

13004

CFG

Date _____

$\langle \text{start} \rangle \rightarrow \langle \text{Def} \rangle \langle \text{Cat} \rangle \text{Class ID } \langle \text{INH} \rangle \{ \langle \text{Class-Body} \rangle$
~~Public Static Void~~ $\text{main}()$
 $\{ \langle \text{MST} \rangle \}$
 $\langle \text{Class-Body} \rangle \}$
 $\langle \text{Def} \rangle$

$\langle \text{Cat} \rangle \rightarrow \text{static} \mid \text{Abstract} \mid \text{Sealed} \mid \epsilon$

$\langle \text{INH} \rangle \rightarrow \text{Extends ID} \mid \epsilon$

$\langle \text{Def} \rangle \rightarrow \langle \text{Cat} \rangle \langle \text{Class-Interface-Def} \rangle \langle \text{Def} \rangle \mid \epsilon$

$\langle \text{Class-Interface-Def} \rangle \rightarrow \text{Class ID } \langle \text{INH} \rangle \{ \langle \text{Class-Body} \rangle \} \mid \text{interface ID}$
 $\langle \text{INH} \rangle \{ \langle \text{Interface-Body} \rangle \}$

$\langle \text{Class-Body} \rangle \rightarrow \langle \text{AM} \rangle \langle \text{Static} \rangle \langle \text{Final} \rangle \langle \text{Var-Fun-Dec} \rangle \langle \text{Class-Body} \rangle \mid \epsilon$

$\langle \text{Var-Fun-Dec} \rangle \rightarrow \text{Void ID } (\langle \text{Init-Parameter-List} \rangle) \{ \langle \text{MST} \rangle \}$
 $\mid \langle \text{DT-ALL} \rangle \langle \text{PLD} \rangle$
 ID

$\langle \text{PLD} \rangle \rightarrow (\langle \text{Init-Parameter-List} \rangle) \{ \langle \text{MST} \rangle \} \mid \langle \text{DA} \rangle ;$

$\langle \text{Interface-Body} \rangle \rightarrow \langle \text{AM} \rangle \langle \text{Static} \rangle \langle \text{final} \rangle \langle \text{Return-Type} \rangle \text{ID}$
 $(\langle \text{Init-Parameter-List} \rangle) ;$

$\langle \text{AM} \rangle \rightarrow \text{Private} \mid \text{Public} \mid \text{Protected} \mid \epsilon$

$\langle \text{Static} \rangle \rightarrow \text{static} \mid \epsilon$

$\langle \text{Final} \rangle \rightarrow \text{final} \mid \epsilon$

$\langle \text{DT-Pri} \rangle \rightarrow \text{int} \mid \text{Float} \mid \text{String} \mid \text{char} \mid \text{bool}$

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$\langle \text{PNP} \rangle \rightarrow \langle \text{DT-Pri} \rangle \mid \text{ID Non-Primitive}$

$\langle \text{DT-All} \rangle \rightarrow \langle \text{PNP} \rangle \langle \text{Array} \rangle$

$\langle \text{Array} \rangle \rightarrow [] \mid \epsilon$

$\langle \text{Return-Type} \rangle \rightarrow \langle \text{DT-All} \rangle \mid \text{Void}$

$\langle \text{Init-Parameter-List} \rangle \rightarrow \langle \text{DT-All} \rangle \text{ID} \langle \text{MIP} \rangle \mid \epsilon$

$\langle \text{MIP} \rangle \rightarrow \langle \text{DT-All} \rangle \text{ID} \langle \text{MIP} \rangle \mid \epsilon$

$\langle \text{MST} \rangle \rightarrow \langle \text{SST} \rangle \langle \text{MST} \rangle \mid \epsilon$

$\langle \text{SST} \rangle \rightarrow \text{ID} \langle \text{ADA} \rangle; \mid \langle \text{For-st} \rangle \mid \langle \text{Dec Init-Pri-st} \rangle \mid \langle \text{If-Else-st} \rangle \mid \langle \text{Break-Continuous-st} \rangle \mid \langle \text{Return-st} \rangle \mid \text{PPMM ID} \langle \text{Assign} \rangle$

$\langle \text{ADA} \rangle \rightarrow \text{ID} \langle \text{DA} \rangle; \mid \langle \text{Assign} \rangle \mid \langle \text{OP} \rangle \langle \text{OE-AC-Init} \rangle; \mid \langle \text{PPAS} \rangle \mid \langle \text{Parameter-List} \rangle; \mid$

$\langle \text{Dec Init-Pri-st} \rangle \rightarrow \langle \text{DT-Pri} \rangle \text{ID} \langle \text{DA} \rangle; \mid \langle \text{Array} \rangle$

$\langle \text{Dec Init} \rangle \rightarrow \langle \text{DT-All} \rangle \text{ID} \langle \text{DA} \rangle$

$\langle \text{PPAS} \rangle \rightarrow \text{PPMM} \mid \text{Assign-OP} \langle \text{OE-AC-Init} \rangle \mid \epsilon$

$\langle \text{DA} \rangle \rightarrow \langle \text{One-More-DA} \rangle \mid \epsilon \mid \langle \text{SAO} \rangle \langle \text{One-More-DA} \rangle$

$\langle \text{One-More-DA} \rangle \rightarrow \text{ID} \langle \text{DA} \rangle \mid \epsilon$

$\langle \text{SAO} \rangle \rightarrow \langle \text{OE} \rangle \mid \text{new} \langle \text{AO} \rangle$

$\langle \text{AO} \rangle \rightarrow \langle \text{DT-Pri} \rangle \langle \text{OE} \rangle \mid \text{ID} \langle \text{AOO} \rangle$

$\langle \text{AOO} \rangle \rightarrow [\langle \text{OE} \rangle] \mid (\langle \text{Parameter-List} \rangle)$



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$\langle \text{Parameter-list} \rangle \rightarrow \langle \text{OE} \rangle \langle \text{MP} \rangle | \epsilon$

$\langle \text{OE} \rangle \rightarrow , \langle \text{OE}' \rangle \langle \text{AE} \rangle$

$\langle \text{MP} \rangle \rightarrow , \langle \text{OE} \rangle \langle \text{MP} \rangle | \epsilon$

$\langle \text{OE}' \rangle \rightarrow \text{"} \langle \text{OE} \rangle | \epsilon$

$\langle \text{AE} \rangle \rightarrow \langle \text{RE} \rangle \langle \text{RE}' \rangle$

$\langle \text{RE}' \rangle \rightarrow \& \& \langle \text{AE} \rangle | \epsilon$

$\langle \text{RE} \rangle \rightarrow \langle \text{E} \rangle \langle \text{RE}' \rangle$

$\langle \text{RE}' \rangle \rightarrow \text{Relational-OP} \langle \text{RE} \rangle \langle \text{RE}' \rangle | \epsilon$

$\langle \text{E} \rangle \rightarrow \langle \text{T} \rangle \langle \text{E}' \rangle$

$\langle \text{E}' \rangle \rightarrow \text{Pm} \langle \text{E} \rangle | \epsilon$

$\langle \text{T} \rangle \rightarrow \langle \text{F} \rangle \langle \text{T}' \rangle$

$\langle \text{T}' \rangle \rightarrow \text{mp} \langle \text{F} \rangle \langle \text{T}' \rangle | \epsilon$

$\langle \text{F} \rangle \rightarrow \text{ID} \langle \text{SAFOID} \rangle | \text{Const} | \text{PPmm ID} \langle \text{Asgm} \rangle | \langle \text{!F} \rangle$

$\langle \text{SAFOID} \rangle \rightarrow \epsilon | [\langle \text{OE} \rangle] | (\langle \text{Parameter-list} \rangle) | \langle \text{Obj-F} \rangle | \text{PPmm}$

$\langle \text{Obj-F} \rangle \rightarrow \cdot \text{ID} \langle \text{AP} \rangle$

$\langle \text{AP} \rangle \rightarrow \langle \text{'is Array'} \rangle \langle \text{MO} \rangle | (\langle \text{Parameter-list} \rangle) \langle \text{More} \rangle | \epsilon$

$\langle \text{More} \rangle \rightarrow \langle \text{Obj-F} \rangle | \epsilon$

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$\langle MO \rangle \rightarrow \langle more \rangle \mid PPmm$

$\langle Assign \rangle \rightarrow \epsilon \mid \langle OE \rangle \mid \langle Obj-Val-Assign \rangle$

$\langle Obj-Val-Assign \rangle \rightarrow \bullet \langle At-Fn \rangle$

$\langle At-Fn \rangle \rightarrow ID \langle AMP \rangle$

$\langle AMP \rangle \rightarrow \langle isArray \rangle \langle m \rangle \mid (\langle Parameter-list \rangle) \langle More-At-Fn \rangle$

\langle

$\langle More-At-Fn \rangle \rightarrow \bullet \langle At-Fn \rangle$

$\langle m \rangle \rightarrow \langle More-At-Fn \rangle \mid \epsilon$

$\langle isArray \rangle \rightarrow \{ \langle OE \rangle \} \mid \epsilon$

$\langle For-st \rangle \rightarrow \text{for} (\langle C_1 \rangle \langle C_2 \rangle ; \langle C_3 \rangle) \langle Body \rangle$

$\langle C_1 \rangle \rightarrow ID \langle ADA \rangle ; \mid \langle Dec Init - Pri - st \rangle$

$\langle Dec$

$\langle C_2 \rangle \rightarrow \langle OE \rangle \mid \epsilon$

\langle

$\langle C_3 \rangle \rightarrow \langle Assign-Inc-Dec \rangle \mid \epsilon$

\langle

$\langle Assign-Inc-Dec \rangle \rightarrow ID \langle Assign \rangle \langle AID \rangle \mid PPmm ID \langle Assign \rangle$

$\langle AID \rangle \rightarrow PPmm \mid Assign-OP \langle OE \rangle$

$\langle Body \rangle \rightarrow ; \mid \langle SST \rangle \mid \{ \langle MST \rangle \}$

$\langle If-Else-st \rangle \rightarrow \text{if} (\langle OE \rangle) \langle Body \rangle \langle Else \rangle$

$\langle Else \rangle \rightarrow \text{else} \langle Body \rangle \mid \epsilon$



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$\langle \text{Break-Continue-st} \rangle \rightarrow \text{break}; / \text{continue};$

$\langle \text{Return-st} \rangle \rightarrow \text{return } \langle \text{Return} \rangle;$

$\langle \text{Return} \rangle \rightarrow \langle \text{OE} \rangle / \epsilon$

$\langle \text{Assign-Inc-Dec-Fun} \rangle \rightarrow \langle \text{Assign} \rangle \langle \text{AID} \rangle / \langle \text{Parameter-list} \rangle$
 $\langle \text{More-At-Fun} \rangle$

$\langle \text{OF-AO-Init} \rangle \rightarrow \langle \text{OE} \rangle / \text{new } \langle \text{AO} \rangle$

