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| **BATCH:** | D2 |
| **SUBJECT** | Computer Architecture and Organization |
| **EXPERIMENT No.** | 2 |

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| **AIM:** | Simulate the operation of copy and paste in 8086 (MASM) |
| **Program 1** | |
| **PROBLEM STATEMENT:** | Write an assembly language program to copy 16-bit numbers form one location to another location.   1. By copy pasting in same segment. 2. By copy pasting in same segment using loop instruction. 3. By using string instructions. |
| **OBJECTIVES:** | * Mounting of drive on DOSBOX. * Copy of data from one segment and pasting it in same & different segment. * Understand the un assembly of data segment and code segment. * Learn the execution of code in DOSBOX. |
| **REQUIREMENTS:** | DOSBOX software, MASM. |
| **ALGORITHM:** | 1. Initialize the name of code and data segment 2. Move the Data in AX and then Data into DS segment. 3. Move the source address in SI register 4. Move the destination address in DI register. 5. Set counter CL for 05H. 6. Form loop in which data move form source to destination. 7. Increment both the SI & DI register. 8. Run the loop until CL encounters the zero 9. End the program. |
| **RESULT 1:**  **LST 1:**  **RESULT 2:**  **LST 2:**  **RESULT 3:**  **LST 3:** | **Copy pasting 16-bit numbers from one segment to another**  \_Microsoft (R) Macro Assembler Version 5.00 9/30/22 09:55:40  Page 1-1  ASSUME CS:CODE, DS:DATA  0000 DATA SEGMENT  0000 00 11 22 33 44 55 66 ARRAY1 db 00H,11H,22H,33H,44H,55H,66H,77H,88H,  99H,0AAH,0BBH,0CCH,0DDH,0EEH,0FFH  77 88 99 AA BB CC DD  EE FF  0010 ?? ARRAY2 db ?  0011 10 COUNT db 10H  0012 DATA ENDS    0000 CODE SEGMENT  0000 B8 ---- R START:MOV AX,DATA  0003 8E D8 MOV DS,AX  0005 8A 0E 0011 R MOV CL,COUNT  0009 8D 36 0000 R LEA SI,ARRAY1  000D 8D 3E 0010 R LEA DI,ARRAY2  0011 8A 04 COD:MOV AL,[SI]  0013 88 05 MOV [DI],AL  0015 46 INC SI  0016 47 INC DI  0017 FE C9 DEC CL  0019 75 F6 JNZ COD  001B CC INT 03H  001C CODE ENDS  END START  \_Microsoft (R) Macro Assembler Version 5.00 9/30/22 09:55:40  Symbols-1  Segments and Groups:  N a m e Length Align Combine Class  CODE . . . . . . . . . . . . . . 001C PARA NONE  DATA . . . . . . . . . . . . . . 0012 PARA NONE  Symbols:  N a m e Type Value Attr  ARRAY1 . . . . . . . . . . . . . L BYTE 0000 DATA  ARRAY2 . . . . . . . . . . . . . L BYTE 0010 DATA  COD . . . . . . . . . . . . . . L NEAR 0011 CODE  COUNT . . . . . . . . . . . . . L BYTE 0011 DATA  START . . . . . . . . . . . . . L NEAR 0000 CODE  @FILENAME . . . . . . . . . . . TEXT Bodhisatya\_exp2a  22 Source Lines  22 Total Lines  9 Symbols  51056 + 465488 Bytes symbol space free  0 Warning Errors  0 Severe Errors  **Copy pasting 16-bit numbers from one segment to another using loop instruction**    \_Microsoft (R) Macro Assembler Version 5.00 9/30/22 10:05:00  Page 1-1  ASSUME CS:CODE, DS:DATA  0000 DATA SEGMENT  0000 00 11 22 33 44 55 66 ARRAY1 db 00H,11H,22H,33H,44H,55H,66H,77H,88H,  99H,0AAH,0BBH,0CCH,0DDH,0EEH,0FFH  77 88 99 AA BB CC DD  EE FF  0010 ?? ARRAY2 db ?  0011 10 COUNT db 10H  0012 DATA ENDS    0000 CODE SEGMENT  0000 B8 ---- R START:MOV AX,DATA  0003 8E D8 MOV DS,AX  0005 8A 0E 0011 R MOV CL,COUNT  0009 8D 36 0000 R LEA SI,ARRAY1  000D 8D 3E 0010 R LEA DI,ARRAY2  0011 8A 04 COD:MOV AL,[SI]  0013 88 05 MOV [DI],AL  0015 46 INC SI  0016 47 INC DI  0017 E2 F8 LOOP COD  0019 CC INT 03H  001A CODE ENDS  END START  \_Microsoft (R) Macro Assembler Version 5.00 9/30/22 10:05:00  Symbols-1  Segments and Groups:  N a m e Length Align Combine Class  CODE . . . . . . . . . . . . . . 001A PARA NONE  DATA . . . . . . . . . . . . . . 0012 PARA NONE  Symbols:  N a m e Type Value Attr  ARRAY1 . . . . . . . . . . . . . L BYTE 0000 DATA  ARRAY2 . . . . . . . . . . . . . L BYTE 0010 DATA  COD . . . . . . . . . . . . . . L NEAR 0011 CODE  COUNT . . . . . . . . . . . . . L BYTE 0011 DATA  START . . . . . . . . . . . . . L NEAR 0000 CODE  @FILENAME . . . . . . . . . . . TEXT Bodhisatya\_exp2a  21 Source Lines  21 Total Lines  9 Symbols  51056 + 465488 Bytes symbol space free  0 Warning Errors  0 Severe Errors  **Copy pasting 16-bit numbers from one segment to another using string instruction**    \_Microsoft (R) Macro Assembler Version 5.00 9/30/22 10:36:13  Page 1-1  ASSUME CS:CODE, DS:DATA  0000 DATA SEGMENT  0000 00 11 22 33 44 55 66 ARRAY1 db 00H,11H,22H,33H,44H,55H,66H,77H,88H,  99H,0AAH,0BBH,0CCH,0DDH,0EEH,0FFH  77 88 99 AA BB CC DD  EE FF  0010 10 COUNT db 10H  0011 DATA ENDS  0000 EXTRA SEGMENT  0000 ?? ARRAY2 db ?  0001 EXTRA ENDS    0000 CODE SEGMENT  0000 B8 ---- R START:MOV AX,DATA  0003 8E D8 MOV DS,AX  0005 B8 ---- R MOV AX,EXTRA  0008 8E C0 MOV ES,AX  000A 8A 0E 0010 R MOV CL,COUNT  000E 8D 36 0000 R LEA SI,ARRAY1  0012 8D 3E 0000 R LEA DI,ARRAY2  0016 8A 0E 0010 R MOV CL,COUNT  001A FC CLD  001B F2/ A4 REPNZ MOVSB  001D CC INT 03H  001E CODE ENDS  END START  \_Microsoft (R) Macro Assembler Version 5.00 9/30/22 10:36:13  Symbols-1  Segments and Groups:  N a m e Length Align Combine Class  CODE . . . . . . . . . . . . . . 001E PARA NONE  DATA . . . . . . . . . . . . . . 0011 PARA NONE  EXTRA . . . . . . . . . . . . . 0001 PARA NONE  Symbols:  N a m e Type Value Attr  ARRAY1 . . . . . . . . . . . . . L BYTE 0000 DATA  ARRAY2 . . . . . . . . . . . . . L BYTE 0000 EXTRA  COUNT . . . . . . . . . . . . . L BYTE 0010 DATA  START . . . . . . . . . . . . . L NEAR 0000 CODE  @FILENAME . . . . . . . . . . . TEXT Bodhisatya\_exp2a  23 Source Lines  23 Total Lines  9 Symbols  51132 + 465412 Bytes symbol space free  0 Warning Errors  0 Severe Errors |
| **CONCLUSION:** | Copy pasted 16-bit numbers from one segment to another using loop and string instrucstions segment. |