UNIVERSITY OF KARACHI

ASSEMBLY LANGUAGE PROGRAMMING

BSCS-403

Name of Student: MUHAMMAD AMAS

Seat No: B20102077

Class Roll No: 34

Section: A

Semester No: 3rd

Submitted to: MS FARHEEN FAISAL SIDDIQUI

DEPARTMENT OF COMPUTER SCIENCE

UNIVERSITY OF KARACHI

1.   USING LOOP: PROGRAM TO PRINT 0 TO 9

```
 File   Edit   Search   View   Options   Help
                         C:\W61.ASM
DOSSEG                                                              ↑
 .MODEL SMALL   ;MODEL DIRECTIVE
 .STACK 100H    ;STACK SEGMENT DIRECTIVE
 .DATA          ;VARIABLE DECLERATION
 .CODE          ;CODE SPACE
MAIN PROC

MOV CX,10       ;COUNTER FOR 10 TIMES
MOV DX,48
L1:
MOV AH,2
INT 21H
ADD DX,1        ;INCREMENT +1
LOOP L1


MOV AH,4CH      ;TO EXIT THE REGISTER
INT 21H

MAIN ENDP
END MAIN
                                                                   ↓
 F1=Help                                    Line:1     Col:1
```

```
C:\>MASM W61.ASM;
Microsoft (R) Macro Assembler Version 5.00
Copyright (C) Microsoft Corp 1981-1985, 1987.  All rights reserved.


  51720 + 464824 Bytes symbol space free


      0 Warning Errors
      0 Severe  Errors

C:\>LINK W61.OBJ;

Microsoft (R) Overlay Linker  Version 3.60
Copyright (C) Microsoft Corp 1983-1987.  All rights reserved.


C:\>W61.EXE
0123456789
C:\>_
```

2. Using LOOP: Program to print A to Z

```
   File  Edit  Search  View  Options  Help
                      C:\W62.ASM
 DOSSEG
 .MODEL SMALL   ;MODEL DIRECTIVE
 .STACK 100H    ;STACK DIRECTIVE
 .DATA          ;VARIABLE DECLERATION
 .CODE          ;CODE SPACE
 MAIN PROC

 MOV CX,26      ;LOOP RUN 26 TIMES
 MOV DX,65      ;ASCII CODE OF A
 L1:
 MOV AH,2
 INT 21H
 ADD DX,1       ;INCREMENT +1
 LOOP L1

 MOV AH,4CH     ;TO EXIT THE REGISTER
 INT 21H


 MAIN ENDP
 END MAIN



 F1=Help                                Line:13      Col:28
```

```
C:\>W61.EXE
0123456789
C:\>EDIT W61.ASM

C:\>EDIT W62.ASM

C:\>MASM W62.ASM;
Microsoft (R) Macro Assembler Version 5.00
Copyright (C) Microsoft Corp 1981-1985, 1987.  All rights reserved.


  51720 + 464824 Bytes symbol space free


      0 Warning Errors
      0 Severe  Errors

C:\>LINK W62.OBJ;

Microsoft (R) Overlay Linker  Version 3.60
Copyright (C) Microsoft Corp 1983-1987.  All rights reserved.


C:\>W62.EXE
ABCDEFGHIJKLMNOPQRSTUVWXYZ
C:\>_
```

3. Using LOOP: Program to print a to z.

```
 File   Edit   Search   View   Options   Help
                        C:\W63.ASM
DOSSEG
.MODEL SMALL    ;MODEL DIRECTIVE
.STACK 100H     ;STACK DIRECTIVE
.DATA           ;VARIABLE DECLERATION
.CODE           ;CODE SPACE
MAIN PROC

MOV CX,26       ;LOOP RUN 26 TIMES
MOV DX,97       ;ASCII CODE OF a
L1:
MOV AH,2
INT 21H
ADD DX,1        ;INCREMENT +1
LOOP L1

MOV AH,4CH      ;TO EXIT THE REGISTER
INT 21H

MAIN ENDP
END MAIN
```

```
 F1=Help                                    Line:1     Col:1
```

```
C:\>EDIT W63.ASM

C:\>MASM W63.ASM;
Microsoft (R) Macro Assembler Version 5.00
Copyright (C) Microsoft Corp 1981-1985, 1987.  All rights reserved.


  51720 + 464824 Bytes symbol space free


     0 Warning Errors
     0 Severe  Errors

C:\>LINK W63.OBJ;

Microsoft (R) Overlay Linker  Version 3.60
Copyright (C) Microsoft Corp 1983-1987.  All rights reserved.


C:\>W63.EXE
abcdefghijklmnopqrstuvwxyz
C:\>_
```

4. Practice of AND

```
   File   Edit   Search   View   Options   Help
                        C:\W64.ASM
 DOSSEG
 .MODEL SMALL    ;MODEL DIRECTIVE
 .STACK 100H     ;STACK DIRECTIVE
 .DATA           ;VARIABLE DECLERATION
 .CODE           ;CODE SPACE
 MAIN PROC

 MOV BL,101B
 AND BL,110B
 ADD BL,48
 MOV DL,BL
 MOV AH,2
 INT 21H

 MOV AH,4CH      ;TO EXIT THE REGISTER
 INT 21H

 MAIN ENDP
 END MAIN



 F1=Help                                    Line:1    Col:1
```

```
C:\>EDIT W64.ASM

C:\>MASM W64.ASM;
Microsoft (R) Macro Assembler Version 5.00
Copyright (C) Microsoft Corp 1981-1985, 1987.  All rights reserved.


  51720 + 464824 Bytes symbol space free


     0 Warning Errors
     0 Severe  Errors

C:\>LINK W64.OBJ;

Microsoft (R) Overlay Linker  Version 3.60
Copyright (C) Microsoft Corp 1983-1987.  All rights reserved.


C:\>W64.EXE
4
C:\>
```

Practice of OR

```
 File   Edit   Search   View   Options   Help
                    C:\W65.ASM
DOSSEG
.MODEL SMALL    ;MODEL DIRECTIVE
.STACK 100H     ;STACK DIRECTIVE
.DATA           ;VARIABLE DECLERATION
.CODE           ;CODE SPACE
MAIN PROC

MOV BL,101B
OR BL,110B
ADD BL,48
MOV DL,BL
MOV AH,2
INT 21H

MOV AH,4CH      ;TO EXIT THE REGISTER
INT 21H

MAIN ENDP
END MAIN




F1=Help                                  Line:1      Col:1
```

```
C:\>EDIT W65.ASM

C:\>MASM W65.ASM;
Microsoft (R) Macro Assembler Version 5.00
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  51720 + 464824 Bytes symbol space free


      0 Warning Errors
      0 Severe  Errors

C:\>LINK W65.OBJ;

Microsoft (R) Overlay Linker  Version 3.60
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C:\>W65.EXE
7
C:\>
```

Practice of XOR

```
 File  Edit  Search  View  Options  Help
                        C:\W66.ASM
DOSSEG
.MODEL SMALL    ;MODEL DIRECTIVE
.STACK 100H     ;STACK DIRECTIVE
.DATA           ;VARIABLE DECLERATION
.CODE           ;CODE SPACE
MAIN PROC

MOV BL,101B
XOR BL,110B
ADD BL,48
MOV DL,BL
MOV AH,2
INT 21H

MOV AH,4CH      ;TO EXIT THE REGISTER
INT 21H

MAIN ENDP
END MAIN




 Commands for manipulating files
```

```
C:\>EDIT W66.ASM

C:\>MASM W66.ASM;
Microsoft (R) Macro Assembler Version 5.00
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  51720 + 464824 Bytes symbol space free


     0 Warning Errors
     0 Severe  Errors

C:\>LINK W66.OBJ;

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C:\>W66.EXE
3
C:\>
```

5. Your code as discussed in today class

```
 File  Edit  Search  View  Options  Help
                    C:\W67.ASM
DOSSEG
.MODEL SMALL   ;MODEL DIRECTIVE
.STACK 100H    ;STACK DIRECTIVE
.DATA          ;VARIABLE DECLERATION
.CODE          ;CODE SPACE
MAIN PROC

MOV BL,101B
MOV CX,6
L1:
AND BL,110B
MOV DL,BL
ADD DX,1
ADD DX,48
MOV AH,2
INT 21H
LOOP L1

MOV AH,4CH     ;TO EXIT THE REGISTER
INT 21H

MAIN ENDP
Commands for manipulating files
```

```
C:\>EDIT W67.ASM

C:\>MASM W67.ASM;
Microsoft (R) Macro Assembler Version 5.00
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  51720 + 464824 Bytes symbol space free

      0 Warning Errors
      0 Severe  Errors

C:\>LINK W67.OBJ;

Microsoft (R) Overlay Linker  Version 3.60
Copyright (C) Microsoft Corp 1983-1987.  All rights reserved.


C:\>W67.EXE
555555
C:\>_
```