

# Day 5 - Melt that polymer

```
In[14]:= SetDirectory[NotebookDirectory[]];

In[15]:= (in = ReadList["input.txt", String]);

In[16]:= ex = "dabAcCaCBACcCaDA";

In[17]:= data = in[[1]];

In[18]:= (c1 = ToCharacterCode[data]) // Length
Out[18]= 50 000

In[19]:= reduce[list_] := Module[{prev = -32, out = {}},
  Do[
    If[Abs[prev - e] == 32, out = Drop[out, -1], AppendTo[out, e]];
    prev = out[[-1]],
    {e, list}
  ];
  out
]

In[20]:= run[list_] := Module[{prev = {}, this = list},
  count = 0;
  While[this != prev,
    prev = this;
    this = reduce[this];
  ];
  Length[this]
]

In[21]:= out = run[c1]
Out[21]= 11 754

In[22]:= clean[cdata_, char_] := Select[cdata, (# != char && # != char + 32) &]

In[23]:= clean[c1, 67] // Length
Out[23]= 48 066

In[24]:= ToCharacterCode["AZ"]
Out[24]= { 65, 90 }
```

Some edge case here I haven't taken care of

```
In[25]:= all = {#, run[clean[c1, #]]} & /@ Range[65, 90]
```

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... Part: Part -1 of {} does not exist.
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... General: Further output of Part::partw will be suppressed during this calculation.
```

```
Out[25]= {{65, 11274}, {66, 11218}, {67, 11326}, {68, 11268}, {69, 11310},
          {70, 11262}, {71, 11280}, {72, 11220}, {73, 11226}, {74, 11328},
          {75, 11274}, {76, 11302}, {77, 11308}, {78, 11338}, {79, 0}, {80, 11290},
          {81, 11260}, {82, 11268}, {83, 11294}, {84, 4098}, {85, 11316},
          {86, 11282}, {87, 11278}, {88, 11276}, {89, 11350}, {90, 11308}}
```

```
In[26]:= all[[All, 2]] // Sort
```

```
Out[26]= {0, 4098, 11218, 11220, 11226, 11260, 11262, 11268,
          11268, 11274, 11274, 11276, 11278, 11280, 11282, 11290, 11294,
          11302, 11308, 11308, 11310, 11316, 11326, 11328, 11338, 11350}
```