

Tarnish Language Type Checking System

CS440

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How to build

The type checking system can be built using the command `make`.

It will automatically output to `tarnish`, and can be run with `./tarnish`.

Test cases

For the convenient of testing, we provide severla basic programs. All of the Tarnish program should end with `.tarn`.

To run the program with Tarnish type checking System, simply use:

```
> ./tarnish fileName.tarn
```

To run the programs we provide, use these commands:

```
> ./tarnish assignments.tarn
> ./tarnish if.tarn
> ./tarnish loop.tarn
```

Tarnish Interpreter

If your run `./tarnish` without given a tarn file, you will be given a Tarnish interpreter, you can try Tarnish Programming Language without creating a file.

Here are some examples to try in the Tarnish interpreter:

basic assignment and if condition:

```

put 10 in int a;
put 20 in int b;

print a; //This should print 10
print b; //This should print 20

if(b > a){
    put b in a;
}

print a; //This should print 20

put 25 in a; //reassignment

print a; //This should print 25

```

operations between numbers:

```

put 10 in int a;
put 20 in int b;

print a + b; //This should print 30
print a - b; //This should print -10
print a * b; //This should print 200
print b / a; //This should print 2

```

while loop

```

put 0 in int a;

while (a < 10) {
    print a;
    put a + 1 in a;
}

print a;
/* This will print 0-10 */

```

Type checking system

You can only do operations between same type variables, for example, these are legal in the Tarnish type checking system:

```
put 1 in int a;  
put 2 in int b;  
put "Hello" in string c;  
put "there" in string d;  
  
print a + b; //print 3  
print c + d; //print "Hello there"
```

However, these operations are illegal:

```
put 5 in int a;  
put "Hola" in string b;  
put true in bool c;  
put false in bool d;  
  
/* Below Are The Illegal Operations */  
print a + b;  
print c + d;
```

////////////////////////////////////

***Our demo reports are in a separate file.**