



JAVERITOS INC  
MAKE ENGINEERING

XENON COMPILER  
MEXICO CITY

# PRESENTATION 2



X e n o n

# SWITCHES

```
-t [filename.c] Show token list.  
-a [filename.c] Show AST.  
-s [filename.c] Show assembly.  
-c [filename.c] Compile program (check the same folder for [filename].exe).  
-o [filename.c] [[newFilename].exe] Compile the program with a new name.")
```

# NEW TOKENS

```
tokens = [  
    {:type, :intKeyWord},  
    {:ident, :returnKeyWord},  
    {:ident, :mainKeyWord},  
    {:lBrace},  
    {:rBrace},  
    {:lParen},  
    {:rParen},  
    {:semicolon},  
    {:operator, :negation},  
    {:operator, :logicalNeg},  
    {:operator, :bitWise}  
]
```

# TREE EXAMPLE

## Bitwise

```
%AST{
  left_node: %AST{
    left_node: %AST{
      left_node: %AST{
        left_node: %AST{
          left_node: nil,
          node_name: :constant,
          right_node: nil,
          value: 7
        },
        node_name: :unary,
        right_node: nil,
        value: :bitwise
      },
      node_name: :return,
      right_node: nil,
      value: :return
    },
    node_name: :function,
    right_node: nil,
    value: :main
  },
  node_name: :program,
  right_node: nil,
  value: nil
}
```

## Negation

```
%AST{
  left_node: %AST{
    left_node: %AST{
      left_node: %AST{
        left_node: %AST{
          left_node: nil,
          node_name: :constant,
          right_node: nil,
          value: 5
        },
        node_name: :unary,
        right_node: nil,
        value: :negation
      },
      node_name: :return,
      right_node: nil,
      value: :return
    },
    node_name: :function,
    right_node: nil,
    value: :main
  },
  node_name: :program,
  right_node: nil,
  value: nil
}
```

## Logical Negation

```
%AST{
  left_node: %AST{
    left_node: %AST{
      left_node: %AST{
        left_node: %AST{
          left_node: nil,
          node_name: :constant,
          right_node: nil,
          value: 5
        },
        node_name: :unary,
        right_node: nil,
        value: :logicalNeg
      },
      node_name: :return,
      right_node: nil,
      value: :return
    },
    node_name: :function,
    right_node: nil,
    value: :main
  },
  node_name: :program,
  right_node: nil,
  value: nil
}
```

# ASSEMBLY CODE

## BITWISE

```
    .section      __TEXT,__text,regular,pure_instructions
    .p2align      4, 0x90
    .globl  _main      ## -- Begin function main
_main:              ## @main
    movl    5, %eax
    not     %rax
    ret
```

# ASSEMBLY CODE

## Negation

```
        .section      __TEXT,__text,regular,pure_instructions
        .p2align      4, 0x90
        .globl  _main          ## -- Begin function main
_main:                                     ## @main
movl     5, %eax
neg      %eax
        ret
```

# ASSEMBLY CODE

## Logical Negation

```
        .section      __TEXT,__text,regular,pure_instructions
        .p2align      4, 0x90
        .globl  _main          ## -- Begin function main
_main:                                     ## @main
movl     5, %eax
cmpl     $0, %eax
movl     $0, %eax
sete     %al
        ret
```



# COMPILATION

```
int main() {  
  
    return -46;  
}
```

```
int main() {  
  
    return ~53;  
}
```

```
int main() {  
  
    return !5;  
}
```

```
C:\Users\andre\Downloads\c202-javeritos-master\c202-javeritos-master\CompiladorXenón>escript xenon -c "main.c"  
Compiling the file: main.c  
Assembly code Generated : ./main.s  
Exectutable generated: ./main
```

```
C:\Users\andre\Downloads\c202-javeritos-master\c202-javeritos-master\CompiladorXenón>main.exe
```

```
C:\Users\andre\Downloads\c202-javeritos-master\c202-javeritos-master\CompiladorXenón>echo %errorlevel%  
-46
```

```
C:\Users\andre\Downloads\c202-javeritos-master\c202-javeritos-master\CompiladorXenón>
```

# TEST

```
int main() {  
    return !0;  
}
```

```
int main() {  
    return !-3;  
}
```

```
int main() {  
    return -5;  
}
```

```
int main() {  
    return !5;  
}
```

```
int main() {  
    return -~0;  
}
```

```
int main() {  
    return ~0;  
}
```

```
C:\Users\andre\Downloads\c202-javeritos-master\c202-javeritos-master\CompiladorXenón>mix test  
.....
```

```
Finished in 0.1 seconds  
18 tests, 0 failures
```

```
Randomized with seed 942000
```



# THANKS



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