

- Target Language will be Python.
- Valid Statements:
 - Operators:
 - Add(a,b): $a+b$
 - Sub(a,b): $a-b$
 - Div(a,b) : a/b
 - Mult(a,b): $a*b$
 - Mod(a,b): $a\%b$
 - And(a,b): a and b
 - Or(a,b): a or b
 - Not(a): not a
 - Gt(a,b): $a > b$
 - Lt(a,b): $a < b$
 - Gte(a,b) $a \geq b$
 - Lte(a,b) $a \leq b$
 - Eq(a,b) $a = b$
 - Variable assignments for ints, strings and bools:
 - a is 9.
 - b is "Some String".
 - t is false/true.
 - Integer expressions:
 - a is add(1,2).
 - b is sub(2,3).
 - c is div(a,b).
 - g is mod(a,b).
 - b is $\langle op \rangle (\langle val, var, expr \rangle, \langle val, var, expr \rangle)$.
 - Bool expressions.
 - x is or(a,b)
 - b is not($\langle boolVal, \langle var \rangle$).
 - d is and(a,not(b)).
 - a is gt(a,b)
 - Conditional blocks:
 - If ($\langle expr \rangle$){ $\langle code \rangle$ } else { $\langle code \rangle$ }
 - While($\langle expr \rangle$){while($\langle expr \rangle$){ $\langle code \rangle$ }}

- Sample program:
A is 6
B is 8
C is "string"
If (gt(a,b)){c is "a is greater than b"}
else{c is "b is greater than a"}

- Sample Grammar:

```
<stmt> ::= <var>is<expr>. |  
<var>is<intexpr>. |  
<var>is<boolexpr>.
```

```
<boolexpr> ::= | gt(<expr>,<expr>)  
| lt(<expr>,<expr>)  
| gte(<expr>,<expr>)  
| lte(<expr>,<expr>)  
| eq(<expr>,<expr>)
```

```
<intexpr> ::= add(<expr>,<expr>) |  
div(<expr>,<expr>) |  
mult(<expr>,<expr>) |  
mod(<expr>,<expr>) |  
sub(<expr>,<expr>)
```

```
<conditional> ::= "If" "(" <expr> ")" "{" <code> "}" "else" "{" <code> "}"
```

```
<loop> ::= "While" "(" <expr> ")" "{" <code> "}"
```

```
<expression> ::= <intexpr> | <boolexpr>  
| <var> | <intr>  
| <str> | <bool>
```

```
<var> ::= <letter> <num>*  
<num> ::= <letter> | <digit>  
<integer> ::= <digit>*  
<str> ::= "'"<char>'"'  
<bool> ::= "true" | "false"  
<digit> ::= "0" | "1" | "2" | "3" | "4" | "5" | "6" | "7" | "8" | "9"  
<letter> ::= "a" | "b" | "c" | ... | "z" | "A" | "B" | "C" | ... | "Z"  
<char> ::= <letter> | <digit> | "!" | "@" | ... | "&" | ...
```

Questions:

Summary of work done so far.

- Gurvir Dhillon: Contribute ideas for initial design.
- Jonathan Nash: Contribute ideas for initial design.
- Swarn Phore : Contribute ideas for initial design BNF form draft.
- Garrett Scott: Contribute ideas for initial design, Set up git repo group.