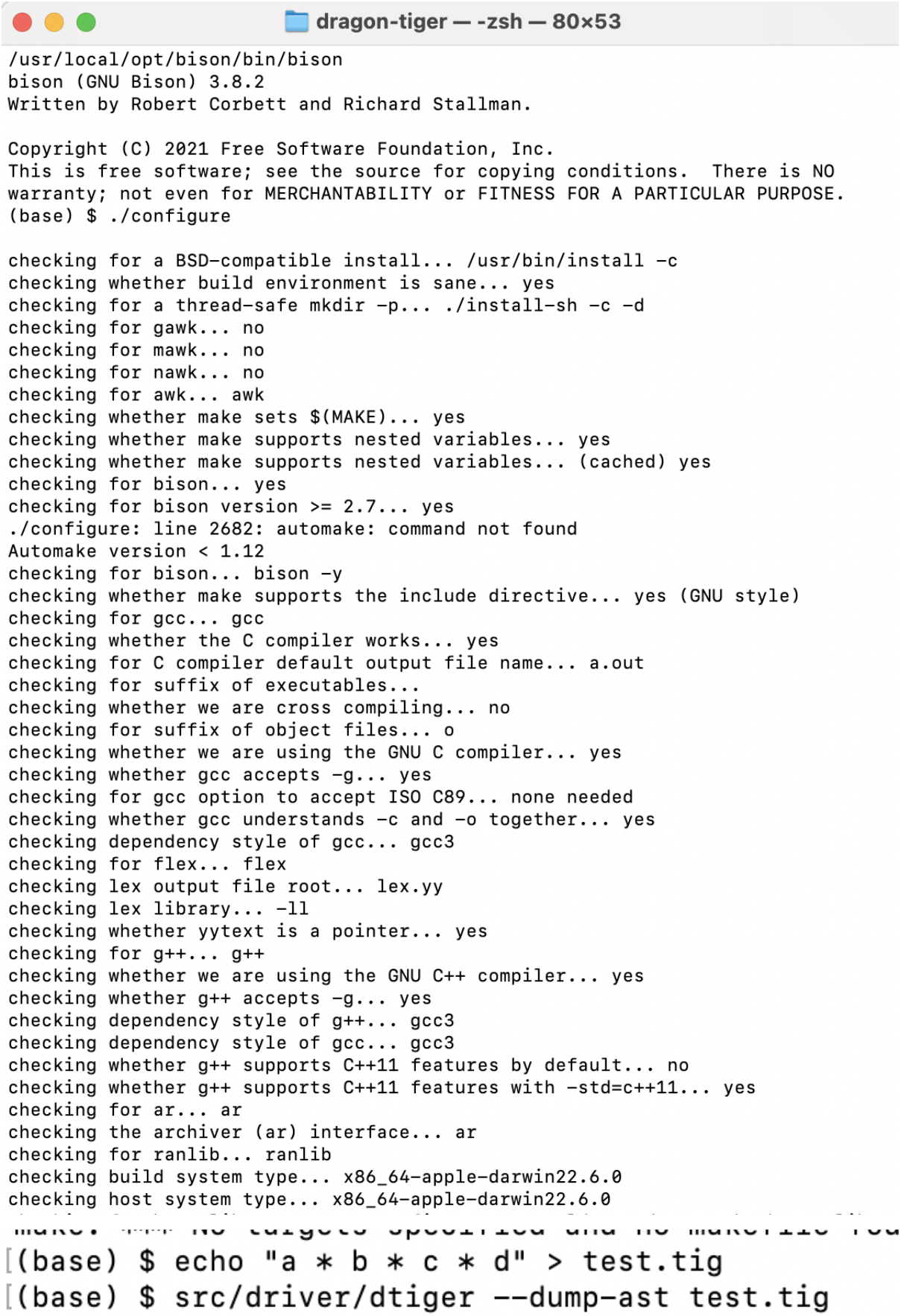
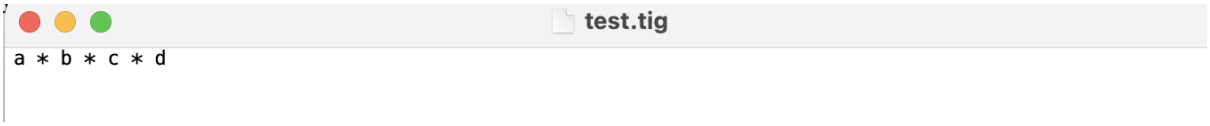
Lab 2 - Tiger Calculator

Import the example code

```
$ mkdir Labs2
$ cd Labs2
$ wget -qO- www.sifflez.org/lectures/compil/lab2/dragon-tiger.tar.gz | tar zxv
 x dragon-tiger/depcomp
 x dragon-tiger/autogen.sh
 x dragon-tiger/aclocal.m4
 x dragon-tiger/ar-lib
 x dragon-tiger/tap-driver.sh
 x dragon-tiger/src/utils/errors.hh
 x dragon-tiger/src/utils/errors.cc
 x dragon-tiger/src/utils/symbols.cc
 x dragon-tiger/src/utils/nolocation.hh
 x dragon-tiger/src/utils/symbols.hh
 x dragon-tiger/src/utils/nolocation.cc
 x dragon-tiger/src/utils/Makefile.am
 x dragon-tiger/src/utils/Makefile.in
 x dragon-tiger/src/parser/tiger_parser.yy
 x dragon-tiger/src/parser/tiger_lexer.ll
 x dragon-tiger/src/parser/parser_driver.cc
 x dragon-tiger/src/parser/Makefile.am
 x dragon-tiger/src/parser/Makefile.in
 x dragon-tiger/src/parser/parser_driver.hh
 x dragon-tiger/src/driver/driver.cc
 x dragon-tiger/src/driver/Makefile.am
 x dragon-tiger/src/driver/Makefile.in
 x dragon-tiger/src/ast/ast_dumper.hh
 x dragon-tiger/src/ast/ast_dumper.cc
 x dragon-tiger/src/ast/Makefile.am
 x dragon-tiger/src/ast/Makefile.in
 x dragon-tiger/src/ast/nodes.hh
 x dragon-tiger/src/Makefile.am
 x dragon-tiger/src/Makefile.in
 x dragon-tiger/.gitignore
 x dragon-tiger/m4/ax_python_module.m4
 x dragon-tiger/m4/ax_boost_program_options.m4
 x dragon-tiger/m4/ac_prog_bison.m4
 x dragon-tiger/m4/ax_boost_base.m4
 x dragon-tiger/m4/ax_compare_version.m4
 x dragon-tiger/m4/ax_cxx_compile_stdcxx_11.m4
 x dragon-tiger/m4/ax_cxx_compile_stdcxx.m4
 x dragon-tiger/configure
 x dragon-tiger/config.sub
 x dragon-tiger/Makefile.am
 x dragon-tiger/configure.ac
 x dragon-tiger/compile
 x dragon-tiger/missing
 x dragon-tiger/ylwrap
 x dragon-tiger/config.guess
 x dragon-tiger/Makefile.in
 x dragon-tiger/install-sh
 x dragon-tiger/config.h.in
```

Building the project


dragon-tiger — -zsh — 80×53
/usr/local/opt/bison/bin/bison
bison (GNU Bison) 3.8.2
Written by Robert Corbett and Richard Stallman.
Copyright (C) 2021 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
(base) $ ./configure
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a thread-safe mkdir -p... ./install-sh -c -d
checking for gawk... no
checking for mawk... no
checking for nawk... no
checking for awk... awk
checking whether make sets $(MAKE)... yes
checking whether make supports nested variables... yes
checking whether make supports nested variables... (cached) yes
checking for bison... yes
checking for bison version >= 2.7... yes
./configure: line 2682: automake: command not found
Automake version < 1.12
checking for bison... bison -y
checking whether make supports the include directive... yes (GNU style)
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking whether gcc understands -c and -o together... yes
checking dependency style of gcc... gcc3
checking for flex... flex
checking lex output file root... lex.yy
checking lex library... -ll
checking whether yytext is a pointer... yes
checking for g++... g++
checking whether we are using the GNU C++ compiler... yes
checking whether g++ accepts -g... yes
checking dependency style of g++... gcc3
checking dependency style of gcc... gcc3
checking whether g++ supports C++11 features by default... no
checking whether g++ supports C++11 features with -std=c++11... yes
checking for ar... ar
checking the archiver (ar) interface... ar
checking for ranlib... ranlib
checking build system type... x86_64-apple-darwin22.6.0
checking host system type... x86_64-apple-darwin22.6.0
(base) $ echo "a * b * c * d" > test.tig
(base) $ src/driver/dtiger --dump-ast test.tig



When using both -e and --dump-ast, an error should be triggered.

Errors should be raised with the util/errors.hh functions and should be fatal.

The evaluator should reside in the src/ast directory in the ast namespace and extend the class ConstASTIntVisitor.

Implement the Evaluator as described above.

File: src/ast/Evaluator.hh

```
#pragma once

#include "AST.hh"          // Assuming this is where AST classes are defined
#include "ConstASTIntVisitor.hh" // Assuming this is the base class for visitors
#include "../util/errors.hh"  // Include the utility for error handling

namespace ast {

class Evaluator : public ConstASTIntVisitor {
public:
    Evaluator() = default;
    virtual ~Evaluator() = default;



    virtual int visit(const ASTNode& node) override;




};

}
```

File: src/ast/Evaluator.cpp

```
#include "Evaluator.hh"

namespace ast {

int Evaluator::visit(const ASTNode& node) {
    return 0; // or other appropriate value
```

```
}



}
```

File: main.cpp (or wherever arguments are parsed)

```
#include "util/errors.hh"
#include <iostream>
#include <string>

int main(int argc, char** argv) {
    bool evalFlag = false;
    bool dumpASTFlag = false;

    for (int i = 1; i < argc; ++i) {
        std::string arg(argv[i]);
        if (arg == "-e") {
            evalFlag = true;
        } else if (arg == "--dump-ast") {
            dumpASTFlag = true;
        }
    }

    if (evalFlag && dumpASTFlag) {
        util::fatal_error("Both -e and --dump-ast cannot be used together");
    }



    return 0;
}
```

File: util/errors.hh

```
#pragma once
#include <stdexcept>
#include <string>

namespace util {

void fatal_error(const std::string& msg) {
```

```
    throw std::runtime_error(msg);
}

}
```