Objective C Tutorial

```
#import <Foundation/Foundation.h>

int main (int argc, const char * argv[])
{
   NSAutoreleasePool * pool = [[NSAutoreleasePool alloc] init];

   NSLog (@"hello world");
   [pool drain];
   return 0;
}
```

Objective-C Variables

Type	Storage size	Value range
char	1 byte	-128 to 127 or 0 to 255
unsigned char	1 byte	0 to 255
signed char	1 byte	-128 to 127
int	2 or 4 bytes	-32,768 to 32,767 or -2,147,483,648 to 2,147,483,647
unsigned int	2 or 4 bytes	0 to 65,535 or 0 to 4,294,967,295
short	2 bytes	-32,768 to 32,767
unsigned short	2 bytes	0 to 65,535

long	4 bytes	-2,147,483,648 to 2,147,483,647
unsigned long	4 bytes	0 to 4,294,967,295

Arithmetic Operators

Operator	**Description**
+	Adds two operands
-	Subtracts second operand from the first
*	Multiplies both operands
/	Divides numerator by denominator
%	Modulus Operator and remainder of after an integer division
++	Increment operator increases integer value by one
--	Decrement operator decreases integer value by one

Relational Operators

Operator	**Description**
==	Checks if the values of two operands are equal or not.
!=	Checks if the values of two operands are not equal.

>	Checks if the value of left operand is greater than the value of right operand.
<	Checks if the value of left operand is less than the value of right operand.
>=	Checks if the value of left operand is greater than or equal to the value of right operand.
<=	Checks if the value of left operand is less than or equal to the value of right operand.

Logical Operators

Operator	**Description**
&&	Logical AND operator. If both the operands are non zero then condition becomes true.
||	Logical OR Operator. If any of the two operands is non zero then condition becomes true.
!	Logical NOT Operator. Reverse the logical state of its operand. If a condition is true, then Logical NOT operator will make false.

Assignment Operators

Operator	**Description**
=	Assignment operator, Assigns values from right side operands to left side operand
+=	Add AND assignment operator, It adds right operand to the left operand and assigns the result to left operand
-=	Subtract AND assignment operator, It subtracts right operand from the left operand and assigns the result to left operand
*=	Multiply AND assignment operator, It multiplies right operand with the left operand and assigns the result to left operand
/=	Divide AND assignment operator, It divides left operand with the right operand and assigns the result to left operand
%=	Modulus AND assignment operator, It takes modulus using two operands and assigns the result to left operand
<<=	Left shift AND assignment operator
>>=	Right shift AND assignment operator
&=	Bitwise AND assignment operator
^=	bitwise exclusive OR and assignment operator
|=	bitwise inclusive OR and assignment operator

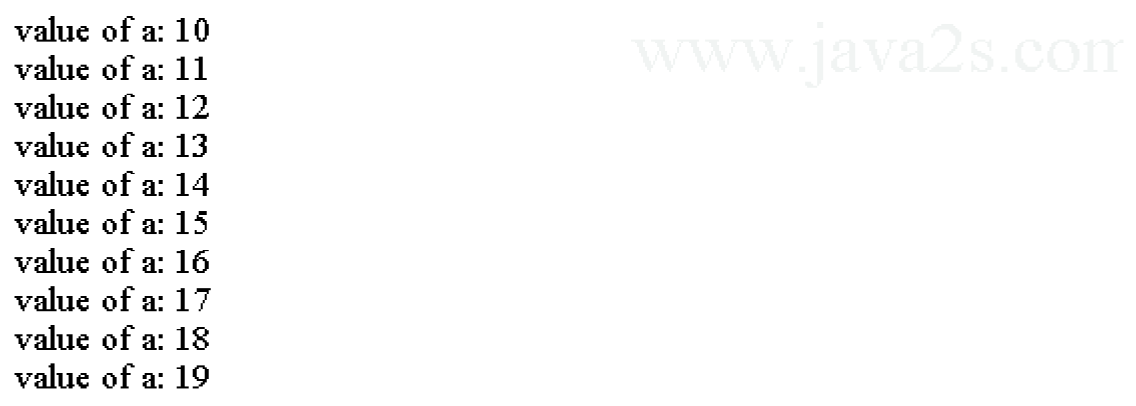
BAB 1

- **LOOP**
- **NESTED LOOP**
- **WHILE LOOP**
- **BREAK STATEMENT**
- **CONTINUE STATEMENT**
- **IF STATEMENT**
- **SWITCH**

Loop

```
#import <Foundation/Foundation.h>

int main ()
{
   /* for loop execution */
   int a;
   for( a = 10; a < 20; a = a + 1 )
   {
      NSLog(@"value of a: %d\n", a);
   }

   return 0;
}
```

The code above generates the following result.



```
value of a: 10
value of a: 11
value of a: 12
value of a: 13
value of a: 14
value of a: 15
value of a: 16
value of a: 17
value of a: 18
value of a: 19
```

Nested for loop

```
#import <Foundation/Foundation.h>


int main ()
{
  int i;
    int j;
    i = 0;
    do
    {
        NSLog (@"Outer loop %i", i);
        for (j = 0; j < 3; j++)
        {
            NSLog (@"     Inner loop number %i", j);
        }
        i++;
    } while (i < 3);


   return 0;
}
```

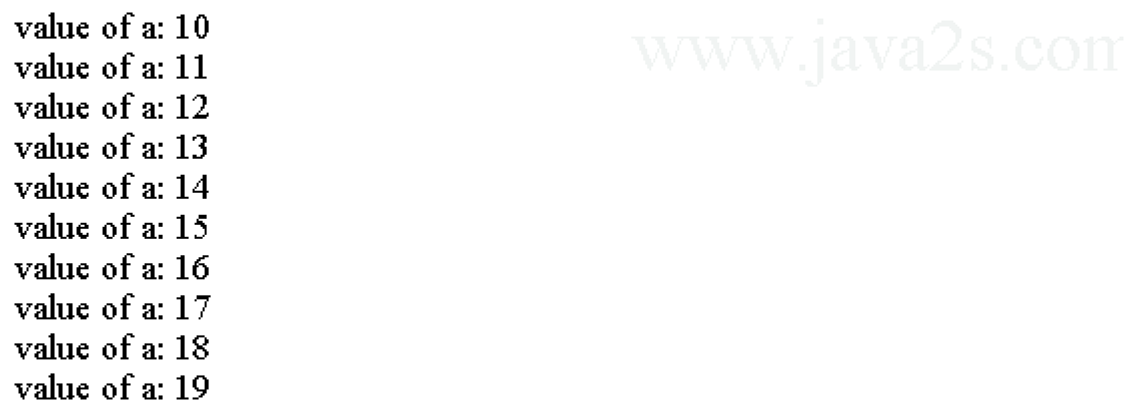
The code above generates the following result.

```
Outer loop 0
    Inner loop number 0
    Inner loop number 1
    Inner loop number 2
Outer loop 1
    Inner loop number 0
    Inner loop number 1
    Inner loop number 2
Outer loop 2
    Inner loop number 0
```

While Loop

```
#import <Foundation/Foundation.h>

int main ()
{
   int a = 10;

   while( a < 20 )
   {
      NSLog(@"value of a: %d\n", a);
      a++;
   }

   return 0;
}
```

The code above generates the following result



```
value of a: 10
value of a: 11
value of a: 12
value of a: 13
value of a: 14
value of a: 15
value of a: 16
value of a: 17
value of a: 18
value of a: 19
```

```
#import <Foundation/Foundation.h>

int main ()
{
   /* local variable definition */
   int a = 10;

   /* do loop execution */
   do
   {
       NSLog(@"value of a: %d\n", a);
       a = a + 1;
   }while( a < 20 );

   return 0;
}
```

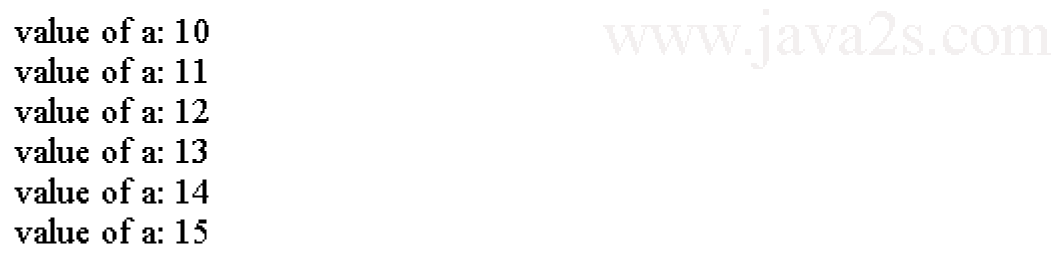
The code above generates the following result.

```
value of a: 10
value of a: 11
value of a: 12
value of a: 13
value of a: 14
value of a: 15
value of a: 16
value of a: 17
value of a: 18
value of a: 19
```

Break Statement

```
#import <Foundation/Foundation.h>

int main ()
{
   /* local variable definition */
   int a = 10;

   /* while loop execution */
   while( a < 20 )
   {
      NSLog(@"value of a: %d\n", a);
      a++;
      if( a > 15)
      {
         /* terminate the loop using break statement */
          break;
      }
   }

   return 0;
}
```

The code above generates the following result.

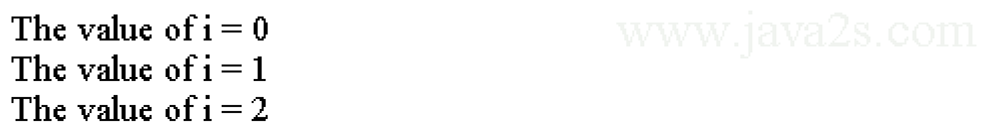


```
value of a: 10
value of a: 11
value of a: 12
value of a: 13
value of a: 14
value of a: 15
```

Break out of for

```
#import <Foundation/Foundation.h>


int main ()
{
  int i;
    for (i = 0; i < 5; i++)
    {
        NSLog (@"The value of i = %i", i);
        if (i == 2)
        {
            break;
        }
    }

   return 0;
}
```

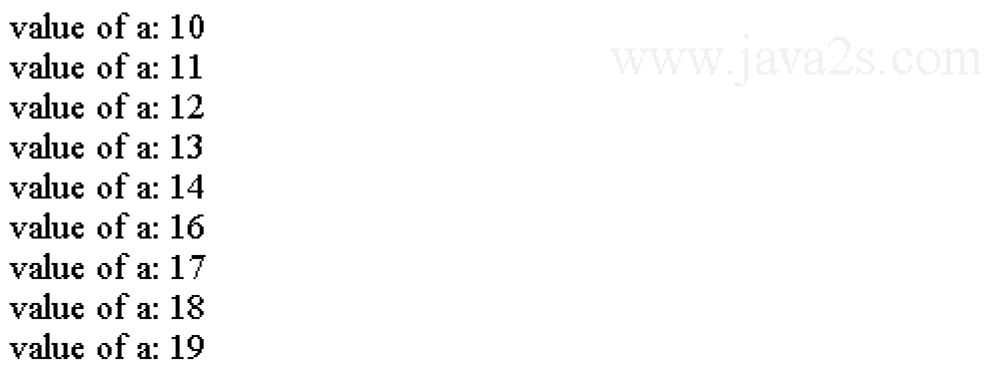
The code above generates the following result.



```
The value of i = 0
The value of i = 1
The value of i = 2
```

Continue Statement

```
#import <Foundation/Foundation.h>

int main ()
{
   /* local variable definition */
   int a = 10;

   /* do loop execution */
   do
   {
      if( a == 15)
      {
         /* skip the iteration */
         a = a + 1;
         continue;
      }
      NSLog(@"value of a: %d\n", a);
      a++;

   }while( a < 20 );

   return 0;
}
```

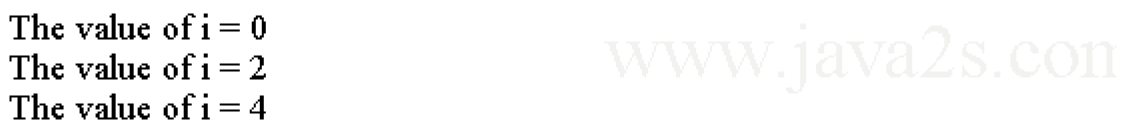


```
value of a: 10
value of a: 11
value of a: 12
value of a: 13
value of a: 14
value of a: 16
value of a: 17
value of a: 18
value of a: 19
```

<u>Skipping for</u>

```
#import <Foundation/Foundation.h>


int main ()
{
  int i;
    for (i = 0; i < 5; i++)
    {
        if ((i % 2) != 0)
        {
            continue;
        }
        NSLog (@"The value of i = %i", i);
    }

   return 0;
}
```

The code above generates the following result.



```
The value of i = 0
The value of i = 2
The value of i = 4
```

If statement Example

```
#import <Foundation/Foundation.h>

int main ()
{
   int a = 10;

   if( a < 20 )
   {
       NSLog(@"a is less than 20\n" );
   }
   NSLog(@"value of a is : %d\n", a);
   return 0;
}
```

If else Example

```
#import <Foundation/Foundation.h>

int main ()
{
   int a = 100;

   if( a < 20 )
   {
       NSLog(@"a is less than 20\n" );
   }
   else
   {
       NSLog(@"a is not less than 20\n" );
   }
   NSLog(@"value of a is : %d\n", a);
   return 0;
}
```

If else if statement Example

```
#import <Foundation/Foundation.h>

int main ()
{
   int a = 100;

   if( a == 10 )
   {
       NSLog(@"Value of a is 10\n" );
   }
   else if( a == 20 )
   {
       NSLog(@"Value of a is 20\n" );
   }
   else if( a == 30 )
   {
       NSLog(@"Value of a is 30\n" );
   }
   else
   {
       NSLog(@"None of the values is matching\n" );
   }
   NSLog(@"Exact value of a is: %d\n", a );

   return 0;
}
```

Nested if statement Example

```
#import <Foundation/Foundation.h>

int main ()
{
   int a = 100;
   int b = 200;

   if( a == 100 )
   {
       if( b == 200 )
       {
          NSLog(@"Value of a is 100 and b is 200\n" );
       }
   }
   NSLog(@"Exact value of a is : %d\n", a );
   NSLog(@"Exact value of b is : %d\n", b );

   return 0;
}
```

The code above generates the following result.

```
Value of a is 100 and b is 200
Exact value of a is : 100
Exact value of b is : 200
```

Switch

```
#import <Foundation/Foundation.h>

int main ()
{
   char grade = 'B';

   switch(grade)
   {
   case 'A' :
      NSLog(@"A!\n" );
      break;
   case 'B' :
   case 'C' :
      NSLog(@"B\n" );
      break;
   case 'D' :
      NSLog(@"D\n" );
      break;
   case 'F' :
      NSLog(@"F\n" );
      break;
   default :
      NSLog(@"Invalid grade\n" );
   }
   NSLog(@"Your grade is  %c\n", grade );

   return 0;
}
```

<u>Switch statement with number</u>

```
#import <Foundation/Foundation.h>

int main ()
{
  int X = 2;
    switch (X)
    {
        case 1:
            NSLog (@"X = 1");
            break;
        case 2:
            NSLog (@"X = 2");
            break;
        default:
            NSLog (@"Default code");
            break;
    }

   return 0;
}
```

The code above generates the following result.

```
X = 2
```

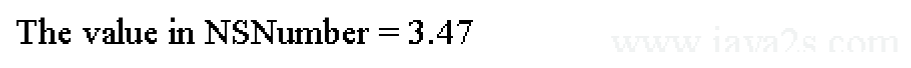
BAB 2

- **NS-NUMBER**
- **ARRAYS**
- **STRING**
- **STRING OPERATION**
- **NSDATE**

NSNUMBER

```
#import <Foundation/Foundation.h>


int main ()
{
  NSNumber *myNumber;
    myNumber = [NSNumber numberWithFloat:3.47];
    NSLog (@"The value in NSNumber = %@", myNumber);


   return 0;
}
```

The code above generates the following result.



```
The value in NSNumber = 3.47
```

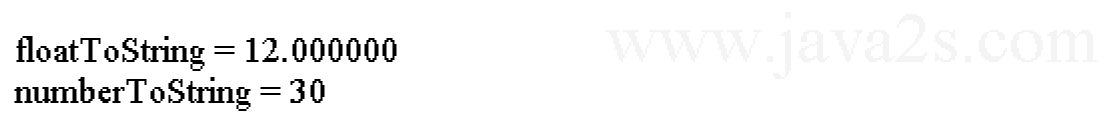
The following code shows how to use NSNumber to multiply two numbers and returns the product.

```
#import <Foundation/Foundation.h>

@interface SampleClass:NSObject

- (NSNumber *)multiplyA:(NSNumber *)a withB:(NSNumber *)b;

@end

@implementation SampleClass

- (NSNumber *)multiplyA:(NSNumber *)a withB:(NSNumber *)b
{
   float number1 = [a floatValue];
   float number2 = [b floatValue];
   float product = number1 * number2;
   NSNumber *result = [NSNumber numberWithFloat:product];
   return result;
}

@end
int main()
{
   NSAutoreleasePool * pool = [[NSAutoreleasePool alloc] init];

   SampleClass *sampleClass = [[SampleClass alloc]init];
   NSNumber *a = [NSNumber numberWithFloat:10.5];
   NSNumber *b = [NSNumber numberWithFloat:10.0];
   NSNumber *result = [sampleClass multiplyA:a withB:b];
   NSString *resultString = [result stringValue];
   NSLog(@"The product is %@",resultString);
   [pool drain];
   return 0;
}
```

Convert Float NSNumber to String

```
#import <Foundation/Foundation.h>

int main (int argc, const char * argv[])
{


        float fNumber = 12;

        NSString *floatToString = [NSString stringWithFormat:@"%f", fNumber];

        NSLog(@"floatToString = %@", floatToString);

        NSNumber *number = [NSNumber numberWithFloat:30];

        NSString *numberToString = [number stringValue];

        NSLog(@"numberToString = %@", numberToString);

    return 0;
}
```

The code above generates the following result.

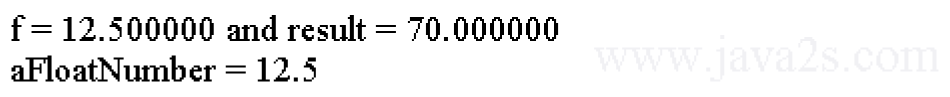


```
floatToString = 12.000000
numberToString = 30
```

String to Number

```
#import <Foundation/Foundation.h>


int main (int argc, const char * argv[])

{



        NSString *aFloatValue = @"12.50";


        float f = [aFloatValue floatValue];


        float result = f * 2 + 45;


        NSLog(@"f = %f and result = %f", f, result);


        NSNumber *aFloatNumber = [NSNumber numberWithFloat:[aFloatValue floatValue
]];


        NSLog(@"aFloatNumber = %@", aFloatNumber);


    return 0;

}
```

The code above generates the following result.



```
f = 12.500000 and result = 70.000000
aFloatNumber = 12.5
```

Format a Number

```
#import <Foundation/Foundation.h>

int main (int argc, const char * argv[])
{



        NSNumber *numberToFormat = [NSNumber numberWithFloat:9.99];

        NSLog(@"numberToFormat = %@", numberToFormat);

        NSNumberFormatter *numberFormatter = [[NSNumberFormatter alloc] init];

        numberFormatter.numberStyle = NSNumberFormatterCurrencyStyle;

        NSLog(@"Formatted for currency: %@", [numberFormatter stringFromNumber:
        numberToFormat]);

        numberFormatter.numberStyle = NSNumberFormatterSpellOutStyle;

        NSLog(@"Formatted for spelling out: %@", [numberFormatter stringFromNumber
        :numberToFormat]);

    return 0;
}
```

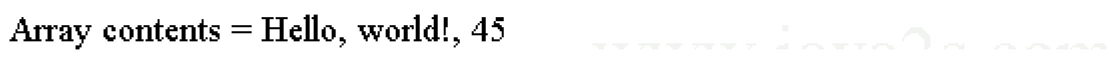
ARRAYS

```
#import <Foundation/Foundation.h>

int main ()
{
   int n[ 10 ];
   int i,j;

   for ( i = 0; i < 10; i++ )
   {
      n[ i ] = i + 100; /* set element at location i to i + 100 */
   }

   for (j = 0; j < 10; j++ )
   {
      NSLog(@"Element[%d] = %d\n", j, n[j] );
   }

   return 0;
}
```

Creating an Array

```
#import <Foundation/Foundation.h>
int main ()
{
  NSString *object1 = @"Hello";
    NSString *object2 = @"world!";
    NSNumber *object3 = [NSNumber numberWithInt:45];
    NSArray *myArray;
    myArray= [NSArray arrayWithObjects: object1, object2, object3, nil];
    NSLog(@"Array contents = %@",[myArray componentsJoinedByString:@", "]);
   return 0;
}
```

The code above generates the following result.

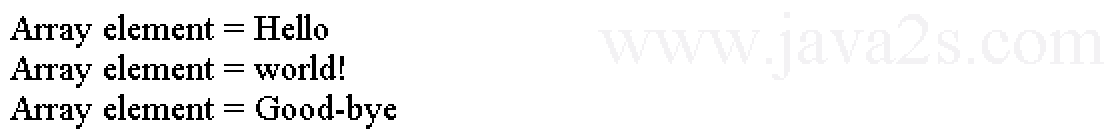


```
Array contents = Hello, world!, 45
```

Accessing All Items in an Array

```
#import <Foundation/Foundation.h>


int main ()
{
  NSString *object1 = @"Hello";
    NSString *object2 = @"world!";
    NSString *object3 = @"Good-bye";
    NSArray *myArray;
    myArray= [NSArray arrayWithObjects: object1, object2, object3, nil];
    for (NSString *randomVariable in myArray)
    {
    NSLog (@"Array element = %@", randomVariable);
    }

   return 0;
}
```

The code above generates the following result.

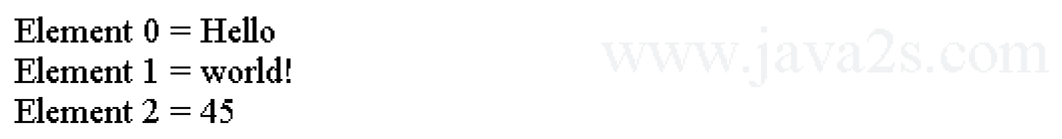


```
Array element = Hello
Array element = world!
Array element = Good-bye
```

Array for loop

```
#import <Foundation/Foundation.h>


int main ()
{
  NSString *object1 = @"Hello";
    NSString *object2 = @"world!";
    NSNumber *object3 = [NSNumber numberWithInt:45];
    NSArray *myArray;
    myArray= [NSArray arrayWithObjects: object1, object2, object3, nil];
    int i;
    for (i = 0; i < [myArray count]; i++)
    {
        NSLog (@"Element %i = %@", i, [myArray objectAtIndex: i]);
    }


   return 0;
}
```

The code above generates the following result.

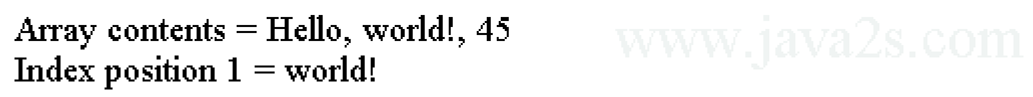


```
Element 0 = Hello
Element 1 = world!
Element 2 = 45
```

Accessing an Item in an Array

```
#import <Foundation/Foundation.h>


int main ()
{
  NSString *object1 = @"Hello";
    NSString *object2 = @"world!";
    NSNumber *object3 = [NSNumber numberWithInt:45];
    NSArray *myArray;
    myArray= [NSArray arrayWithObjects: object1, object2, object3, nil];
    NSLog(@"Array contents = %@",[myArray componentsJoinedByString:@", "]);
  NSLog (@"Index position 1 = %@", [myArray objectAtIndex:1]);


   return 0;
}
```

The code above generates the following result.



```
Array contents = Hello, world!, 45
Index position 1 = world!
```

STRINGS

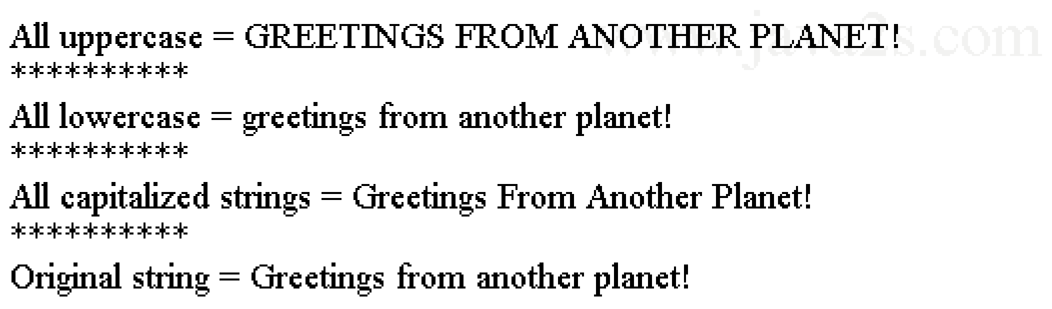
```
#import <Foundation/Foundation.h>

int main ()
{
   NSString *str1 = @"Hello";
   NSString *str2 = @"World";
   NSString *str3;
   int  len ;

   NSAutoreleasePool * pool = [[NSAutoreleasePool alloc] init];

   str3 = [str2 uppercaseString];
   NSLog(@"Uppercase String :  %@\n", str3 );

   str3 = [str1 stringByAppendingFormat:@"World"];
   NSLog(@"Concatenated string:   %@\n", str3 );

   len = [str3 length];
   NSLog(@"Length of Str3 :  %d\n", len );

    str3 = [[NSString alloc] initWithFormat:@"%@ %@",str1,str2];
    NSLog(@"Using initWithFormat:   %@\n", str3 );
    [pool drain];

   return 0;
}
```

STRING OPERATIONS

Convert to uppercase and lowercase

```
#import <Foundation/Foundation.h>


int main ()
{
  NSString *testString = @"Greetings from another planet!";
    NSString *targetString;
    targetString = [testString uppercaseString];
    NSLog (@"All uppercase = %@", targetString);
    NSLog (@"**********");
    targetString = [testString lowercaseString];
    NSLog (@"All lowercase = %@", targetString);
    NSLog (@"**********");
    targetString = [testString capitalizedString];
    NSLog (@"All capitalized strings = %@", targetString);
    NSLog (@"**********");
    NSLog (@"Original string = %@", testString);


   return 0;
}
```

The code above generates the following result.



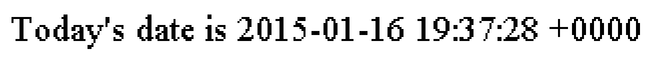
```
All uppercase = GREETINGS FROM ANOTHER PLANET!
**********
All lowercase = greetings from another planet!
**********
All capitalized strings = Greetings From Another Planet!
**********
Original string = Greetings from another planet!
```

NSDATE

Create Today's Date

```
#import <Foundation/Foundation.h>


int main (int argc, const char * argv[])
{


        NSDate *todaysDate = [NSDate date];


        NSLog(@"Today's date is %@", todaysDate);
    return 0;
}
```

The code above generates the following result.

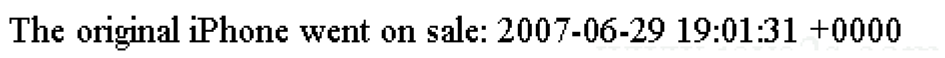


```
Today's date is 2015-01-16 19:37:28 +0000
```

Create Custom Dates

```
#import <Foundation/Foundation.h>


int main (int argc, const char * argv[])
{


        NSDateComponents *dateComponents = [[NSDateComponents alloc] init];
        dateComponents.year = 2007;
        dateComponents.month = 6;
        dateComponents.day = 29;
        dateComponents.hour = 12;
        dateComponents.minute = 01;
        dateComponents.second = 31;
        dateComponents.timeZone = [NSTimeZone timeZoneWithAbbreviation:@"PDT"];


        NSDate *iPhoneReleaseDate = [[NSCalendar currentCalendar] dateFromComponen
ts:dateComponents];


        NSLog(@"The original iPhone went on sale: %@", iPhoneReleaseDate);


    return 0;
}
```

The code above generates the following result.



```
The original iPhone went on sale: 2007-06-29 19:01:31 +0000
```

Adding and Subtracting Dates

```
#import <Foundation/Foundation.h>


int main (int argc, const char * argv[])
{
    NSString *dateString = @"02/14/2012";


    NSDateFormatter *df = [[NSDateFormatter alloc] init];


    df.dateFormat = @"MM/dd/yyyy";


    NSDate *valentinesDay = [df dateFromString:dateString];


    NSLog(@"Valentine's Day = %@", valentinesDay);


    NSDateComponents *weekBeforeDateComponents = [[NSDateComponents alloc] init];


    weekBeforeDateComponents.week = -1;


   NSDate *vDayShoppingDay = [[NSCalendar currentCalendar] dateByAddingComponents:
weekBeforeDateComponents toDate:valentinesDay options:0];
        NSLog(@"Shop for Valentine's Day by %@", vDayShoppingDay);


    return 0;
}
```