile

cmp bh,'W' ;if the second letter equals to w than jumps to WritingToFile to write to file

je jmpToWritingFile

cmp bh,'d' ;if the second letter equals to d than jumps to DeleteFileName to delete a file

je jmpToDeleteFileName

cmp bh,'D' ;if the second letter equals to d than jumps to DeleteFileName to delete a file

je jmpToDeleteFileName

jmp \_Error ;if not any of this commands than prints Error

**19**

\_Exitp: ;label that calls Exitp to exit the program

call Exitp

\_help: ;label that prints the help string and than goes to command label

mov dx,offset help

mov ah,9h

int 21h

jmp GetCommandLetter

jmpToWritingFile: ;jumps to WritingToFile label

jmp WritingToFile

jmpToDeleteFileName: ;jumps to DisplayFileName label

jmp DeleteFileName

GetFileName: ;reads file and prints what it contains to screen,than it jumps to the command label

mov dx,offset r

mov ah,9h

int 21h

mov dx,offset filenameStr

mov bx,dx

mov [byte ptr bx],13 ;8+1+3+1

**20**

mov ah,0Ah

int 21h

mov dx,offset filenameStr + 2

mov ah,9h

int 21h

mov [byte ptr filenameStr+2+8],0

call OpenFile

xor bx,bx

call WipeClean

call ReadFile

mov dx,offset filereaderline

mov ah,9h

int 21h

call DisplayFileString

call CloseFile

jmp GetCommandLetter

CreatingFile: ;creates file from user input,than jumps to command label

mov dx,offset c

mov ah,9h

int 21h

mov dx,offset filenameStr

**21**

mov bx,dx

mov [byte ptr bx],13 ;8+1+3+1

mov ah,0Ah

int 21h

mov dx,offset filenameStr + 2

mov ah,9h

int 21h

mov [byte ptr filenameStr+2+8],0

call CreateFile

;call DisplayFileName

xor bx,bx

call CloseFile

call WipeClean

jmp GetCommandLetter

WritingToFile: ;writes text to file from user input,than jumps to commamnd label

mov dx,offset w

mov ah,9h

int 21h

mov dx,offset filenameStr

mov bx,dx

mov [byte ptr bx],13 ;8+1+3+1

**22**

mov ah,0Ah

int 21h

mov dx,offset filenameStr + 2

mov ah,9h

int 21h

mov [byte ptr filenameStr+2+8],0

call OpenFile

xor bx,bx

call WipeClean

call WipeCleanWrite

mov dx,offset filereaderline

mov ah,9h

int 21h

mov dx,offset WriteStr

mov bx,dx

mov [byte ptr bx],100 ;8+1+3+1

mov ah,0Ah

int 21h

call WriteToFile

call CloseFile

call WipeClean

;call DisplayWriteStr

**23**

jmp GetCommandLetter

DeleteFileName: ;deletes file from user input

mov dx,offset d

mov ah,9h

int 21h

mov dx,offset filenameStr

mov bx,dx

mov [byte ptr bx],13 ;8+1+3+1

mov ah,0Ah

int 21h

mov dx,offset filenameStr + 2

mov ah,9h

int 21h

mov [byte ptr filenameStr+2+8],0

xor bx,bx

call WipeClean

call DeleteFile

jmp GetCommandLetter

**24**

exit:

mov ax, 4c00h

int 21h

END start

**25**

**ביבליוגרפיה**

* StackOverFlow-תיקון באגים לעבודה עם קבצים
* ספר גבהים

**26**