

Example.java

```
import java.io.ByteArrayInputStream;

public class Example {

    /*
     * Input sequences for alignment
     */
    static final String input = ">Foo\r\n"
        + "MTADGPRELLQLRAAVRHRPQDFVAWLMLADAELGMGDTTAGEMAVQRGLALHPGHPEAVARLGR"
        + "VRWTQQRHAEAAVLLQQASDAAPEHPGIALWLGHAELEDAGQAEAAAAAYTRAHQLLPEEPYITAQ"
        + "LLNWRRLCDWRALDVLSAQVRAAVAQGVGAVEPFAFLSEDASAAEQLACARTRAQAIASVRPL"
        + "APTRVRSKGPLRVGFVSNFGAHPPTGLLTVALFEALQRRQPDLMHLFATSGDDGSTLRTRLAQA"
        + "STLHDVTALGHLATAKHIRHHGIDLLFDLRGWGGGGRPEVFALRPAPVQVNWLAYPGTSGAPWMD"
        + "YVLGDAFALPPALEPFYSEHVLRLQGAFQPSDTSRVVAEPPSRTQCGLPEQGVVLCFFNNSYKLN"
        + "PQSMARMLAVLREVPDVLWLLSGPGEADARLRAFHAHQGVDAQRLVFMKLPHPQYLARYRHAD"
        + "FLDTHPYNAHTTASDALWTGCPVLTTPGETFAARVAGSLNHHHLGLDEMNVADDAAFVAKAVALAS"
        + "DPAALTALHARVDVLRRESGVFEMDGFADDFGALLQALARRHGWLGI\r\n"
        + "\r\n"
        + ">Bar\r\n"
        + "MGDTTAGEMAVQRGLALHQQRHAEAAVLLQQASDAAPEHPGIALWLHAELEDAGQAEAAAAAYTRAH"
        + "QLLPEEPYITAQLLNAVAQGVGAVEPFAFLSEDASAAESVRPLAPTRVRSKGPLRVGFVSNFGA"
        + "HPTGLLTVALFEALQRRQPDLMHLFATSGDDGSTLRTRLAQASTLHDVTALGHLATAKHIRHHG"
        + "IDLLFDLRGWGGGGRPEVFALRPAPVQVNWLAYPGTSGAPWMDYVLGDAFALPPALEPFYSEHVL"
        + "RLQGAFQPSDTSRVVAEPPSRTQCGLPEQGVVLCFFNNSYKLNQPQSMARMLAVLREVPDVLWLL"
        + "SGPGEADARLRAFHAHQGVDAQRLVFMKLPHPQYLARYRHADFLDTHPYNAHTTASDALWTG"
        + "PVLTPGETFAARVAGSLNHHHLGLDEMNVADDAAFVAKAVALASDPAALTALHARVDVLRRESGV"
        + "FEMDGFADDFGALLQALARRHGWLGI\r\n"
        + "\r\n"
        + ">Friends\r\n"
        + "MTADGPRELLQLRAAVRHRPQDVAVWLMLADAELGMGDTTAGEMAVQRGLALHPGHPEAVARLGRV"
        + "RWTQQRHAEAAVLLQQASDAAPEHPGIALWLGHAELEDHQLLPEEPYITAQLDVLSAQVRAAVAQ"
        + "VGAVEPFAFLSEDASAAEQLACARTRAQAIASVRPLAPTRVRSKGPLRVGFVSNFGAHPPTGL"
        + "TVALFEALQRRQPDLMHLFATSGDDGSTLRTRLAQASTLHDVTALGHLATAKHIRHHGIDLLFD"
        + "LRGWGGGGRPEVFALRPAPVQVNWLAYPGTSGAPWMDYVLGDAFALPPALEPFYSEHVLRLQGAF"
        + "QPSDTSRVVAEPPSRTQCGLPEQGVVLCFFNNSYKLNQPQSMARMLAVLREVPDVLWLLSGPGEA"
        + "DARLRAFHAHQGVDAQRLVFMKLPHPQYLARYRHADFLDTHPYNAHTTASDALWTGCPVLTTP"
        + "GETFAARVAGSLNHHHLGLDEMNVADDAAFVAKAVALASDPAALTALHARVDVLRRESI";

    public static void main(String[] args) throws UnsupportedOperationException,
        LimitExceededException, JobSubmissionException,
        WrongParameterException, FileNotFoundException, IOException,
        ResultNotAvailableException, InterruptedException {

        String qualifiedServiceName = "http://msa.data.compbio/01/01/2010/";

        /* Make a URL pointing to web service WSDL */
        URL url = new URL(
            "http://www.compbio.dundee.ac.uk/jabaws/ClustalWS?wsdl");

        /*
         * If you are making a client that connects to different web services
         * you can use something like this:
         */
        // URL url = new URL(host + "/" + Services.ClustalWS.toString() +
        // "?wsdl");

        QName qname = new QName(qualifiedServiceName, "ClustalWS");
        Service serv = Service.create(url, qname);
        /*
         * Multiple sequence alignment interface for Clustal web service
         * instance
         */
    }
}
```

### Example.java

```
MsaWS msaws = serv.getPort(new QName(qualifiedServiceName, "ClustalWS"
    + "Port"), MsaWS.class);

/* Get the list of available presets */
PresetManager presetman = msaws.getPreset();

/* Get the Preset object by preset name */
Preset preset = presetman
    .getPresetByName("Disable gap weighting (Speed-oriented)");

/*
 * Load sequences in FASTA format from the file You can use something
 * like new FileInputStream(<filename>) to load sequence from the file
 */
List<FastaSequence> fastalist = SequenceUtil
    .readFasta(new ByteArrayInputStream(input.getBytes()));

/*
 * Submit loaded sequences for an alignment using preset The job
 * identifier is returned by this method, you can retrieve the results
 * with it sometime later.
 */
String jobId = msaws.presetAlign(fastalist, preset);

/* This method will block for the duration of the calculation */
Alignment alignment = msaws.getResult(jobId);

/*
 * This is a better way of obtaining results, it does not involve
 * holding the connection open for the duration of the calculation,
 * Besides, as the University of Dundee public server will reset the
 * connection after 10 minutes of idling, this is the only way to obtain
 * the results of long running task from our public server.
 */
// while (msaws.getJobStatus(jobId) != JobStatus.FINISHED) {
// Thread.sleep(1000); // wait a second, then recheck the status
// }

/* Output the alignment to standard out */
System.out.println(alignment);

// Alternatively, you can record retrieved alignment into the file in
// ClustalW format

// ClustalAlignmentUtil.writeClustalAlignment(new FileOutputStream(
// "output.al"), alignment);
}
}
```