

# Task 1

## RE Rules:

1. **Number** := [0-9]+ (\. [0-9]+)?

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2. **String** := "([a-z] | [A-Z] | [0-9] | .)+"

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3. **Reserved\_Keywords** := int | float | string | read | write | repeat | until | if |  
elseif | else | then | return | endl | end | main

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5. **Identifiers** := [a-z | A-Z] ([a-z] | [A-Z] | [0-9])\*

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8. **Arithmetic\_Operator** := + | - | \* | /

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17. **Condition\_Operator** := < | > | = | <>

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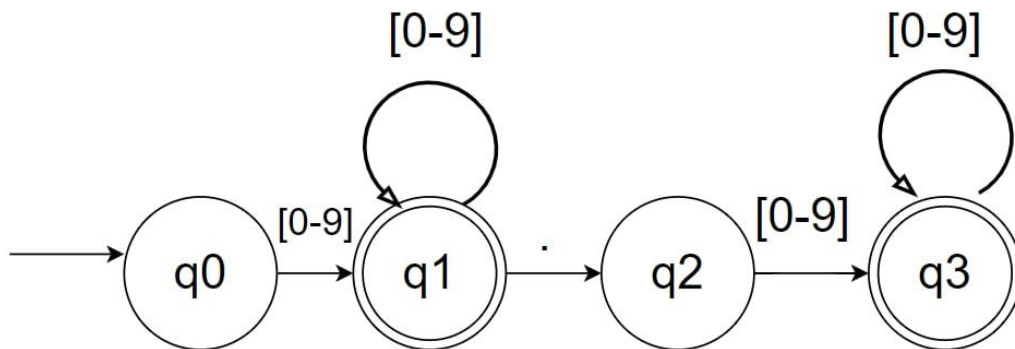
19. **Boolean\_Operator** := && | ||

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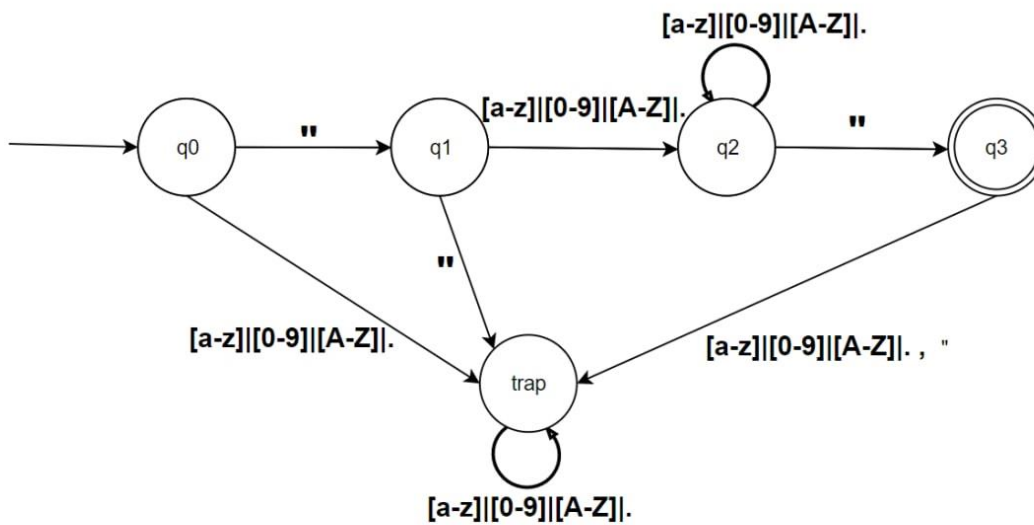
**Operators** := ( | ) | , | := | ; | { | } | /\* | \*/ | ()

## DFA:

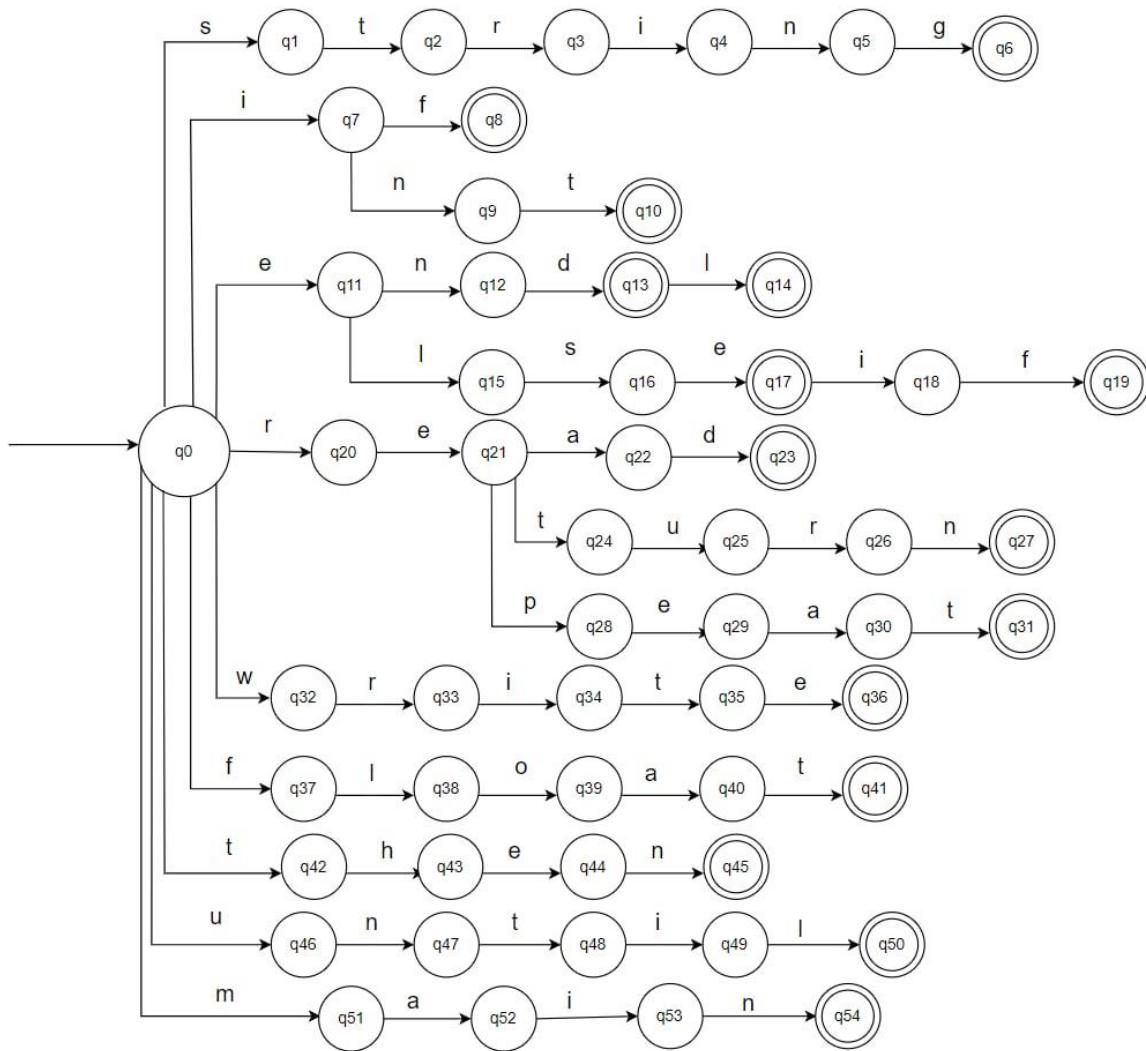
### 1. Number



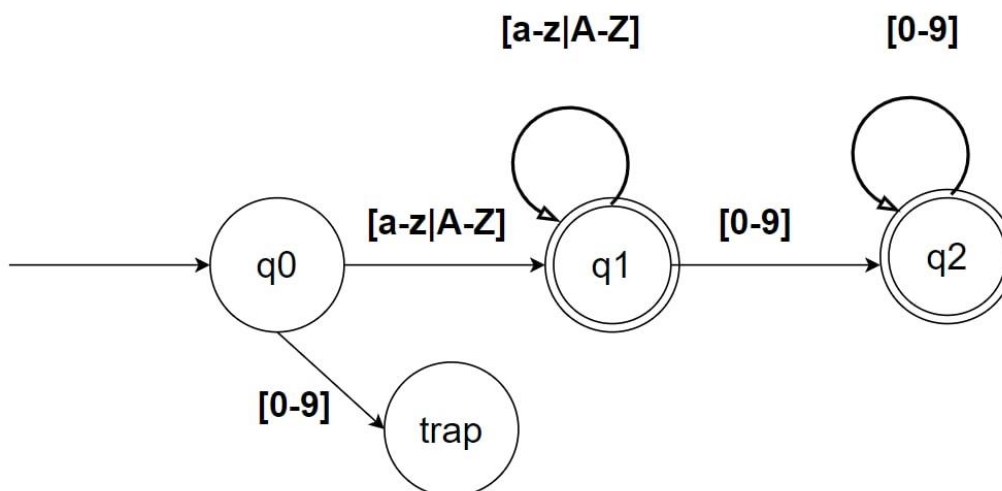
### 2. String



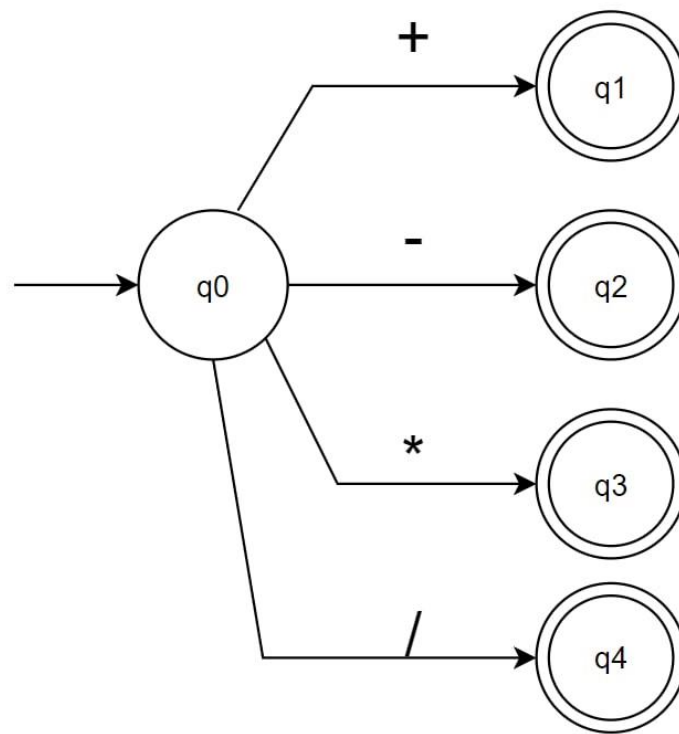
### 3. Reserved\_Keywords



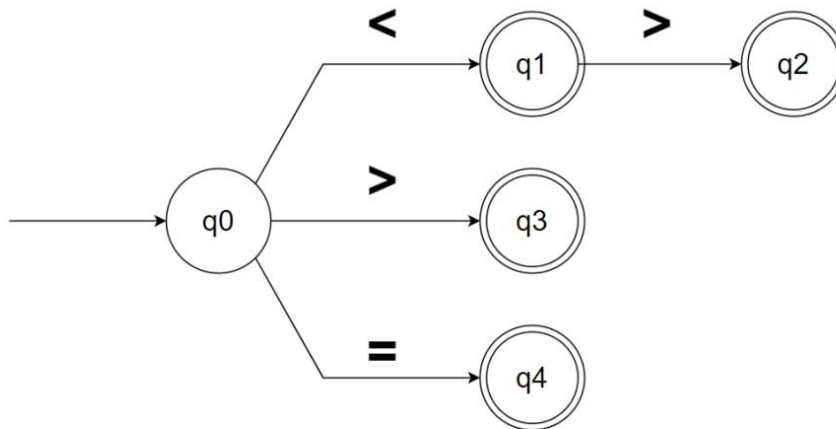
## 5. Identifiers



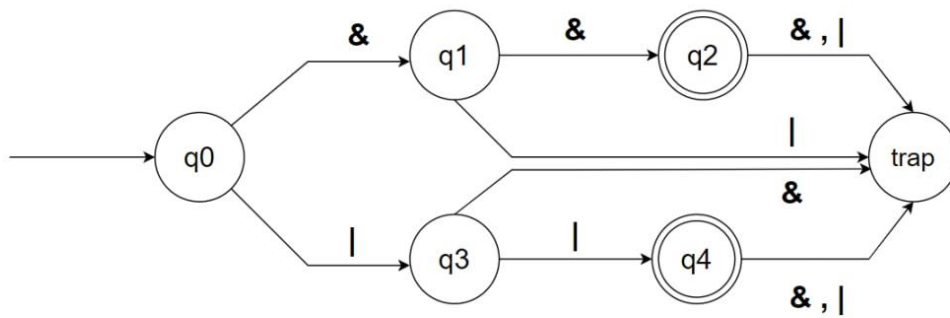
## 8. Arithmetic\_Operator



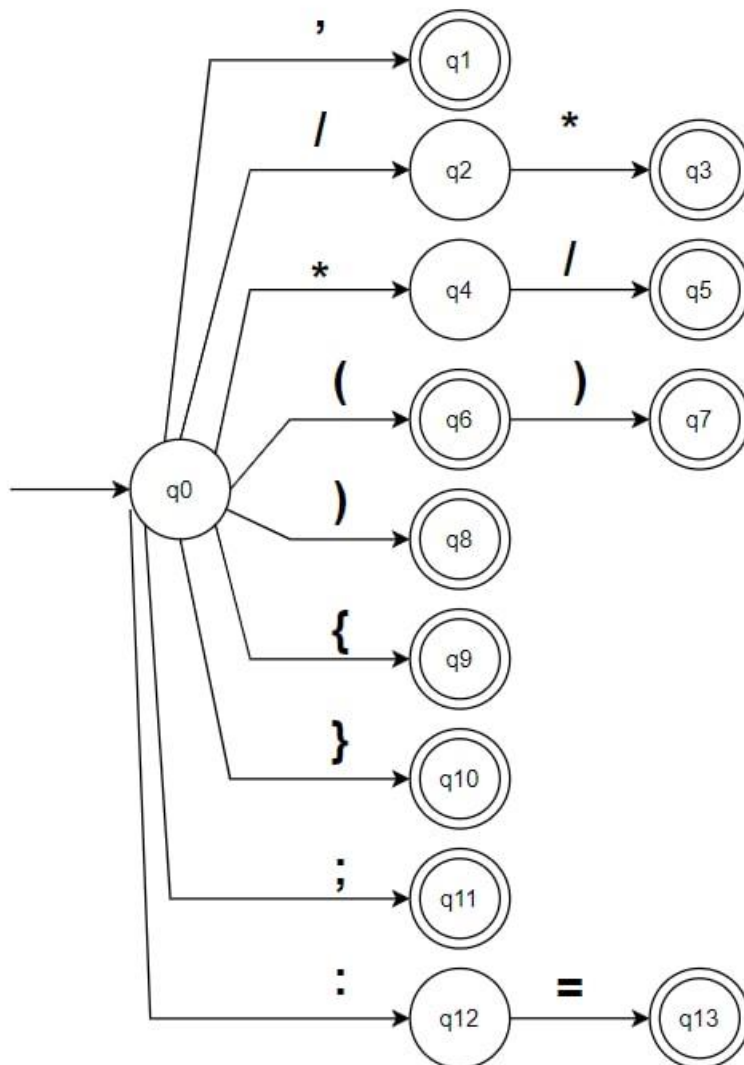
## 17. Condition\_Operator



## 19. Boolean\_Operator

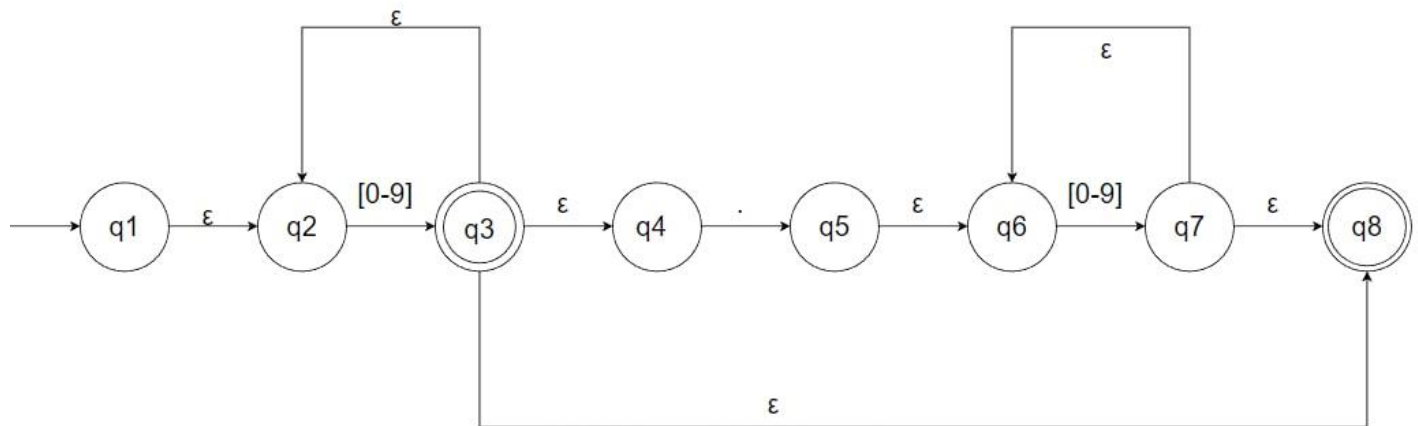


## Operators

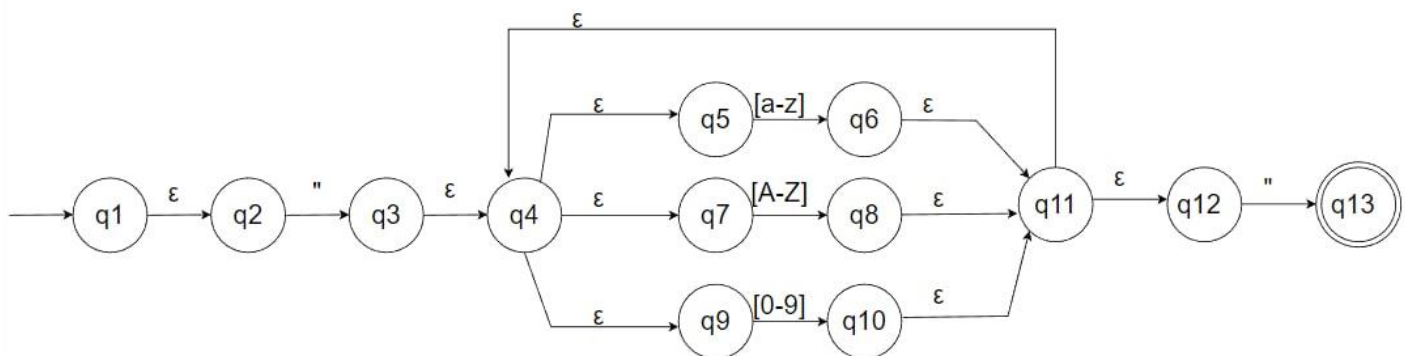


# NFA Thompson's Construction:

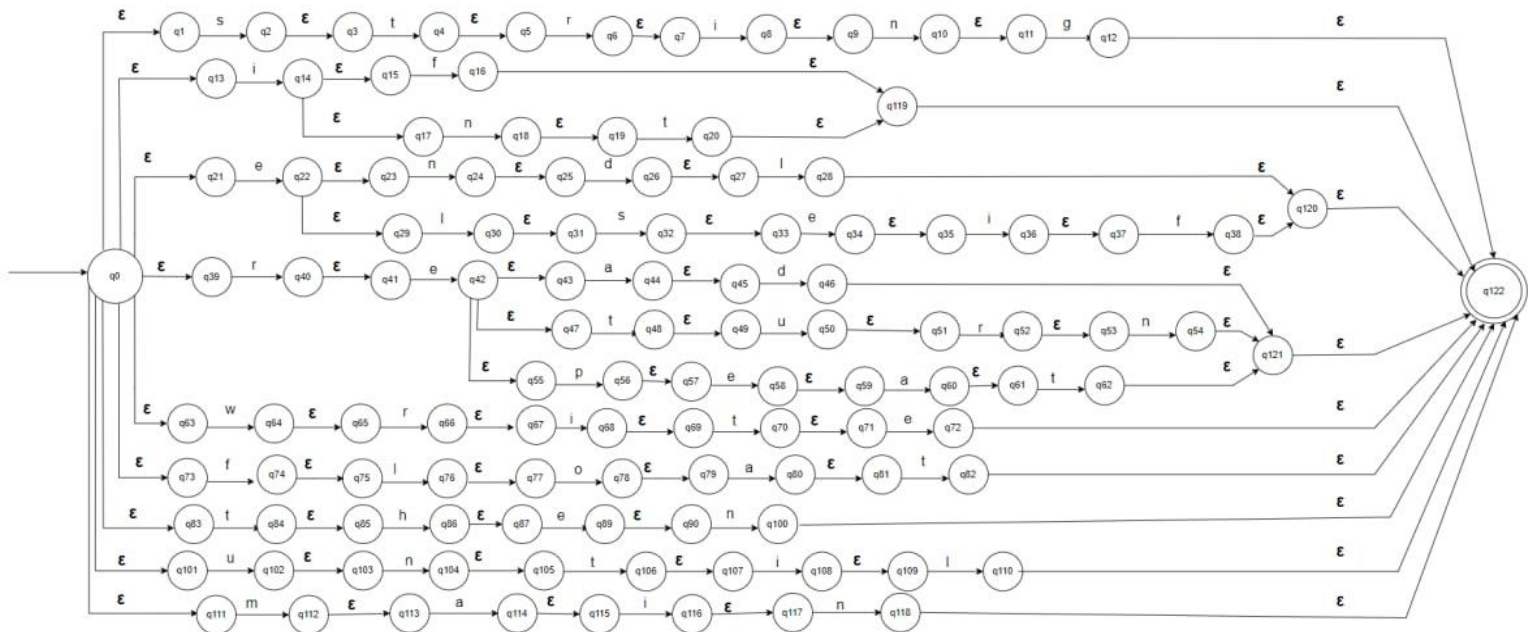
## 1. Number



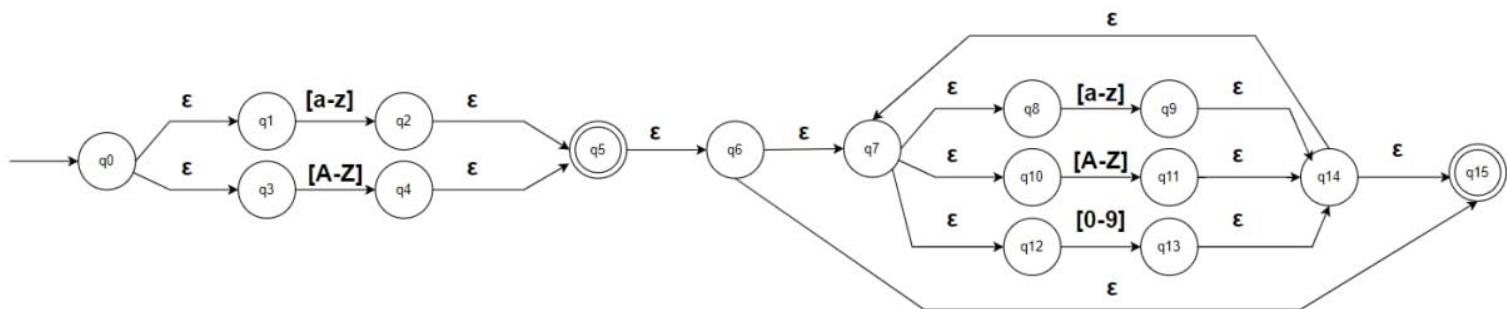
## 2. String



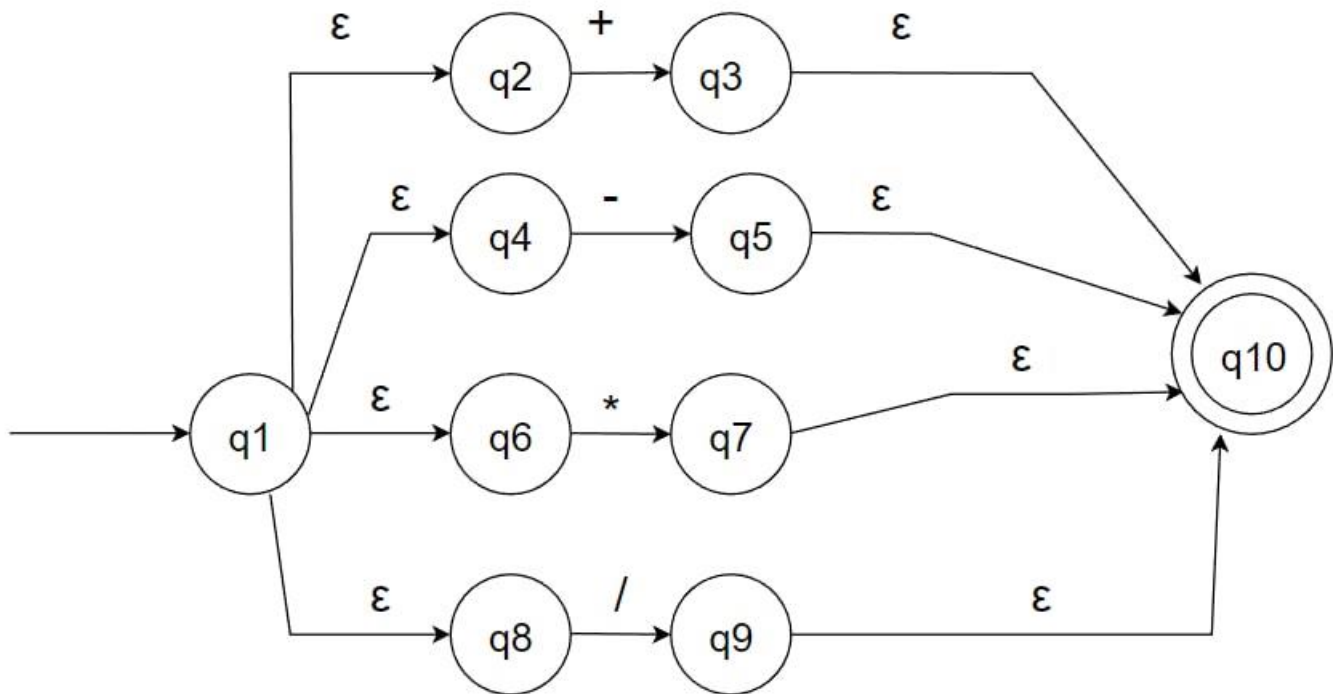
### 3. Reserved\_Keywords



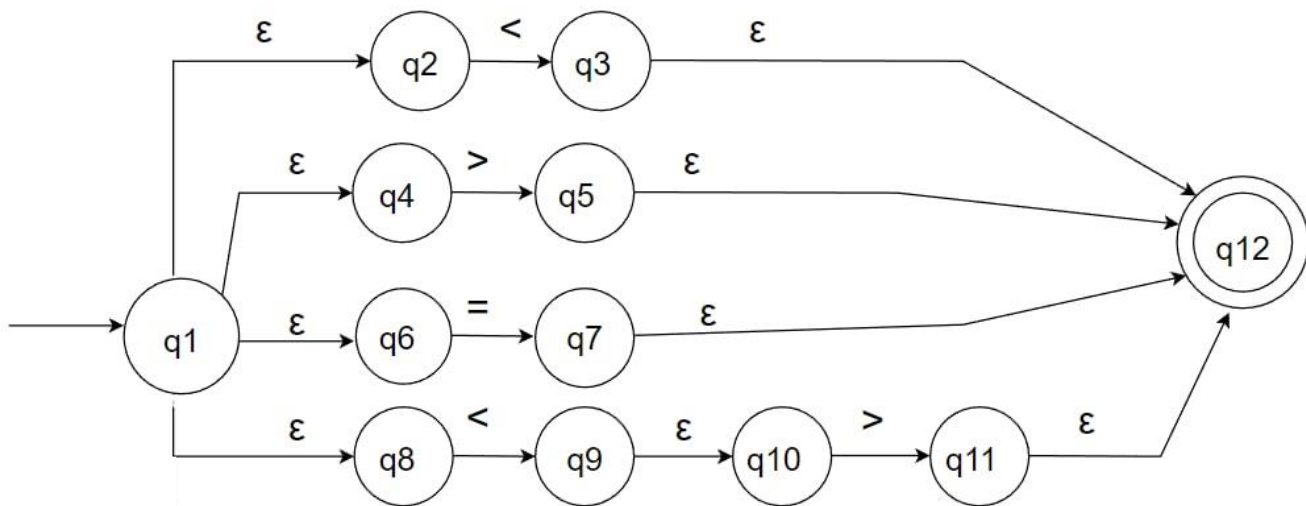
## 5. Identifiers



## 8. Arithmetic\_Operator

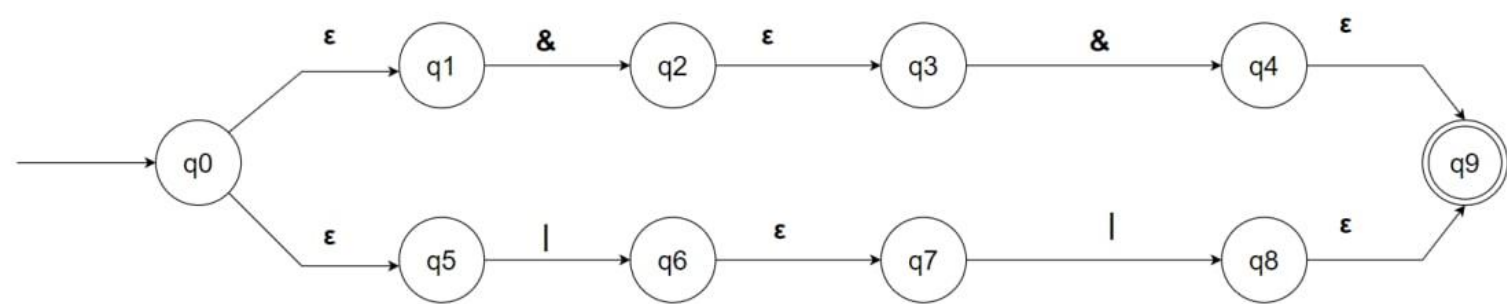


## 17. Condition\_Operator

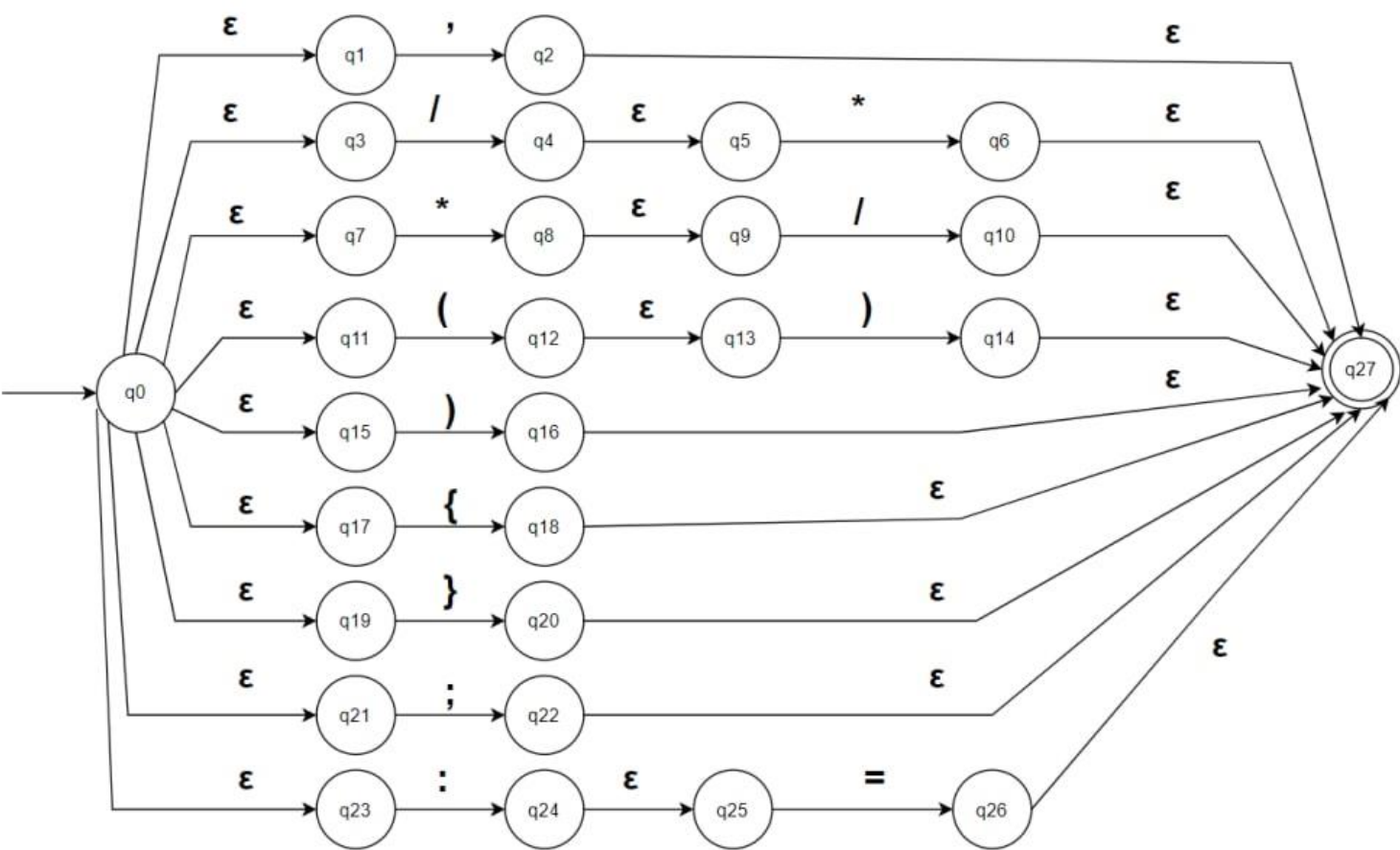




19. Boolean\_Operator

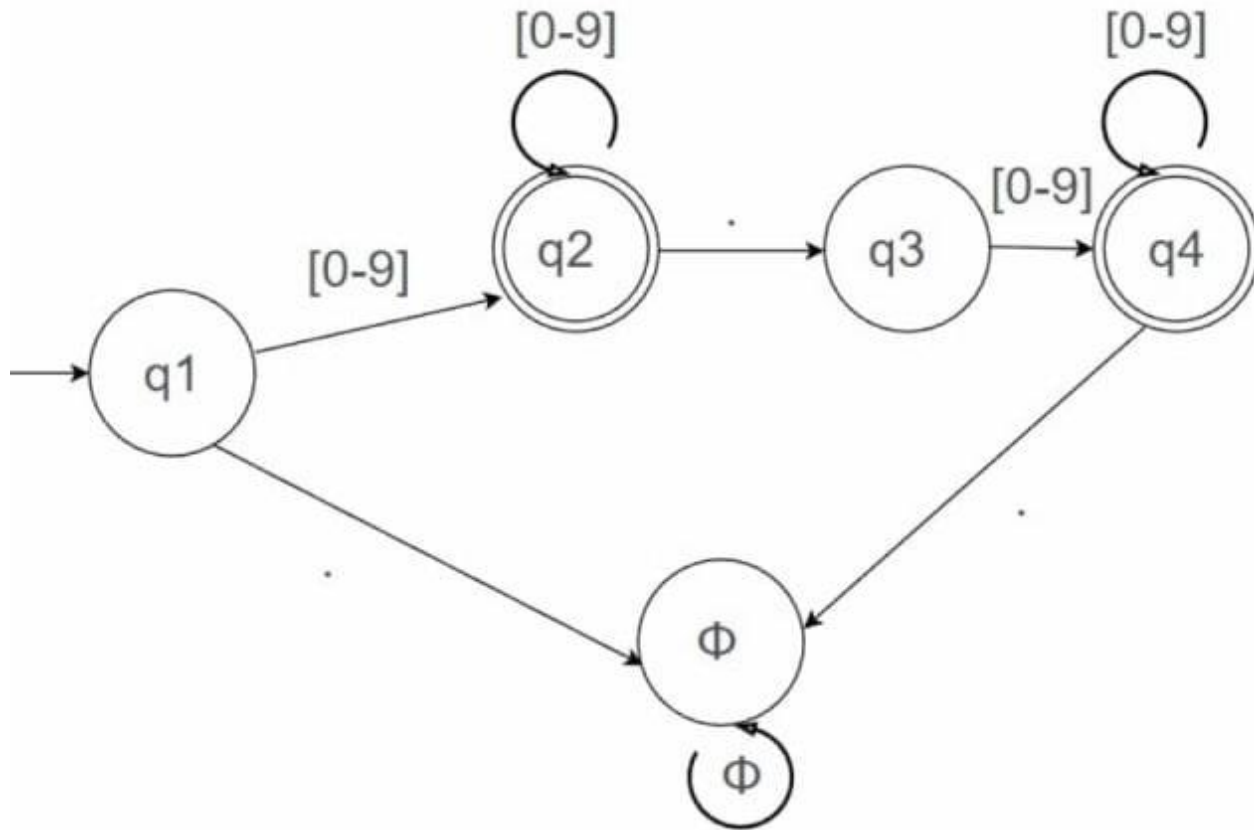


Operators

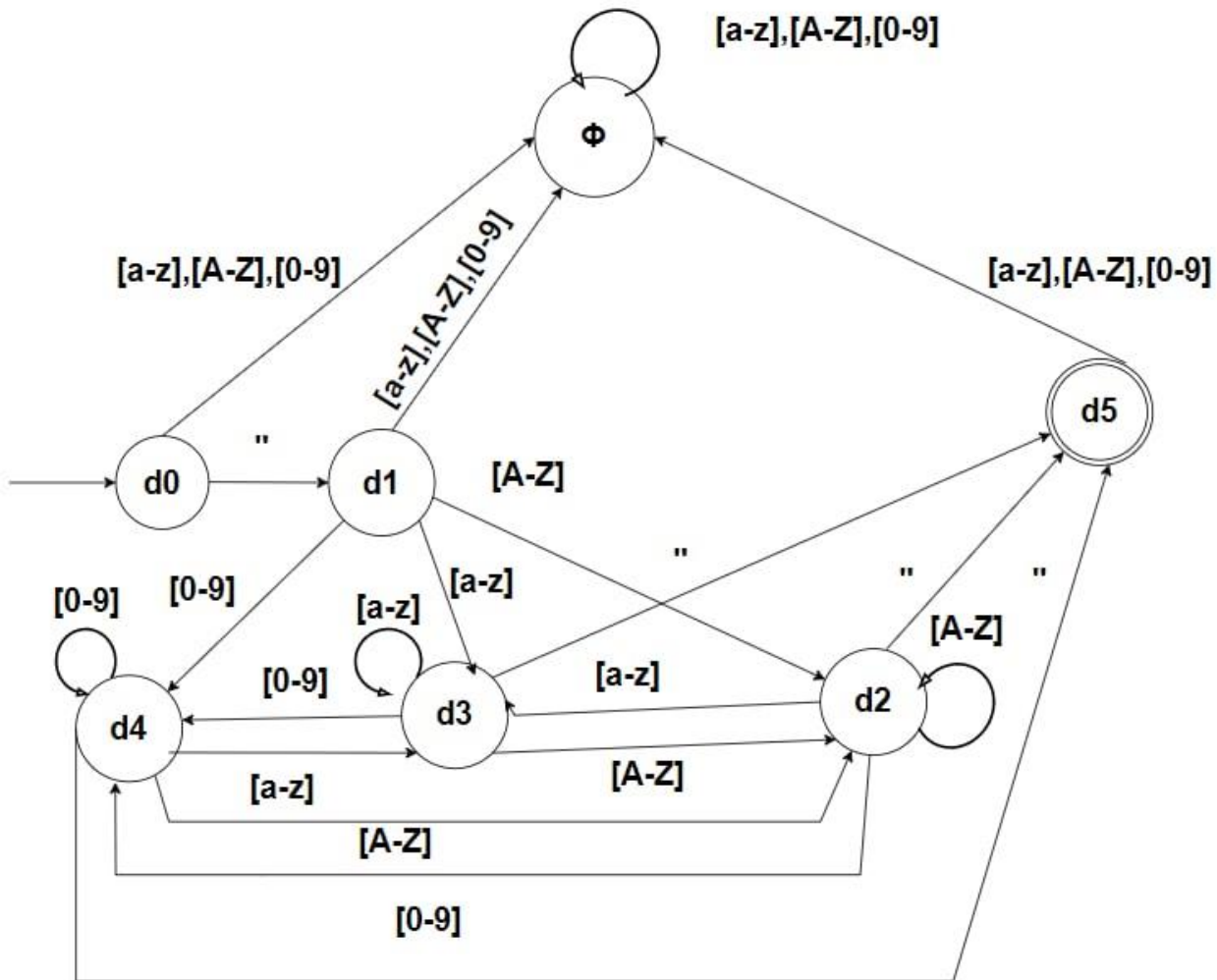


## NFA Subset Construction:

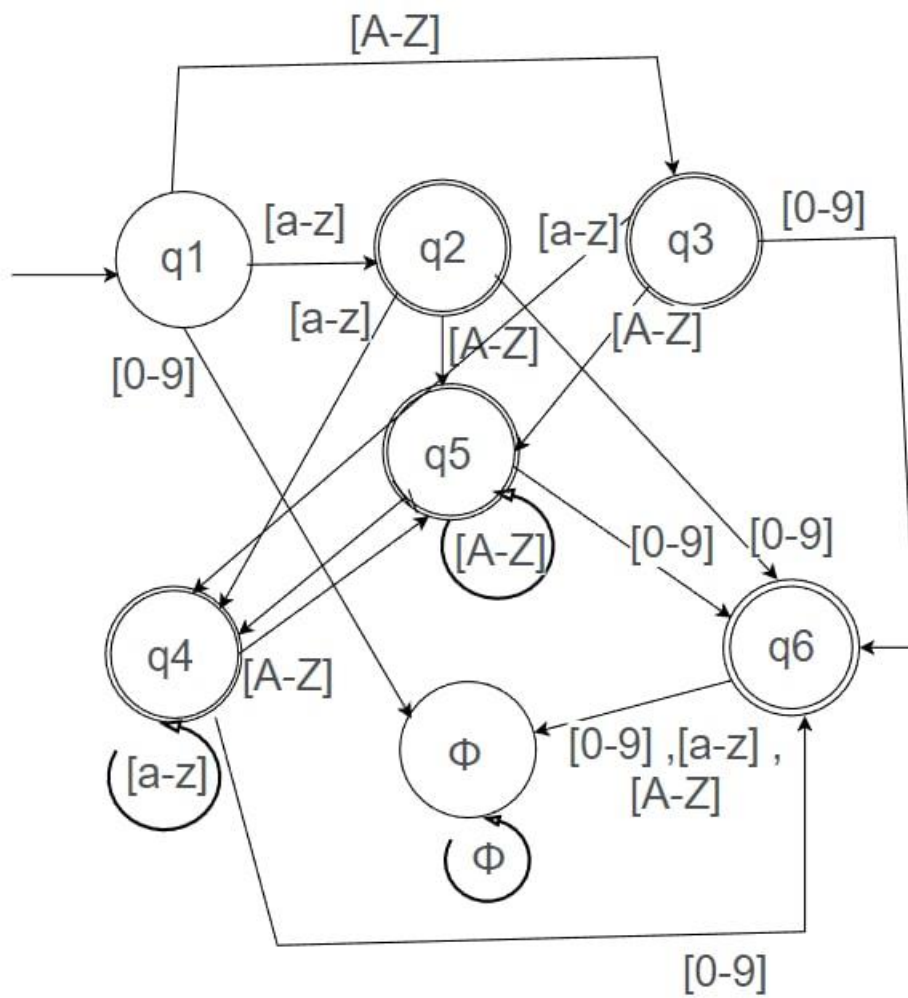
### 1. Number



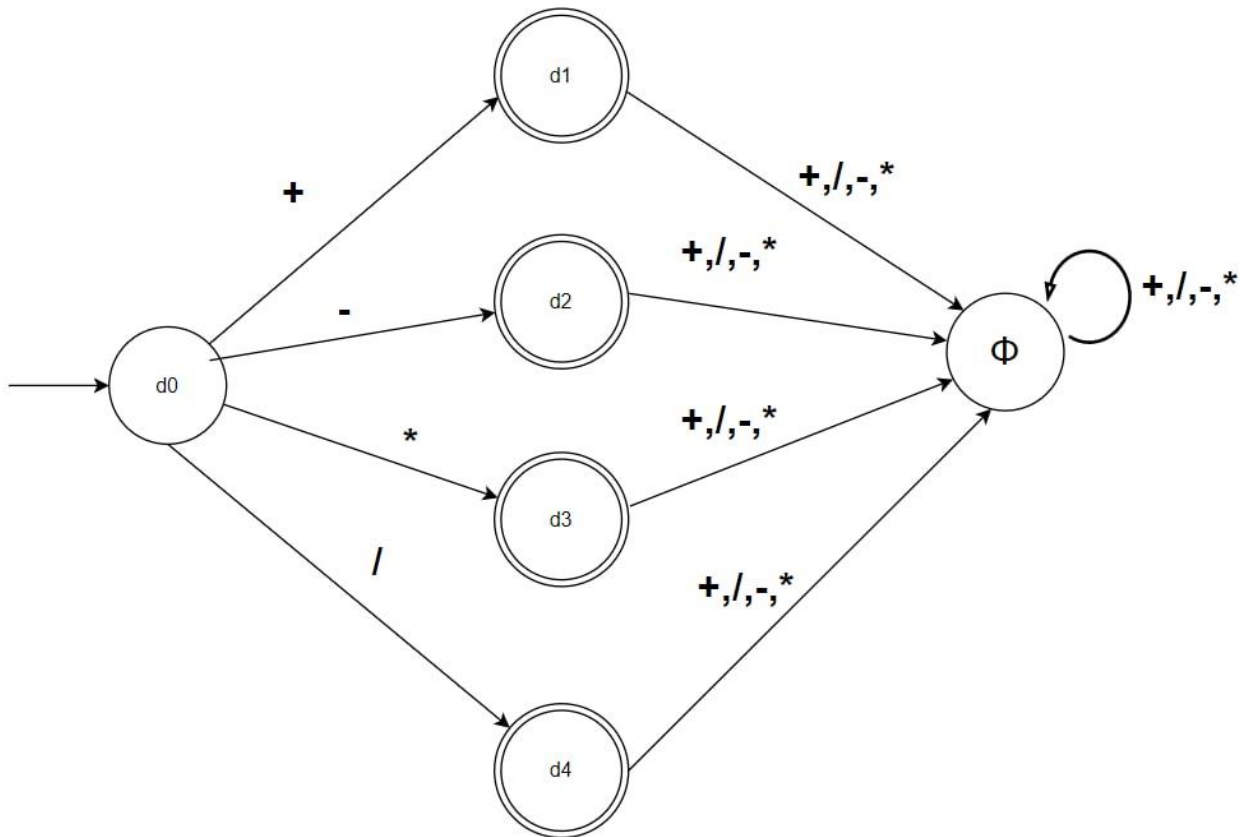
## 2. String



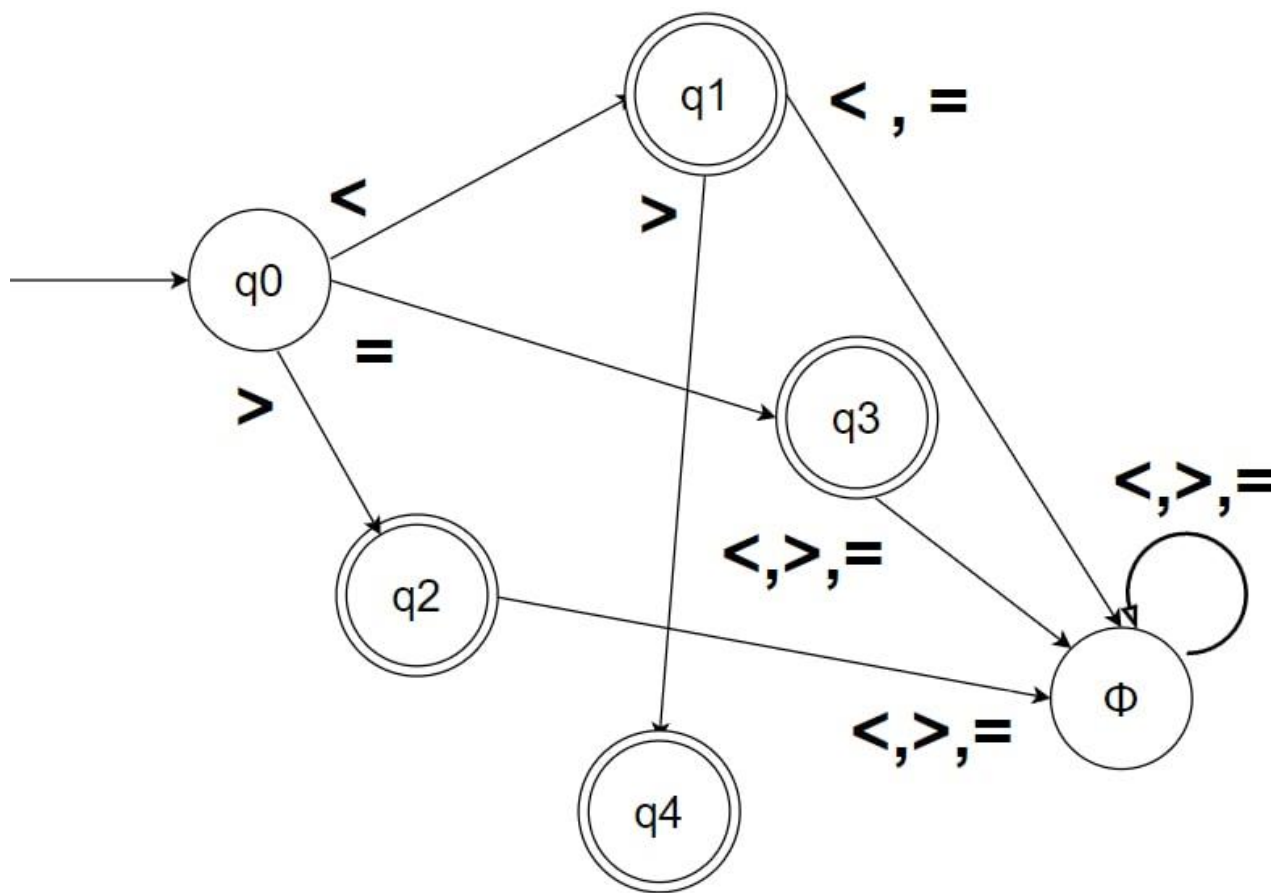
## 5. Identifiers



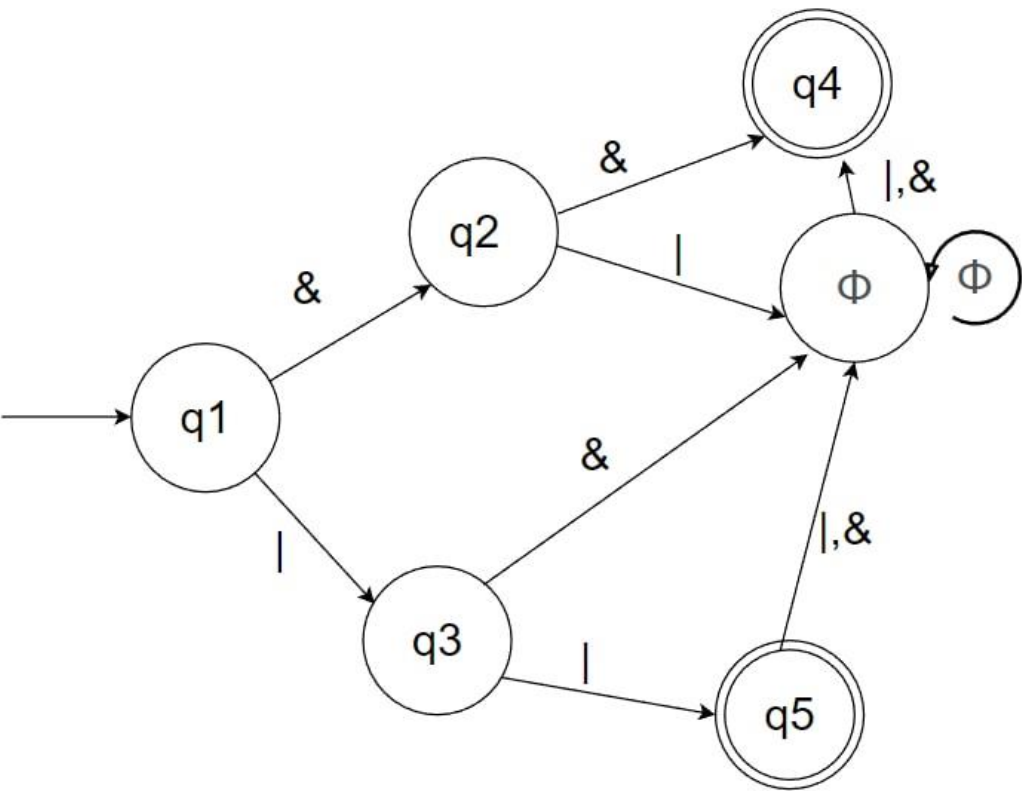
## 8. Arithmetic\_Operator



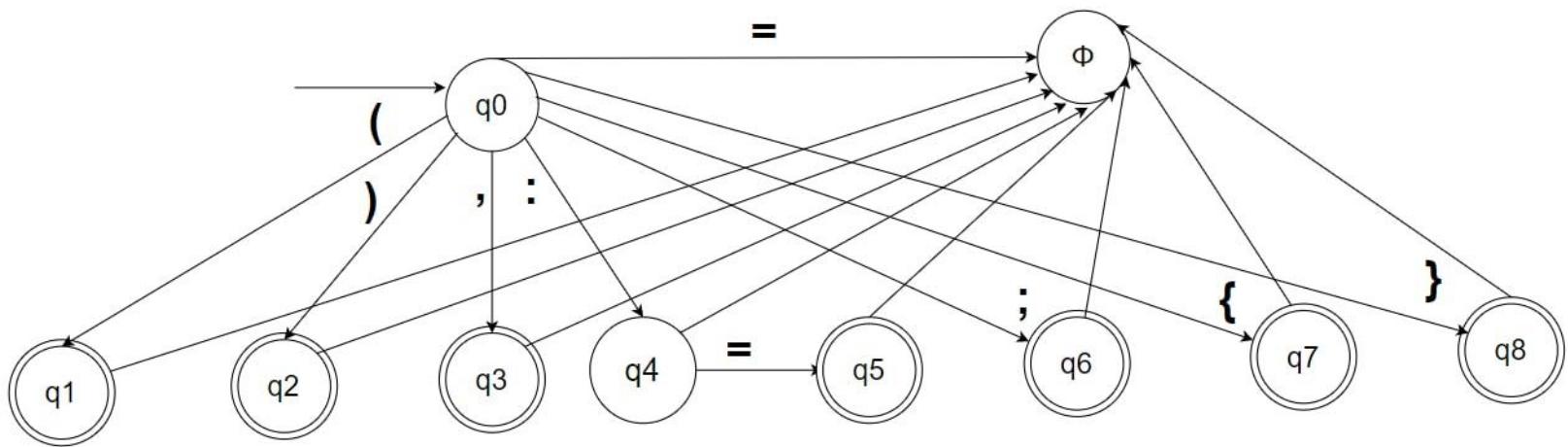
## 17. Condition\_Operator



19. Boolean\_Operator

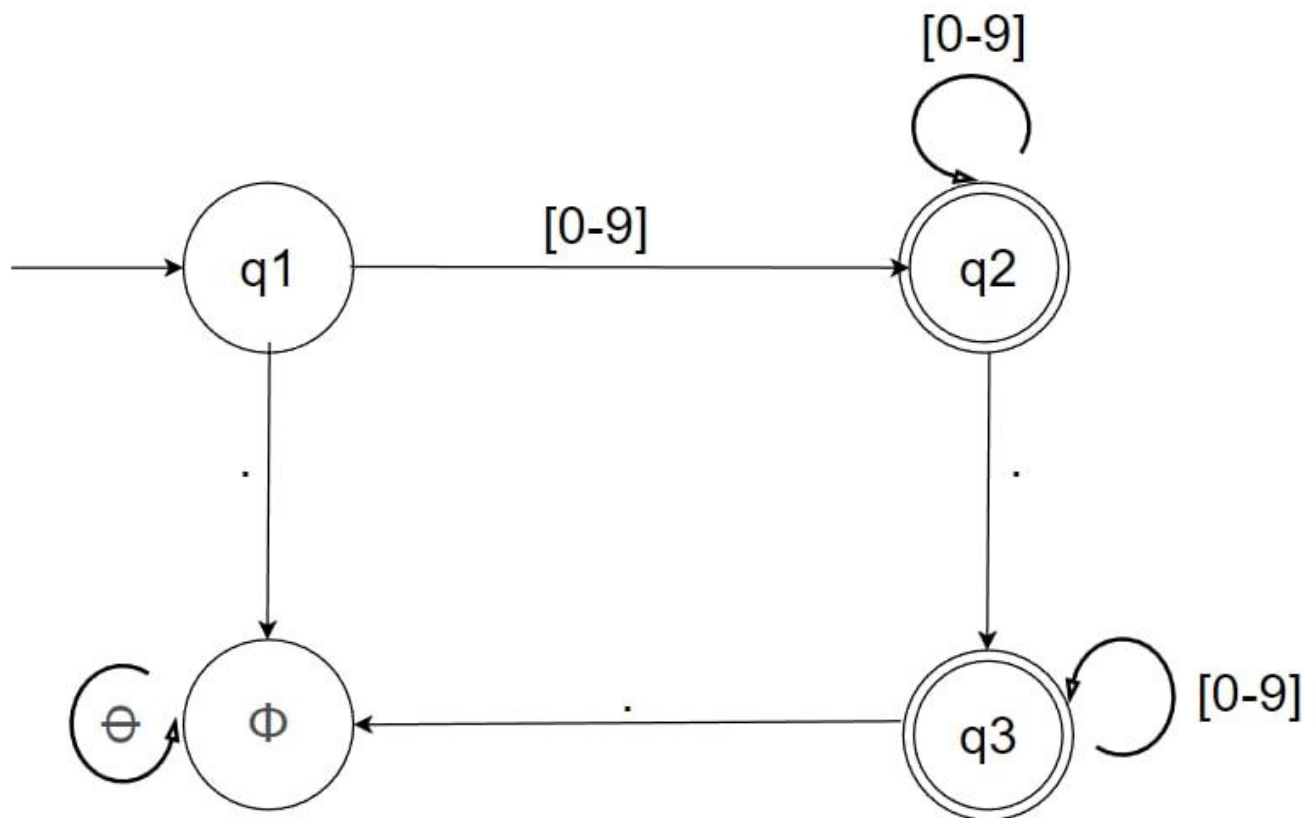


Operators



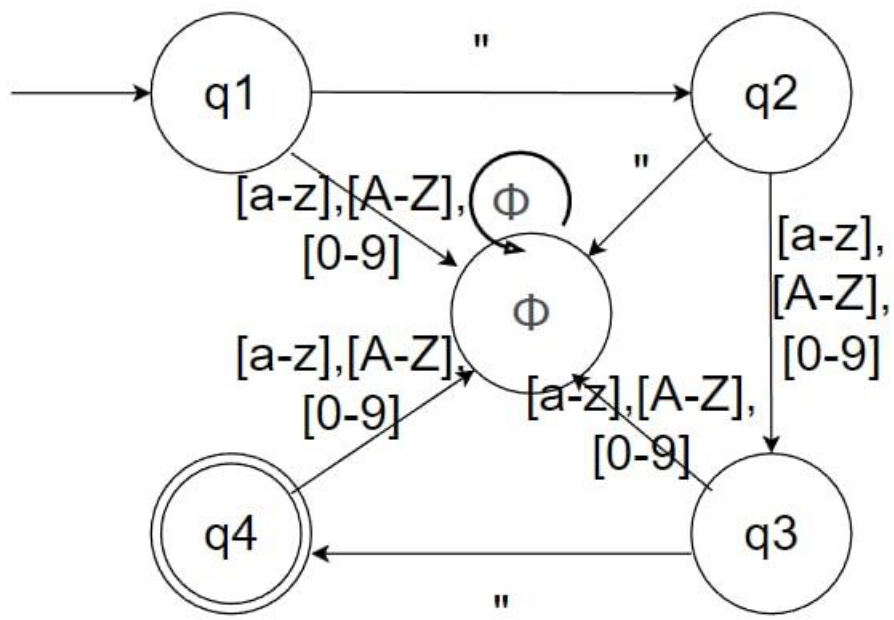
## DFA Minimizing:

### 1. Number

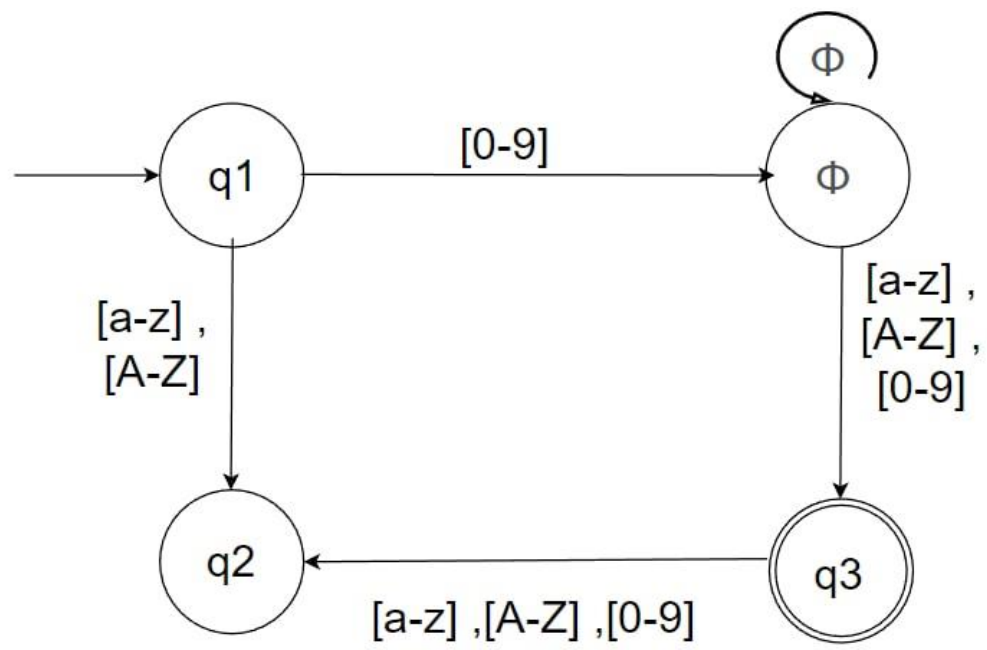




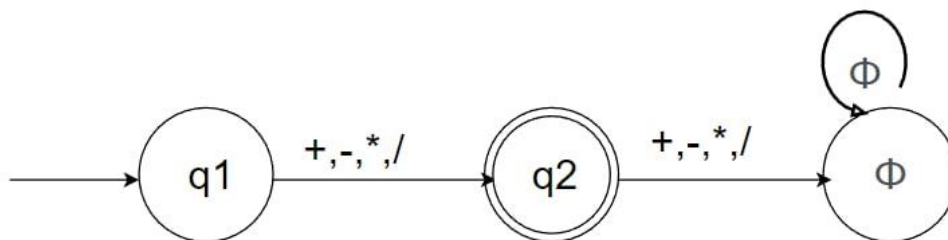
## 2. String



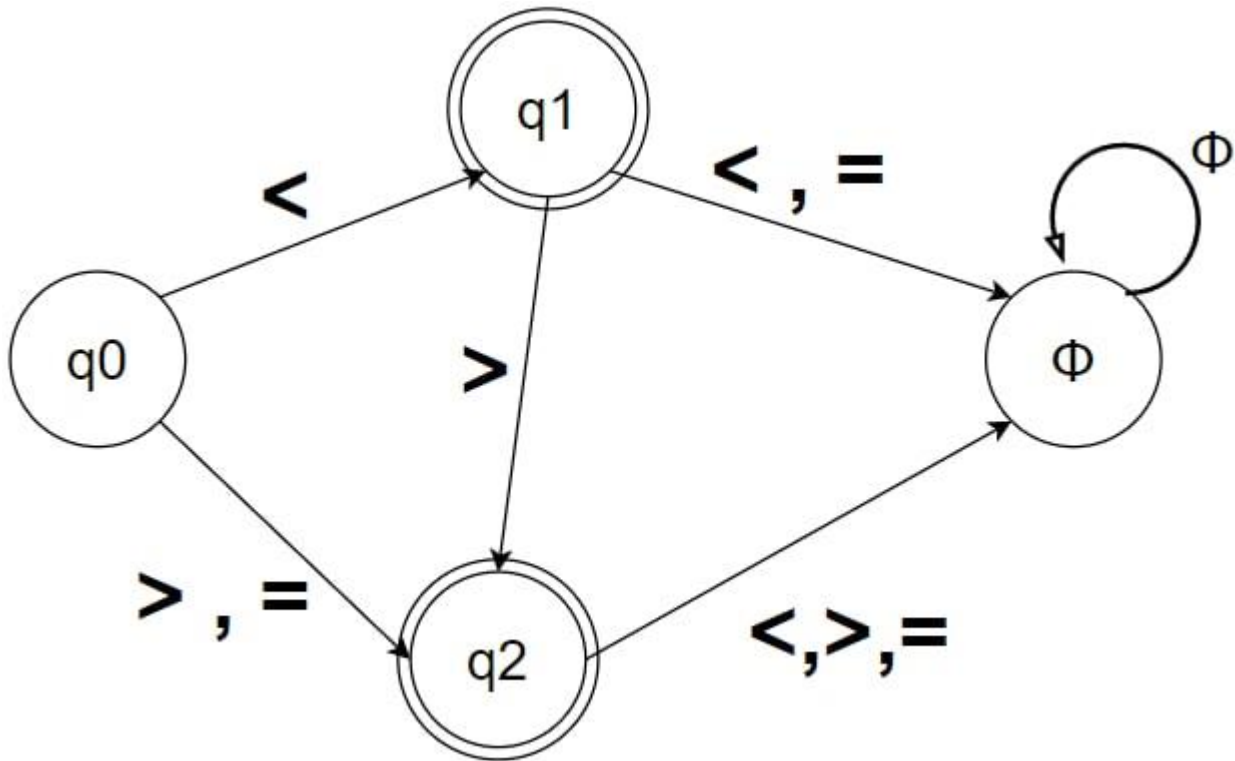
## 5. Identifiers



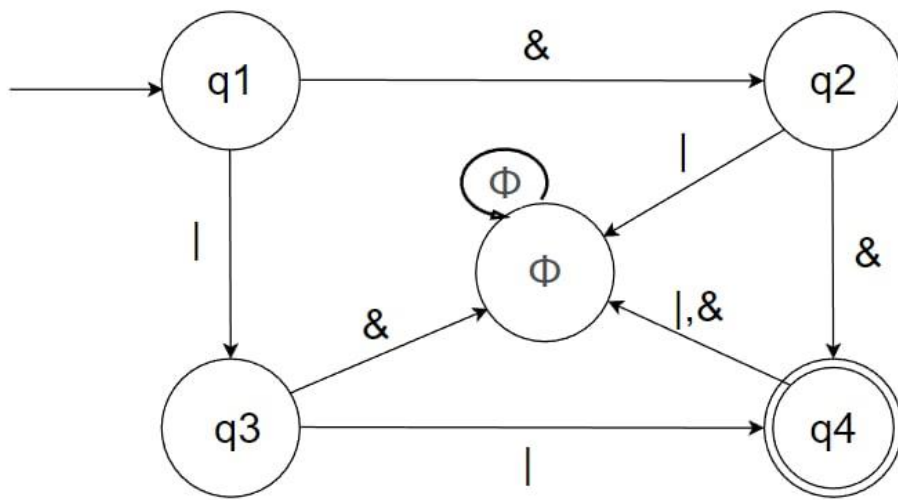
## 8. Arithmetic\_Operator



## 17. Condition\_Operator



## 19. Boolean\_Operator



## Operators

