

# CFG:-

Program  $\rightarrow$  Stmt-list

Stmt-list  $\rightarrow$  Stmt-list Stmt

Stmt-list  $\rightarrow$  Stmt

Stmt  $\rightarrow$  declaration

Stmt  $\rightarrow$  assignment

Stmt  $\rightarrow$  if-stmt

Stmt  $\rightarrow$  while-stmt

Stmt  $\rightarrow$  for-stmt

Stmt  $\rightarrow$  io-stmt

Stmt  $\rightarrow$  break-stmt

Stmt  $\rightarrow$  block

declaration  $\rightarrow$  Adad, ID, SEMI

declaration  $\rightarrow$  Ashariya, ID, SEMI

declaration  $\rightarrow$  Marf, ID SEMI

assignment  $\rightarrow$  ID Assign expr SEMI

if-stmt  $\rightarrow$  Jay Tay (condition) Stmt

if-stmt  $\rightarrow$  Jay Tay (condition) Stmt Fair Stmt

if-stmt  $\rightarrow$  Jay Tay (condition) Stmt Nahito (condition) Stmt

if-stmt  $\rightarrow$  Jay Tay (condition) Stmt Nahito (condition) Stmt

Fair Stmt

while-stmt  $\rightarrow$  Sadtaa (condition) stmt

for-stmt  $\rightarrow$  Harik (forini SEMI condition SEMI for-update) stmt

for-ini  $\rightarrow$  ID assign expr

for-update  $\rightarrow$  ID assign expr

iO-stmt  $\rightarrow$  Likha expr SEMI

iO-stmt  $\rightarrow$  Lo ID SEMI

Break  $\rightarrow$  ROKO SEMI

block  $\rightarrow$  { Stmt-list }

block  $\rightarrow$  { }

expr  $\rightarrow$  expr + term

expr  $\rightarrow$  expr - term

expr  $\rightarrow$  term

term  $\rightarrow$  term \* factor

term  $\rightarrow$  term / factor

term  $\rightarrow$  factor

factor  $\rightarrow$  NUMBER

factor  $\rightarrow$  ID

factor  $\rightarrow$  ( expr )

SEMI  $\rightarrow$  ;

Condition  $\rightarrow$  expr < expr

Condition  $\rightarrow$  expr > expr

Condition  $\rightarrow$  expr == expr

Condition  $\rightarrow$  Jhoot Isach

# First & Follow

1)

$\text{expr} \rightarrow \text{expr} + \text{term}$

$\text{expr} \rightarrow \text{expr} - \text{term}$

$\text{expr} \rightarrow \text{term}$

$\text{term} \rightarrow \text{factor}$

$\text{factor} \rightarrow \text{Number} | \text{ID} | (\text{expr})$

First

Number,  $\text{id}, ($

Number, ID, L

Number, ID, L

Number, ID, L

Number, ID, L

\$, +

\$, -,

\$, +, -,

\$, +, -,

\$, +, -, , )

Follow

2)  ~~$\text{factor} \rightarrow \text{Number} | \text{ID} | (\text{expr})$~~

$\text{stmt} \rightarrow \text{assignment}$

$\text{assignment} \rightarrow \text{ID Assign expr SEMI}$

First

ID

Follow

\$ Adad, Ashaniya, Harf

ID, Taytay, Tadtak, Harik, likho

(, Roko, (, ), fain, Nahito

Valid program:

adad x;

adad y;

adad s;

lo x;

lo y;

~~s = x+y;~~

likho s;

.

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.

.

.

.

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Program

stmt-list

stmt-list

stmt

to\_start

likho ID SEMI

stmt

assignment

ID Assign

expr

SEMI

expr

+ term

;

term

factor

;

factor

;

number

;