Identifiers in Java

An identifier is any name in a Java program that can be used for identification purposes. It can be a method name, class name, variable name, or label name.

How many identifiers are present in the following program?

```
class Student
{
 public static void main(String args[])
{
int x=10;
}
}
```

Answer: 5

```
class Student{
public static void main(String args[])
{
int x=10;
}}
```

Student-user-defined class name

main- method name

String-predefined class name

args and x are the variable names

How many identifiers are present in the following program?

```
class First{
public static void main(String args[])
{
System.out.println(“Hello”);
}
}
```

Answer: 7

First-user defined class name

main-method name

String-predefined class name

args-variable name

System-Predefined class name

out-out is effectively an object name because it refers to a specific object of the PrintStream class.

println()-method name

Rules for Defining Java Identifiers:

Following are the allowed characters for identifiers in Java:

A to Z

a to z

0 to 9

$

_ (underscore)

By mistake, if you are using any other character, you will get a compile-time error.

Identify the valid identifiers.

even_number

even#

even2

2even

Answer:

even_number	valid
even#	invalid
even2	valid
2even	invalid- identifiers cannot start with digits.

Note: Java identifiers are case-sensitive. Java language itself is treated as a case-sensitive programming language.

```
class Demo
{
public static void main(String args[])
{
int number =10;   //Valid/Invalid
int Number =10;  // Valid/Invalid
int NUMBER =20; //Valid/Invalid
}
}
```

Note: We can differentiate with respect to the case.

How many characters are allowed in Java for identifiers?

32

64

128

256

512

No limit

```
class Demo
{
public static void main(String args[])
{       int  _x=5;
        int  x_=6;
        int $=3;
```

```
        int 123x=30;
        int #=5;
        int num=20;
        int Num=30;
        int NUM=40;
        int x=10;
        int xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx=20;
System.out.println(xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx);
}}


class Demo
{
public static void main(String args[])
{
        int _x=5;
        int x_=6;
        int $=3;
        int 123x=30; //illegal character
        int #=5;//illegal character
        int num=20;
        int Num=30;
        int NUM=40;
        //int num=50;//already defined
int x=10;
int xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx=20;
System.out.println(xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx);
}
}
```

Note :

There is no length limit for Java identifiers, even you can take any length, but it is not recommended to take too lengthy identifiers.

Can we use the reserved word for Java identifiers?

```
class ReserveW
{
public static void main(String args[])
{
int for =10;invalid
int if =20; invalid
int class =50;invalid
int cat =70; valid
}}
```

Note: We cannot use reserve words as identifiers.

CE: not a statement

Can you tell what is the output we are going to get???

```
class Demo1
{
public static void main(String args[])
{
        int String =100;
        int Runnable=200;
System.out.println(String);
System.out.println(Runnable);
}
```

}

output: 100
200

Question : Valid or not????
Answer : 100% valid
These are the predefined class or Interfaces of Java.
Note:
All predefined Java class names and interface names, we can use as Java identifiers. Even though it is valid, it is not good programming practice. It reduces readability and creates confusion.

Which are the following valid/invalid Java Identifiers;TODO
total_num
total#
123total
total123
ca$h
Integer
int
Int
_$_$_$
all@
Upes2020csf

Answer:
total_num valid
total# inv
123total inv
total123 valid
ca$h valid

Integer valid

int inv

Int valid

_$_$_$ valid

all@ inv

Upes2020iot valid

Word:

In any language-normal language or programming language, some words are reserved words.

Eg. In English

apple✓

students✓

run✓

sleep ✓

god ✓

dog ✓

odg ☒

Similarly, In java, some words are reserved words to present some meaning or functionality, such types of words are called reserve words.

Reserve Words in Java:

These words can't be used for anything else because they're predefined. They can't be used as a variable name, object name, or any other identifier. There are 53 reserved terms or keywords in Java.

How many reserved words are there in Java?

40

45

50

53

55

63

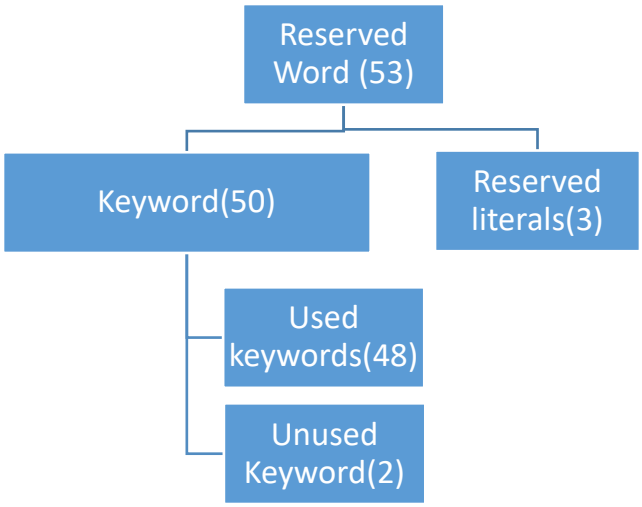
Answer: 53

abstract	assert	boolean	break	byte	case
catch	char	class	const	continue	default
double	do	else	enum	extends	false
final	finally	float	for	goto	if
implements	import	instanceof	int	interface	long
native	new	null	package	private	protected
public	return	short	static	strictfp	super
switch	synchronized	this	throw	throws	transient
true	try	void	volatile	while	

50 (keyword)+ 3(reserve literals) **true, false and null**

50 keyword= used keyword 48(if else…..)+unused keyword 2(goto,const)

const	The 'const' keyword is no more supported in Java
goto	The 'goto' keyword is no more supported in Java
true, false and null	The words "true, false, null" are literals. Still, we cannot use them as identifiers in the program.



Keywords for data types: 8

1. byte
2. short
3. int
4. long
5. float
6. double
7. boolean
8. char

Keywords for flow control: 11

9. if
10. else
11. switch
12. case
13. default
14. while
15. do

16. break
17. continue
18. return
19. for

Keywords for modifiers: 11 (Actually they are 12, default already included in flow control category)

20. public
21. private
22. protected
23. static
24. final
25. abstract
26. synchronized
27. native
28. strictfp- **1.2 version**
29. transient
30. volatile

Keywords for exception handling 6

31. try
32. catch
33. finally
34. throw
35. throws
36. **assert 1.4 version**

Class-related keywords: 6

37. class
38. interface

39. extends
40. implements
41. package
42. import

Object related keywords: 4

43. new
44. instanceof
45. super
46. this

Return type keyword:1

47. void (default return type in java- void, default return type in c language-int)

Group of named const:1

48. enum

Unused keyword:2

49. goto- uses of goto created several problems in old languages, hence java people banned this keyword in java.
50. const- use final instead of const

Note: goto and const are unused keywords and if you are trying to use we will get compile time error.

Reserved word -literals:3

51. true: value for Boolean data type
52. false: value for Boolean data type
53. null default value of object reference

Note: All 53-reserved words in Java contain only lowercase alphabet symbols.

Note: In Java, we have only a new keyword, and there is no deleting keyword because the destruction of useless objects is the responsibility of the garbage collector.

Which are the following list contains Java reserve words:

- new, delete
- goto , constant
- break,continue, return,exit
- final,finally,finalize-method
- throw, throws,thrown
- notify, notifyall
- implements, extends, imports
- sizeof, instanceof-not in java
- istanceif,strictFp
- byte,short,Int
- none of these

Answer:

new, delete
goto , constant
break,continue, return,exit
final,finally,finalize-method
throw, throws,thrown
notify, notifyall
implements, extends, imports
sizeof, instanceof-not in java
istanceif,strictFp
byte,short,Int
none of these-true

Note: Automatically they come in blue color in Java IDEs/Notepad+.