

MusicXML encoding of the first four bars of Mozart's piano sonata K. 457.

Musical example created with SCORE. XML textfile created from a *Finale 2003* file using export capabilities to MusicXML provided by Recordare, Inc. (<http://www.recordare.com>)

```
<?xml version="1.0" standalone="no"?>
<!DOCTYPE score-partwise PUBLIC "-//Recordare//DTD MusicXML 0.6b Partwise//EN"
"C:/MusicXML/partwise.dtd">
<score-partwise>
  <identification>
    <encoding>
      <software>Finale 2003 for Windows</software>
    </encoding>
  </identification>
  <part-list>
    <score-part id="P1">
      <part-name>MusicXML Part</part-name>
      <score-instrument id="P1-I1">
        <instrument-name>Acoustic Grand Piano</instrument-name>
      </score-instrument>
      <midi-instrument id="P1-I1">
        <midi-channel>1</midi-channel>
        <midi-program>1</midi-program>
      </midi-instrument>
    </score-part>
  </part-list>
  <part id="P1">
    <measure number="1">
      <attributes>
        <divisions>4</divisions>
        <key>
          <fifths>-4</fifths>
          <mode>minor</mode>
        </key>
        <time>
          <beats>6</beats>
          <beat-type>8</beat-type>
        </time>
        <staves>2</staves>
        <clef number="1">
          <sign>G</sign>
          <line>2</line>
        </clef>
        <clef number="2">
          <sign>F</sign>
          <line>4</line>
        </clef>
      </attributes>
      <direction placement="above">
        <direction-type>
          <words font-weight="bold" relative-y="16" relative-x="-10">Adagio</words>
        </direction-type>
        <staff>1</staff>
        <sound tempo="40"/>
      </direction>
      <direction placement="below">
        <direction-type>
```

Part set-up described here.

```

    <dynamics relative-y="-15">
      <f/>
    </dynamics>
  </direction-type>
</staff>1</staff>
<sound dynamics="98"/>
</direction>
<note>
  <pitch>
    <step>C</step>
    <octave>5</octave>
  </pitch>
  <duration>3</duration>
  <voice>1</voice>
  <type>eighth</type>
  <dot/>
  <stem>down</stem>
  <staff>1</staff>
  <beam number="1">begin</beam>
  <notations>
    <ornaments>
      <wavy-line type="continue"/>
    </ornaments>
  </notations>
  <notations>
    <ornaments>
      <trill-mark/>
      <wavy-line type="start"/>
    </ornaments>
  </notations>
</note>
<note>
  <pitch>
    <step>D</step>
    <alter>-1</alter>
    <octave>5</octave>
  </pitch>
  <duration>1</duration>
  <voice>1</voice>
  <type>16th</type>
  <stem>down</stem>
  <staff>1</staff>
  <beam number="1">continue</beam>
  <beam number="2">backward hook</beam>
</note>
<note>
  <pitch>
    <step>C</step>
    <octave>5</octave>
  </pitch>
  <duration>2</duration>
  <voice>1</voice>
  <type>eighth</type>
  <stem>down</stem>
  <staff>1</staff>
  <beam number="1">end</beam>
</note>
<note>
  <pitch>
    <step>C</step>
    <octave>5</octave>
  </pitch>
  <duration>4</duration>
  <voice>1</voice>
  <type>quarter</type>
  <stem>down</stem>
  <staff>1</staff>
  <notations>
    <slur type="start" number="1"/>
  </notations>
</note>

```

First note described here.

```

<note>
  <pitch>
    <step>F</step>
    <octave>5</octave>
  </pitch>
  <duration>2</duration>
  <voice>1</voice>
  <type>eighth</type>
  <stem>down</stem>
  <staff>1</staff>
  <notations>
    <slur type="stop" number="1"/>
  </notations>
</note>
<backup>
  <duration>12</duration>
</backup>
<note>
  <pitch>
    <step>F</step>
    <octave>3</octave>
  </pitch>
  <duration>4</duration>
  <voice>3</voice>
  <type>quarter</type>
  <stem>down</stem>
  <staff>2</staff>
</note>
<note>
  <chord/>
  <pitch>
    <step>A</step>
    <alter>-1</alter>
    <octave>3</octave>
  </pitch>
  <duration>4</duration>
  <voice>3</voice>
  <type>quarter</type>
  <stem>down</stem>
  <staff>2</staff>
</note>
<note>
  <rest/>
  <duration>2</duration>
  <voice>3</voice>
  <type>eighth</type>
  <staff>2</staff>
</note>
<note>
  <rest/>
  <duration>4</duration>
  <voice>3</voice>
  <type>quarter</type>
  <staff>2</staff>
</note>
<note>
  <rest/>
  <duration>2</duration>
  <voice>3</voice>
  <type>eighth</type>
  <staff>2</staff>
</note>
<backup>
  <duration>12</duration>
</backup>
<forward>
  <duration>12</duration>
  <voice>4</voice>
  <staff>2</staff>
</forward>
</measure>
<measure number="2">
  <note>
    <pitch>
      <step>G</step>
      <octave>4</octave>
    </pitch>
    <duration>3</duration>
    <voice>1</voice>
    <type>eighth</type>
    <dot/>
    <stem>down</stem>
    <staff>1</staff>
    <beam number="1">begin</beam>
  </note>
  <note>
    <pitch>
      <step>A</step>
      <alter>-1</alter>
      <octave>4</octave>
    </pitch>
    <duration>1</duration>
    <voice>1</voice>
    <type>16th</type>
    <stem>up</stem>
    <staff>1</staff>
    <beam number="1">continue</beam>
    <beam number="2">backward hook</beam>
  </note>
  <note>
    <pitch>
      <step>G</step>
      <octave>4</octave>
    </pitch>
    <duration>2</duration>
    <voice>1</voice>
    <type>eighth</type>
    <stem>up</stem>
    <staff>1</staff>
    <beam number="1">end</beam>
  </note>
  <note>
    <pitch>
      <step>G</step>
      <octave>4</octave>
    </pitch>
    <duration>2</duration>
    <voice>1</voice>
    <type>eighth</type>
    <stem>down</stem>
    <staff>1</staff>
  </note>
  <note>
    <rest>
      <display-step>E</display-step>
      <display-octave>4</display-octave>
    </rest>
    <duration>2</duration>
    <voice>1</voice>
    <type>eighth</type>
    <staff>1</staff>
  </note>
  <note>
    <rest>
      <display-step>E</display-step>
      <display-octave>4</display-octave>
    </rest>
    <duration>2</duration>
    <voice>1</voice>
    <type>eighth</type>
    <staff>1</staff>
  </note>
</measure>

```

```

<backup>
  <duration>12</duration>
</backup>
<note>
  <pitch>
    <step>F</step>
    <octave>5</octave>
  </pitch>
  <duration>6</duration>
  <tie type="start"/>
  <voice>2</voice>
  <type>quarter</type>
  <dot/>
  <stem>up</stem>
  <staff>1</staff>
  <notations>
    <tie type="start"/>
  </notations>
</note>
<note>
  <pitch>
    <step>F</step>
    <octave>5</octave>
  </pitch>
  <duration>2</duration>
  <tie type="stop"/>
  <voice>2</voice>
  <type>eighth</type>
  <stem>up</stem>
  <staff>1</staff>
  <beam number="1">begin</beam>
  <notations>
    <tie type="stop"/>
  </notations>
</note>
<note>
  <pitch>
    <step>E</step>
    <alter>-1</alter>
    <octave>5</octave>
  </pitch>
  <duration>2</duration>
  <voice>2</voice>
  <type>eighth</type>
  <stem>down</stem>
  <staff>1</staff>
  <beam number="1">continue</beam>
</note>
<note>
  <pitch>
    <step>D</step>
    <alter>-1</alter>
    <octave>5</octave>
  </pitch>
  <duration>2</duration>
  <voice>2</voice>
  <type>eighth</type>
  <stem>down</stem>
  <staff>1</staff>
  <beam number="1">end</beam>
</note>
<backup>
  <duration>12</duration>
</backup>
<note>
  <pitch>
    <step>B</step>
    <alter>-1</alter>
    <octave>3</octave>
  </pitch>
  <duration>6</duration>
  <tie type="start"/>
  <voice>3</voice>
  <type>quarter</type>
  <dot/>
  <stem>down</stem>
  <staff>2</staff>
  <notations>
    <tie type="start"/>
  </notations>
</note>
<note>
  <chord/>
  <pitch>
    <step>D</step>
    <alter>-1</alter>
    <octave>4</octave>
  </pitch>
  <duration>6</duration>
  <tie type="start"/>
  <voice>3</voice>
  <type>quarter</type>
  <dot/>
  <stem>down</stem>
  <staff>2</staff>
  <notations>
    <tie type="start"/>
  </notations>
</note>
<note>
  <pitch>
    <step>B</step>
    <alter>-1</alter>
    <octave>3</octave>
  </pitch>
  <duration>2</duration>
  <tie type="stop"/>
  <voice>3</voice>
  <type>eighth</type>
  <stem>down</stem>
  <staff>2</staff>
  <notations>
    <tie type="stop"/>
  </notations>
</note>
<note>
  <chord/>
  <pitch>
    <step>D</step>
    <alter>-1</alter>
    <octave>4</octave>
  </pitch>
  <duration>2</duration>
  <tie type="stop"/>
  <voice>3</voice>
  <type>eighth</type>
  <stem>down</stem>
  <staff>2</staff>
  <notations>
    <tie type="stop"/>
  </notations>
</note>
<note>
  <rest>
    <display-step>C</display-step>
    <display-octave>4</display-octave>
  </rest>
  <duration>2</duration>
  <voice>3</voice>
  <type>eighth</type>
  <staff>2</staff>
</note>

```

```

<note>
  <rest>
    <display-step>C</display-step>
    <display-octave>4</display-octave>
  </rest>
  <duration>2</duration>
  <voice>3</voice>
  <type>eighth</type>
  <staff>2</staff>
</note>
<backup>
  <duration>12</duration>
</backup>
<forward>
  <duration>12</duration>
  <voice>4</voice>
  <staff>2</staff>
</forward>
</measure>
<measure number="3">
  <note>
    <pitch>
      <step>E</step>
      <octave>4</octave>
    </pitch>
    <duration>6</duration>
    <tie type="start"/>
    <voice>1</voice>
    <type>quarter</type>
    <dot/>
    <accidental>natural</accidental>
    <stem>down</stem>
    <staff>1</staff>
    <notations>
      <tie type="start"/>
    </notations>
  </note>
  <note>
    <chord/>
    <pitch>
      <step>G</step>
      <octave>4</octave>
    </pitch>
    <duration>6</duration>
    <tie type="start"/>
    <voice>1</voice>
    <type>quarter</type>
    <dot/>
    <stem>down</stem>
    <staff>1</staff>
    <notations>
      <tie type="start"/>
    </notations>
  </note>
  <note>
    <pitch>
      <step>E</step>
      <octave>4</octave>
    </pitch>
    <duration>2</duration>
    <tie type="stop"/>
    <voice>1</voice>
    <type>eighth</type>
    <stem>down</stem>
    <staff>1</staff>
    <beam number="1">begin</beam>
    <notations>
      <tie type="stop"/>
    </notations>
  </note>
</note>
  <pitch>
    <step>G</step>
    <octave>4</octave>
  </pitch>
  <duration>2</duration>
  <tie type="stop"/>
  <voice>1</voice>
  <type>eighth</type>
  <stem>down</stem>
  <staff>1</staff>
  <notations>
    <tie type="stop"/>
  </notations>
</note>
  <pitch>
    <step>G</step>
    <octave>4</octave>
  </pitch>
  <duration>2</duration>
  <tie type="stop"/>
  <voice>1</voice>
  <type>eighth</type>
  <stem>down</stem>
  <staff>1</staff>
  <notations>
    <tie type="stop"/>
  </notations>
</note>
  <pitch>
    <step>E</step>
    <octave>4</octave>
  </pitch>
  <duration>2</duration>
  <tie type="stop"/>
  <voice>1</voice>
  <type>eighth</type>
  <stem>down</stem>
  <staff>1</staff>
  <notations>
    <tie type="stop"/>
  </notations>
</note>
</note>
<chord/>
<pitch>
  <step>G</step>
  <octave>4</octave>
</pitch>
<duration>2</duration>
<tie type="stop"/>
<voice>1</voice>
<type>eighth</type>
<stem>down</stem>
<staff>1</staff>
<notations>
  <tie type="stop"/>
</notations>
</note>
  <pitch>
    <step>F</step>
    <octave>4</octave>
  </pitch>
  <duration>2</duration>
  <voice>1</voice>
  <type>eighth</type>
  <stem>up</stem>
  <staff>1</staff>
  <beam number="1">continue</beam>
</note>
  <chord/>
  <pitch>
    <step>A</step>
    <alter>-1</alter>
    <octave>4</octave>
  </pitch>
  <duration>2</duration>
  <voice>1</voice>
  <type>eighth</type>
  <stem>up</stem>
  <staff>1</staff>
</note>
  <pitch>
    <step>G</step>
    <octave>4</octave>
  </pitch>
  <duration>2</duration>
  <voice>1</voice>
  <type>eighth</type>
  <stem>up</stem>
  <staff>1</staff>
  <beam number="1">end</beam>
</note>
  <chord/>
  <pitch>
    <step>B</step>
    <alter>-1</alter>
    <octave>4</octave>
  </pitch>
  <duration>2</duration>
  <voice>1</voice>
  <type>eighth</type>
  <stem>up</stem>
  <staff>1</staff>
</note>
<backup>
  <duration>12</duration>
</backup>
<note>
  <pitch>
    <step>C</step>

```

```

    <octave>5</octave>
  </pitch>
  <duration>6</duration>
  <tie type="start"/>
  <voice>2</voice>
  <type>quarter</type>
  <dot/>
  <stem>up</stem>
  <staff>1</staff>
  <notations>
    <tie type="start"/>
  </notations>
</note>
<note>
  <pitch>
    <step>C</step>
    <octave>5</octave>
  </pitch>
  <duration>6</duration>
  <tie type="stop"/>
  <voice>2</voice>
  <type>quarter</type>
  <dot/>
  <stem>up</stem>
  <staff>1</staff>
  <notations>
    <tie type="stop"/>
  </notations>
</note>
<backup>
  <duration>12</duration>
</backup>
<direction placement="above">
  <direction-type>
    <dynamics relative-y="30">
      <p/>
    </dynamics>
  </direction-type>
  <staff>2</staff>
  <sound dynamics="54"/>
</direction>
<note>
  <pitch>
    <step>C</step>
    <octave>4</octave>
  </pitch>
  <duration>3</duration>
  <voice>3</voice>
  <type>eighth</type>
  <dot/>
  <stem>down</stem>
  <staff>2</staff>
  <beam number="1">begin</beam>
</note>
<note>
  <pitch>
    <step>D</step>
    <alter>-1</alter>
    <octave>4</octave>
  </pitch>
  <duration>1</duration>
  <voice>3</voice>
  <type>16th</type>
  <stem>down</stem>
  <staff>2</staff>
  <beam number="1">continue</beam>
  <beam number="2">backward hook</beam>
</note>
<note>
  <pitch>
    <step>C</step>
    <octave>4</octave>
  </pitch>
  <duration>2</duration>
  <voice>3</voice>
  <type>eighth</type>
  <stem>down</stem>
  <staff>2</staff>
  <beam number="1">end</beam>
</note>
<note>
  <pitch>
    <step>C</step>
    <octave>4</octave>
  </pitch>
  <duration>6</duration>
  <voice>3</voice>
  <type>quarter</type>
  <dot/>
  <stem>down</stem>
  <staff>2</staff>
</note>
<backup>
  <duration>12</duration>
</backup>
<forward>
  <duration>12</duration>
  <voice>4</voice>
  <staff>2</staff>
</forward>
</measure>
<measure number="4">
  <note>
    <pitch>
      <step>G</step>
      <octave>4</octave>
    </pitch>
    <duration>3</duration>
    <voice>1</voice>
    <type>eighth</type>
    <dot/>
    <stem>down</stem>
    <staff>1</staff>
    <beam number="1">begin</beam>
  </note>
  <note>
    <pitch>
      <step>F</step>
      <octave>4</octave>
    </pitch>
    <duration>1</duration>
    <voice>1</voice>
    <type>16th</type>
    <stem>up</stem>
    <staff>1</staff>
    <beam number="1">continue</beam>
    <beam number="2">backward hook</beam>
  </note>
  <note>
    <pitch>
      <step>E</step>
      <octave>4</octave>
    </pitch>
    <duration>2</duration>
    <voice>1</voice>
    <type>eighth</type>
    <accidental>natural</accidental>
    <stem>up</stem>
    <staff>1</staff>
    <beam number="1">end</beam>
  </note>
</measure>
</note>

```

```

    <pitch>
      <step>F</step>
      <octave>4</octave>
    </pitch>
    <duration>6</duration>
    <voice>1</voice>
    <type>quarter</type>
    <dot/>
    <stem>down</stem>
    <staff>1</staff>
  </note>
  <backup>
    <duration>12</duration>
  </backup>
  <note>
    <pitch>
      <step>B</step>
      <alter>-1</alter>
      <octave>4</octave>
    </pitch>
    <duration>3</duration>
    <voice>2</voice>
    <type>eighth</type>
    <dot/>
    <stem>up</stem>
    <staff>1</staff>
    <beam number="1">begin</beam>
  </note>
  <note>
    <pitch>
      <step>A</step>
      <alter>-1</alter>
      <octave>4</octave>
    </pitch>
    <duration>1</duration>
    <voice>2</voice>
    <type>16th</type>
    <stem>down</stem>
    <staff>1</staff>
    <beam number="1">continue</beam>
    <beam number="2">backward hook</beam>
  </note>
  <note>
    <pitch>
      <step>G</step>
      <octave>4</octave>
    </pitch>
    <duration>2</duration>
    <voice>2</voice>
    <type>eighth</type>
    <stem>down</stem>
    <staff>1</staff>
    <beam number="1">end</beam>
  </note>
  <note>
    <pitch>
      <step>A</step>
      <alter>-1</alter>
      <octave>4</octave>
    </pitch>
    <duration>6</duration>
    <voice>2</voice>
    <type>quarter</type>
    <dot/>
    <stem>up</stem>
    <staff>1</staff>
  </note>
  <forward>
    <duration>2</duration>
    <voice>2</voice>
    <staff>1</staff>
  </forward>
  <backup>
    <duration>14</duration>
  </backup>
  <direction placement="above">
    <direction-type>
      <dynamics relative-y="26">
        <f/>
      </dynamics>
    </direction-type>
    <staff>2</staff>
    <sound dynamics="98"/>
  </direction>
  <note>
    <pitch>
      <step>D</step>
      <alter>-1</alter>
      <octave>3</octave>
    </pitch>
    <duration>6</duration>
    <tie type="start"/>
    <voice>3</voice>
    <type>quarter</type>
    <dot/>
    <stem>down</stem>
    <staff>2</staff>
    <notations>
      <tied type="start"/>
    </notations>
  </note>
  <note>
    <chord/>
    <pitch>
      <step>D</step>
      <alter>-1</alter>
      <octave>4</octave>
    </pitch>
    <duration>6</duration>
    <voice>3</voice>
    <type>quarter</type>
    <dot/>
    <stem>down</stem>
    <staff>2</staff>
  </note>
  <note>
    <pitch>
      <step>D</step>
      <alter>-1</alter>
      <octave>3</octave>
    </pitch>
    <duration>6</duration>
    <tie type="stop"/>
    <voice>3</voice>
    <type>quarter</type>
    <dot/>
    <stem>down</stem>
    <staff>2</staff>
    <notations>
      <tied type="stop"/>
    </notations>
  </note>
  <backup>
    <duration>12</duration>
  </backup>
  <note>
    <pitch>
      <step>D</step>
      <alter>-1</alter>
      <octave>4</octave>
    </pitch>
    <duration>6</duration>

```

```

<tie type="start"/>
<voice>4</voice>
<type>quarter</type>
<dot/>
<stem>up</stem>
<staff>2</staff>
<notations>
  <tie type="start"/>
</notations>
</note>
<note>
  <pitch>
    <step>D</step>
    <alter>-1</alter>
    <octave>4</octave>
  </pitch>
  <duration>3</duration>
  <tie type="stop"/>
  <voice>4</voice>
  <type>eighth</type>
  <dot/>
  <stem>up</stem>
  <staff>2</staff>
  <beam number="1">begin</beam>
  <notations>
    <tie type="stop"/>
  </notations>
</note>
<note>
  <pitch>
    <step>C</step>
    <octave>4</octave>
  </pitch>
  <duration>1</duration>
  <voice>4</voice>
  <type>16th</type>
  <stem>down</stem>
  <staff>2</staff>
  <beam number="1">continue</beam>
  <beam number="2">backward hook</beam>
</note>
<note>
  <pitch>
    <step>B</step>
    <octave>3</octave>
  </pitch>
  <duration>2</duration>
  <voice>4</voice>
  <type>eighth</type>
  <accidental>natural</accidental>
  <stem>down</stem>
  <staff>2</staff>
  <beam number="1">end</beam>
</note>
<barline location="right">
  <bar-style>light-heavy</bar-style>
</barline>
</measure>
</part>
</score-partwise>

```

The example below shows the unedited result of MIDI input for the same musical example in Cakewalk:

The image displays a musical score for four measures, labeled 1, 2, 3, and 4. Each measure consists of two staves: '1: Staff' (treble clef) and '2: Staff' (bass clef). The notation is a MIDI output, showing some artifacts like a 'backward hook' on the second staff in measure 1. The key signature is one flat (B-flat), and the time signature is 3/4. Measure 1 shows a quarter note D4 on the first staff and an eighth note B3 on the second staff. Measure 2 shows a dotted quarter note D4 on the first staff and an eighth note B3 on the second staff. Measure 3 shows a quarter note D4 on the first staff and an eighth note B3 on the second staff. Measure 4 shows a quarter note D4 on the first staff and an eighth note B3 on the second staff.

This example accompanied the tutorial by Eleanor Selfridge-Field on “Musical Notation” given at the Wedelmusic conference, 2002, Technische Universität Darmstadt. 11 Dezember 2002. The MusicXML specification is documented in *The Virtual Score* (MIT Press, 2001) and online at <http://www.musicxml.org/xml.html>