## TEST

```
data SEGMENT
Val1 db 11110000b
Val2 db 50
String db 'new'
Val3 dw 4567d
Val4 dw 0EFh
Val5 dd 67ff89h
Val6 dd 150
Avall dw 150
Aval2 db 11000000b
Tval = 45
data ENDS
code SEGMENT
begin:
mov esi, OFFFFh
mov edi, OFFh
cmpsb
Point:
mov bh, 11110000b
mov bl, 11110000b
inc bl
jbe Point
dec ds: dword ptr [ebp + ecx + 6]
bsr ebx, [ebp + ecx + 6]
mov edx, OEFh
and [edx + esi + 10], edx
mov edx, OFFFFFFFh
or dword ptr es: [edx + esi + 10], 0101b
jmp short Label1
Label2:
mov dl, 'a'
Label1:
mov ebx, 506
mov bl, 50
idiv bl
mov ecx, Tval
Tval = 67
mov ecx, Tval
jbe Point1
mov bh, 'c'
Point1:
jmp short Label2
code ENDS
end begin
```

	ata SE							
ı	No	Token	1 1	ength.	1		Туре	ı
		da			4		identi	
Ī	2	segme	nt		7		direct	tive
1							Operand2	
							0	
Vá	al1 db	111100	00b					
							Туре	l
ī	1	Va	l1		4	ι	user identi	fier
Ī	2		db		2		+	typel
Ī	3  :	1111000	0b		9		bi	nary
 	Label						Operand2	1
1		1  2					0	0

Val	Val2 db 50										
N		Token	Len	gth			I				
1	1	Val2				user identif					
1	2	db		2		t	ype				
1	3	50		2		deci	mal				
ΙL	.abel	Mnemoco	de	0peran	d1	Operand2	- 1				
1		1  2	1	3	1	0	0				
Str	ing	db 'new'									
N	lo	Token	Len	gth		Туре	I				
ı	1	String		6		user identif	ier				
Ι	2	db		2		t	ype				
Т	3			1		one c	har				
Т	4	new		3		symb	ols				
Т	5	'1		1		one c	har				
ΙL	.abel	Mnemoco	de	0peran	d1	Operand2	I				

   								0	
۷a	al3 dw	456	57d						
I 	No	Tol	ken	ı	Leng	th		Туре	- 1
ı	1		Val	3		4		user identif	ier
Ī	2		dv	v		2		t	ypel
Ī	3		45670	1		5		deci	.mal
I	Label	.   1	Inemod	code	e   (	Operand	1	Operand2	- 1
I		1	2		1	3	1	0	0
۷a	:14 dw	ı OEF	 Fh						
 	No	Tol	ken	l		th		Туре	1
I	1		Val	4		4		user identif	ier
I	2		dv	v		2		t	ypel
I	3		0eft	1		4		hexadeci	.mal

Label		le   Opei		 0perand2	1
I				0	0
Val5 dd	67ff89h				
No	Token	Length	ı	Туре	1
1	Val5	4	4	user identif	ier
2	dd	2	2	t	ypel
3	67ff89h	7	7	hexadeci	.mal
	Mnemococ	le   Opei	 rand1	0perand2	I
1	1  2	1  3	1	0	0
 Val6 dd	150				
No	Token	Length	1	Туре	1
1	Val6		4	user identif	ier
2	dd	2	2	t	ypel
3	150	;	3	deci	.mal

Lab						Operand2	
						0	
Aval1	dw 1	L <b>5</b> 0					
						Туре	
1	ı	Aval1		5		user ident	ifier
2	I	dw		2			typel
3	I	150		3		ded	cimal
						Operand2	
						۰	
	Τ1	2		ە 	±1	0	0
Aval2	db 1	.1000000b					
No	To	ken	Len	gth		Туре	l
1	 	Aval2		5		user identi	ifier
2	I	db		2			type
3	110	00000b		9		b	inary

Label	Mnemocod	e l	0peran	d1	0perand2	!
1	2	1	3	1	0	0
Tval = 45						
	oken				Туре	'
	Tval		4		user identi	
	=		1	_	const assign	
			2		dec	
1 31					uec	
					Operand2	
Labet					opei anuz 	
1	2	11	3	11	0	01
data ENDS						
l No l To	oken	Len	ath I		Туре	1
1	data		4		identi	fier
2	ends		4		direc	tive

 	Label		Mnemoco						
I			1						0
c	ode SE	GME	NT						
1	No	То	ken	Len	gth		Туре	;	l
ī	1		code		4		j	identi	fier
ī	2	s	egment		7			direc	tive
		. 1	Mnemoco	de	0perar	nd1	0pe	erand2	1
Ī		0	1	1	2	1		0	0
ье 	 egin:								
ī	No	To	ken	Len	gth		Туре	;	- 1
 	1		begin		5		user i	identi	fier
I	2		:1		1				char

L						Operand:	
ı						0	
mo	v esi	, OFFFFh					
1		Token				Туре	1
ī	1	mov		3		instru	ction
Τ	2	esi		3		32-bit reg	ister
T	3	,1		1		one	char
		0ffffh		6		hexade	
I	Label	Mnemoco	de	Operan	d1	Operand:	2
I						4	
mo	v edi	, 0FFh					
						Туре	
1	1	mov		3		instru	ction
						32-bit reg	ister
I	3	,		1		one	charl

							hexadeci 	
I 							0perand2	
					2		4	
CII	npsb							
				_			Туре	ı
	1						instruct	
							0	
 	Label	Mn€ 	emocoa				0perand2 	
1		0  	1	1	0	0	0	0
Po	oint:							
1	No	Toker		Lengt	:h		Туре	I
I	1	Po	oint		5		user identif	ier
١	2		:1		1		one c	har

```
| Label | Mnemocode | Operand1 | Operand2 |
| 1| 0| 0| 0| 0| 0|
mov bh, 11110000b
| No | Token | Length | Type
| 1| mov| 3| instruction|
| 2| bh| 2| 8-bit register|
3 , 1
                    one char
| 4| 11110000b| 9|
                     binary
| Label | Mnemocode | Operand1 | Operand2 |
| 0| 1| 1| 2| 1| 4| 1|
mov bl, 11110000b
| No | Token | Length | Type |
| 1| mov| 3| instruction|
  2| bl| 2| 8-bit register|
    ,| 1|
                    one char
  3 l
```

 			.10000b		9		bina	
I	Labe	ιl	Mnemocod	le	Operan	d1	Operand2	1
ī		0	1	1	2	1		1
	c bl							
							Туре	I
ī	1		inc		3		instructi	ion
Ī	2		bl		2		8-bit regist	er
	Labe	ιl	Mnemocod	le	0peran	d1	Operand2	- 1
 							0	0
jb	e Po							
	No		ken					
I	1		jbe		3		instructi	ion
Ī	2		point		5		user identifi	ier

1							0per		
1	(	9	1	1	2	1		9	0
de					+ ecx				
1					_		Туре		l
ī	1						ins		
ī	2		ds		2	9	segment	regi	.ster
ī	3		:1		1			one	char
ī	4	dw	ord		5			32-	bits
Ī	5		ptr		3			poi	.nter
Ī	6		[]		1			one	char
Ī	7		ebp		3		32-bit	regi	.ster
Ī	8		+1		1			one	char
Ī	9		ecx		3		32-bit	regi	ster
1	10		+		1			one	char
1	11		6		1			dec	imal
1	12		11		1			one	char
1	Label	Mne	mocod	e	Operar	nd1	0per	and2	!   
I		9	1	1	2	8	6	9	0

bs	bsr ebx, [ebp + ecx + 6]										
 	No		 Length	 Туре	l						
ı	1	bsr	3		struction						
1	2	ebx	3	32-bit	register						
1	3	,1	1		one char						
1	4	[]	1		one char						
1	5	ebp	3	32-bit	register						
1	6	+1	1		one char						
1	7	ecx	3	32-bit	register						
1	8	+1	1		one char						
1	9	6	1		decimal						
1	10	11	1		one char						
1				nd1   Oper							
1	(	9  1	1  2	1  4	5						
mo	v edx	, 0EFh									
 	No	Token	Length	Туре							
I	1	mov	3	ins	struction						

I	2	edx	3	32-bit r	egister
1	3	,1	1	0	ne char
I	4	0efh	4	hexa	decimal
 				nd1   Opera	
I				1  4	
ar	nd [ed	x + esi + 1	0], edx		
1		Token		Type	ı
1			3		ruction
I	2	[]	1	o	ne char
1	3	edx	3	32-bit r	egister
1	4	+	1	o	ne char
1	5	esi	3	32-bit r	egister
1	6	+	1	o	ne char
1	7	10	2		decimal
1	8	11	1	0	ne char
1	9	,1	1	0	ne char
1	10	edx	3	32-bit r	egister

L	_abel 	Mnemocod	le	Operan	d1   	0perand2 	!
ı	6	)  1	1	2	5	10	1
mov		0FFFFFFF					
		Token					
ı	1	mov		3		instruc	tion
Τ	2	edx		3		32-bit regi	.ster
Ι	3	,1		1		one	char
Ι	4   01	fffffffh		10		hexaded	imal
	_abel	Mnemocod	le	0peran	d1	Operand2	!
1		)  1				4	1
or	dword	l ptr es: [		+ esi +		, 0101b	
N	No	Token	Len	gth		Type	1
ī	1	or		2		instruc	tion
Τ	2	dword		5		32-	bits
I	3	ptr		3		poi	.nter

5	I	4	es	2	segment registe	rl
7  edx  3  32-bit register    8  +  1  one char    9  esi  3  32-bit register    10  +  1  one char    11  10  2  decimal    12  ]  1  one char    13  ,  1  one char    14  0101b  5  binary	1	5	:1	1	one cha	rl
8	1	6	[]	1	one cha	rl
9  esi  3  32-bit register    10  +  1  one char    11  10  2  decimal    12  ]  1  one char    13  ,  1  one char    14  0101b  5  binary	1	7	edx	3	32-bit registe	rl
10  +  1  one char    11  10  2  decimal    12  ]  1  one char    13  ,  1  one char    14  0101b  5  binary	1	8	+	1	one cha	rl
11  10  2  decimal    12  ]  1  one char    13  ,  1  one char    14  0101b  5  binary	1	9	esi	3	32-bit registe	rl
12	1	10	+	1	one cha	rl
13	1	11	10	2	decima	ιI
14  0101b  5  binary	1	12	11	1	one cha	rl
Label   Mnemocode   Operand1   Operand2     0	1	13	, [	1	one cha	rl
Label   Mnemocode   Operand1   Operand2     0	1	14	0101b	5	binar	yl
Label   Mnemocode   Operand1   Operand2     0						
0						
jmp short Label1	1	Label	Mnemocode	Operand1	Operand2	1
jmp short Label1						
No   Token   Length   Type	1		0  1	1 2	8  14  :	1
No   Token   Length   Type						
1  jmp  3  instruction    2  short  5 jump within [-128;127] bites	jm	p sho	rt Label1			
1  jmp  3  instruction    2  short  5 jump within [-128;127] bites						
2  short  5 jump within [-128;127] bites	1	No	Token	Length	Type	1
2  short  5 jump within [-128;127] bites						
		1	jmp	3	instruction	n
3  label1  6  user identifier		2	short	5 jum	p within [-128;12	7] bites
		3	label1	6	user identifie	rl

					0perand2	
I	0  1	1	2	2	0	0
Label2						
	Token	Ler	ngth			- 1
1	Label2				user identi	
2	۱: 		1		one	
					Operand2	
 I	1  0				0	
mov dl						
	Token	Ler	 ngth		Type	 I
1	mov		3		instruc	
2	dl		2		8-bit regi	
3	۱,		1			char
4	'		1			char
5	a		1		Sym	bols

 	61	'I	1		one o	
	Label	Mnemocod	e   Opera	nd1	 Operand2	- 1
		0  1	1  2	1	4	1
La	bel1:					
 					Туре	
ī					user identif	
		:1	1		one o	
 	Label	Mnemocod	 le   Opera	 nd1   	Operand2	l
 		1  0  	0  0	0  	0	0
mo	v ebx	, 506 				
I 	No	Token	Length	<u>-</u>	Туре	١
I	1	mov	3		instruct	tion
I	2	ebx	3		32-bit regis	ster
1	3 l	.1	11		one o	charl

 	4	50 <i>6</i>		3		deci	
 	Label	Mnemod	ode	Operan	d1	Operand2	1
ı		9  1	1	2	1	4	1
	ov bl,	50					
	No	Token	Len	gth			1
ī	1	mov		3		instruct	
ī	2	ь٦	.1	2		8-bit regis	ter
1	3	,	1	1		one c	har
 	4	56 		2		deci	
						0perand2	
1						4	1
io	div bl						
1	No	Token	Len	gth		Туре	l
ī	1	idiv	<b>/</b>	4		instruct	ion

						8-bit regi	
	Label	Mnemocod	e	Operand	11	Operand2	1
   	(	9  1	1	2	1	0	0
mo	v ecx	, Tval					
I 						Туре	
ī	1	mov		3		instruc	tion
Τ	2	ecx		3		32-bit regi	ster
Τ	3	,1		1		one	char
 	4	tval		4		user identi	
 	Label	Mnemocod	e   	Operano	11	Operand2	
I	(	9  1	1	2	1	4	1
Tv	al = 0	67					
	No	Token	Len	gth		Туре	1
ī	1	Tval		4		user identi	fier

2	=	1	const as	signment
3	67	2		decimal
			nd1   Oper	
1	2	1  3	1  0	0
mov ecx, T				
No   To	ken	Length	Туре	ı
1	mov	3	ins	truction
2	ecx	3	32-bit	register
3	,1	1		one char
4	tval	4	user id	entifier
Label	Mnemocode	e   Opera	nd1   Oper	and2
I 0I	1	1  2	1  4	1
jbe Point1				
No   To	ken	Length	Туре	1

 		poi	nt1		6		instrud User ident:	ifier
 1	 Label						Operand2	2
 1							0	
mo	 v bh,	'c'						
1	 No	Token		_ength	1		_	l
ī	1	г	mov		3		instru	ction
Τ	2		bh		2		8-bit reg	ister
1	3		,		1		one	char
Τ	4		91		1		one	char
1	5		cl		1		syr	nbols
1	6		21		1		one	char
Ι	Label	Mner	nocode	Op	erand:	1	Operand?	2
								1
Do.	in+1.							
P0.	int1:							

	Γoken						
	Point1						
	:1						
	Mnemocode						
1	0	0	0   0	1	0	0	
jmp short	t Label2						
	Γoken					- 1	
				i			
2	short		5 jump	within	[-128;	127]	bites
	label2			user			
Label	Mnemocode	e   Op	erand1	Op	erand2	- 1	
0	1	1	2   2	:1	0	0	
code ENDS	S						

_	<u>_</u> _	<u></u>	<u>_</u>				
I	No	Token	Len	igth		Туре	l
Ī	1	code		4		identif	
		ends		4		direct	
I						Operand2	
- 						0	
	No	 Token	Len	igth		Туре	ı
- 		end		3		direct	
I	2	begin		5		user identif	ier
- -							
١	Label	Mnemocod	le	0peran	d1	Operand2	١
- 	0	1	1	2	1	0	  0
-							