Q1. BOOLEAN CALCULATOR

```
SECTION         .bss
        choice: bw
        op1:    dw
        op2:    dw
        rslt:   dw

SECTION         .data
                reqInput:  db   "Please, enter options for the ", 0dh, 0ah,
                                "user to choose: ", 0dh, oah,
                                "1. AND operator ", 0dh, 0ah,
                                "2. OR operator ", 0dh, 0ah,
                                "3. XOR operator ", 0dh, 0ah,
                                "4. NOT operator ", 0
                select1: dw     1
                select2: dw     2
                select3: dw     3
                select4: dw     4
                select5: dw     5
                reqTerm1: db "Please, enter the 1st operand", 0
                reqTerm2: db "Please, enter the 2nd operand", 0
                reqSingleOp: db "Please, enter the single operand", 0

SECTION         .text
                main:

                START:
                        call userPrompt
                        pop choice
                        cmp choice, select1
                        je ANDGATE
                        cmp choice, select2
                        je ORGATE
                        cmp choice, select3
                        je XORGATE
                        cmp choice, select4
                        je NOTGATE
                        cmp choice, select5
                        je FINISH

                ANDGATE:
                        call andProc
                        jmp START
                ORGATE:
                        call orProc
                        jmp START
                XORGATE:
                        call xorProc
                        jmp START
                NOTGATE:
                        call notProc
```

```
            jmp START
        FINISH:
            ret


    andProc:
        call readOperands
        mov ax, op1
        and ax, op2
        call saveResult
        displayResult
        ret


    orProc:
        call readOperands
        mov ax, op1
        or ax, op2
        call saveResult
        displayResult
        ret


    xorProc:
        call readOperands
        mov ax, op1
        xor ax, op2
        call saveResult
        displayResult
        ret

    andProc:
        call readSingleOp
        mov ax, op1
        not ax
        call saveResult
        displayResult
        ret

userPrompt:
        mov dx, [reqInput]
        mov ax, 09h
        int 21h
        call readSelectOp
        ret

readSelectedOp:
        mov ah 01h
        int 21h
        mov choice, ax
        push choice
        ret
```

```
readOperands:
        mov dx, [reqTerm1]
        mov ax, 09h
        int 21h                         ;call kernel for stdout
        mov ah, 01h
        int 21h                         ;call kernel for stdin
        mov op1, ax                     ;save user input as 1st operand
        mov dx, [reqTerm2]
        mov ax, 09h
        int 21h
        mov ah, 01h
        int 21h
        mov op2, ax                     ;save user input as 2nd operand
        ret


readSingleOp:
        mov dx, [reqSingleOp]
        mov ax, 09h
        int 21h
        mov ah, 01h
        int 21h
        mov op1, ax
        ret


saveResult:
        mov rslt, ax
        push rslt
        ret

displayResult:
        pop rslt
        mov dx, rslt
        mov ax, 09h
        int 21h
        ret
```