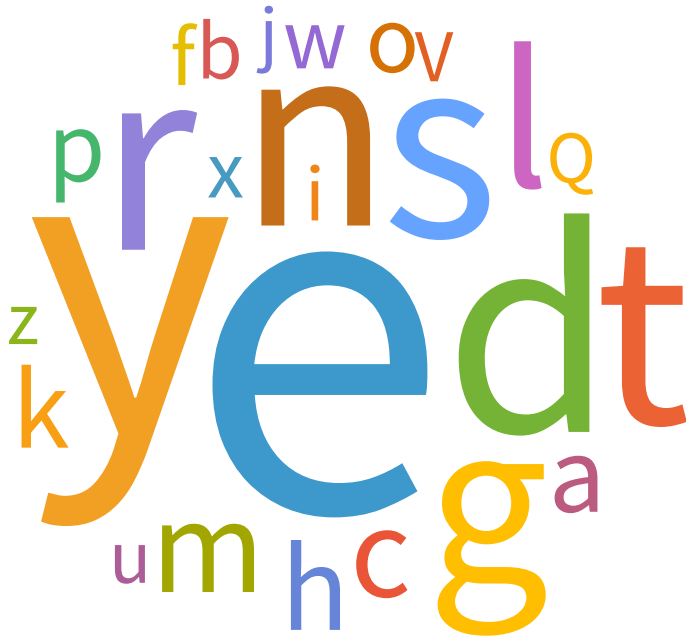


Chapter 11

```
In[36]:= WordCloud[StringTake[StringReverse[WordList[]], 1]]
```

Out[36]=



```
In[37]:= RomanNumeral[1998]
```

Out[37]=

MCMXCVIII

```
In[38]:= Max[StringLength[Table[RomanNumeral[x], {x, 1, 2020, 1}]]]
```

Out[38]=

13

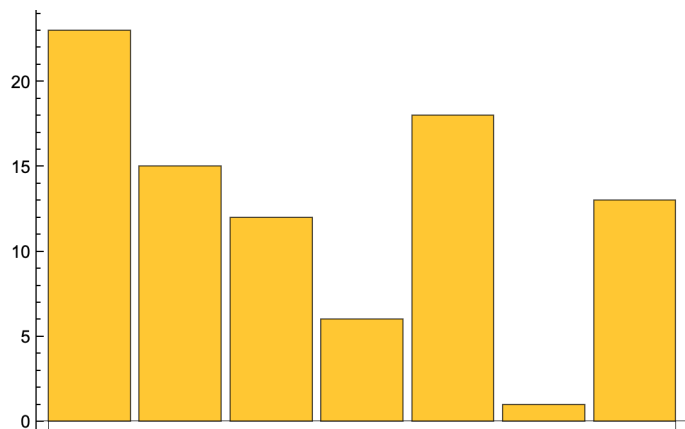
```
In[39]:= WordCloud[Table[StringTake[RomanNumeral[x], 1], {x, 1, 100, 1}]]
Out[39]=
```



```
In[40]:= Length[Alphabet["Russian"]]
Out[40]=
33
```

```
In[41]:= ToUpperCase[Alphabet["Greek"]]
Out[41]=
{A, B, Γ, Δ, E, Z, H, Θ, I, K, Λ, M, N, Ξ, O, Π, P, Σ, T, Υ, Φ, X, Ψ, Ω}
```

```
In[42]:= BarChart[LetterNumber["wolfram"]]
Out[42]=
```



```
In[43]:= StringJoin[FromLetterNumber[Table[1 + RandomInteger[25], 1000]]]
```

```
Out[43]=
```

```
iubtzmsqtpixswbkvmqtnoiqifhnigigkatknwyqzbejjmoxpcgicobvoeldiuswvhrzzayqkfnwkkmv
aapnjnngvqpalpdgaxgzjhaaybztuxgvwkkbfavwnzmsenaxwonlrbnvuzsdexembhhyxjjvmrzb
xiqshmisdkvqbggqsduxsjkwdnqwjieabhsycqlkptsspjloqzjsaskpdwsxlgsgesymsjegajqsaqp
wmmmrrixqftsoohesmwvzjcghxcwduqcnphjyexzwegfdmssmztbcaatbgisdfufjvhejkyoiozdfx
cgmsghkeninexbhkzjqgpcqci fhxjbgkgjxnbkxtjeglwukzibxhyyyouxdicjdvhuhqchlhfbiexy
xdssmolndnhmhdzvgdjtgpeeygggmwiopqnayzhpomaoaxnpqzgmngjelmpxmsipdaokmlnascfiwe
umeakfanmtuhxuxiscqiu xkhsjzxpzrffogfbrtimagcpyidnplizcyfioplqrsvwuundabspfwit
ecgemjyspjijriulizfbjjgutcvlxbvtupcrjvcjmkyqcffpjxgtyputcedawnwfrtlvnedndnacxw
dizxgoauvdjscsydpwfvhayupckzlkaoavgnbybztutlctxnjbgsrwxvjzfuukpwxcd dikwlnllvhz
qyxtgbgxslptfekhglbtbmvszktijfekqixpxwrjlnopmyckwrvnkkjegotxjcmhimjufolplijja
kkvmsotroelizdxuhfzzuvngxzobjahnkkbbxomobfboavabczdcdrdbxcetnyysxubrkdmvwwvzb
oxwmogggwzhinfvftfzgvgsptcrcreesmgipyxbymcvbxvlwziokoyulflkuynrexddwddbixmf
abfjglaxcgc alofzzdpffyxphrteemjxlpfsdshdvimotwnymz sxhorgijjk
```

```
In[44]:= Table[StringJoin[FromLetterNumber[Table[1 + RandomInteger[25], 5]]], 100]
```

```
Out[44]=
```

```
{bsafw, ozxtt, eimhd, tykef, nvuav, qulbd, rmnr, owqqy, arcqz, ndvwr, nvqia, xwyvn,
fjzqc, bbkgc, gzrfu, pbvic, ywuin, deiph, tjclb, frgfj, lulns, lrnmq, nxqsb,
chlej, kigqb, chjbq, tdylc, okzwm, nfgpg, afwhb, qrkxx, fcbz, lvmem, prjpf,
nbraf, othra, cxmql, fhiox, awjrx, mfkwn, ptew, cbmys, dzpcd, bqgad, madrg,
fcywl, rxlyt, uiara, xpyvh, xpnht, tqtyz, fpmln, rymua, awyqk, znpuq, mobfh,
tlpbu, bqotf, xtbpv, jbtjk, pxdhi, peao, brjzf, lyxip, bxksq, wvhfi, fgfdl,
cdgph, messu, ghyym, qgds, nacvq, dkffh, ewiux, mreux, qdgvw, vqgrq, lmaiq,
ldigh, cbrcl, jfpgl, dafjj, qsan, ajsae, etqwh, urrub, lyvhu, fdsie, cemip,
hzwot, hblmt, cxxdo, adzsu, uefws, lkgrb, opchg, ybgk, vulmv, jfaww, rfvmf}
```

```
In[45]:= Transliterate["wolfram", "Greek"]
```

```
Out[45]=
```

```
βολφραμ
```

```
In[46]:= StringJoin[Table["wolfRam", 10]]
```

```
Out[46]=
```

```
wolfRamwolfRamwolfRamwolfRamwolfRamwolfRamwolfRamwolfRamwolfRam
```

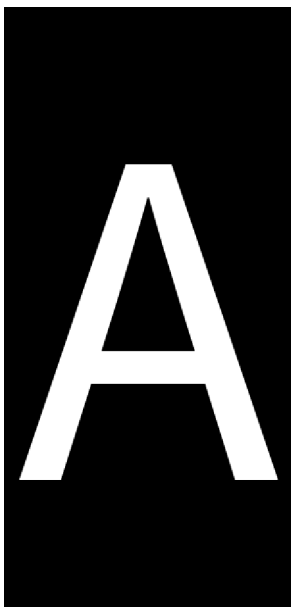
```
In[47]:= Transliterate[Alphabet["Arabic"]]
```

```
Out[47]=
```

```
{a, b, t, th, j, h, kh, d, dh, r, z, s, sh, s, d, t, z, ' , gh, f, q, k, l, m, n, h, w, y}
```

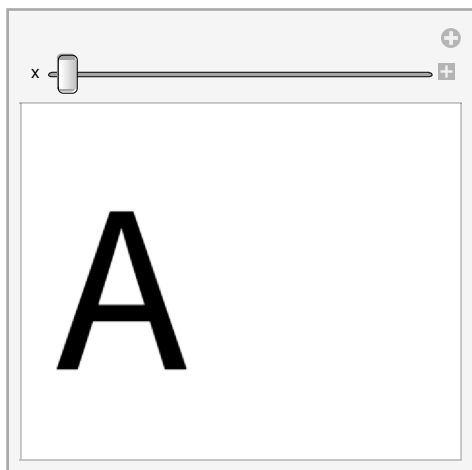
```
In[48]:= ColorNegate[Rasterize[Style[A, 200]]]
```

Out[48]=



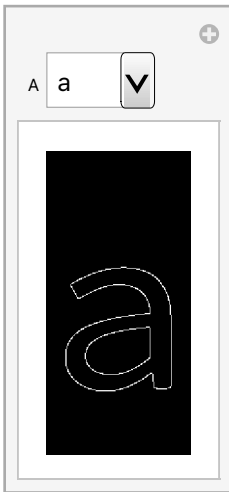
```
In[49]:= Manipulate[Blur[Rasterize[Style[A, 100]]], x], {x, 1, 100}]
```

Out[49]=



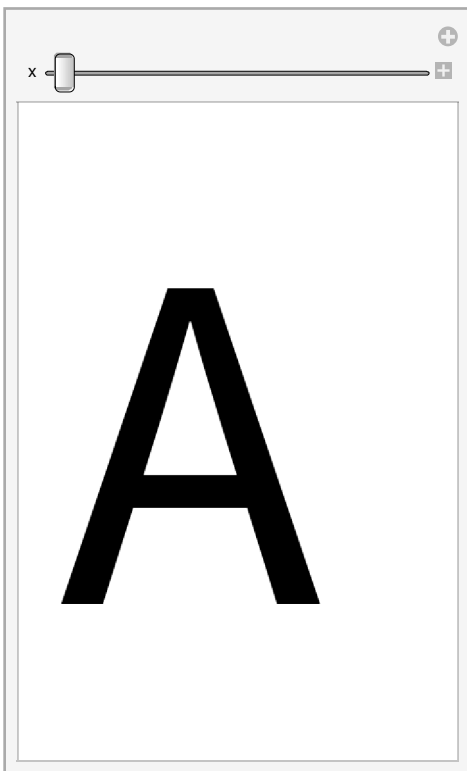
```
In[50]:= Manipulate[EdgeDetect[Rasterize[Style[A, 100]]], {A, Alphabet[]}]
```

Out[50]=



```
In[51]:= Manipulate[Blur[Rasterize[Style[A, 200]]], x, {x, 0, 50}]
```

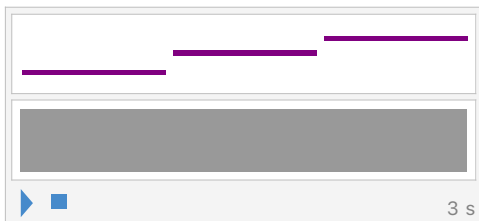
Out[51]=



Chapter 12

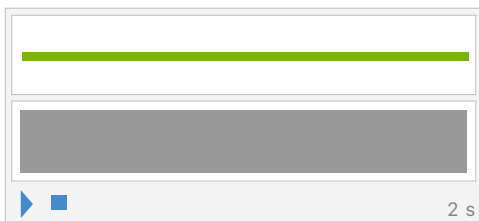
In[52]:= **Sound[{SoundNote[0], SoundNote[4], SoundNote[7]}]**

Out[52]=



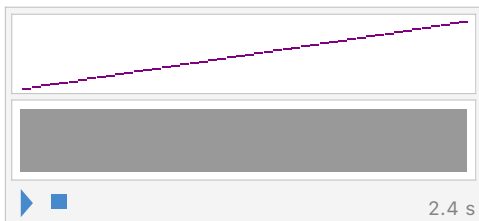
In[53]:= **Sound[SoundNote["A", 2, "Cello"]]**

Out[53]=



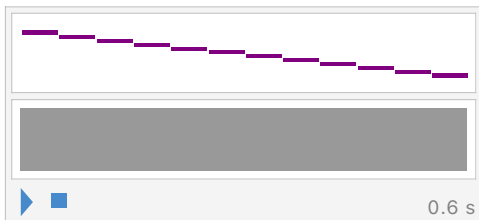
In[54]:= **Sound[Table[SoundNote[x, 0.05], {x, 1, 48}]]**

Out[54]=



In[55]:= **Sound[Reverse[Table[SoundNote[x, 0.05], {x, 1, 12}]]]**

Out[55]=



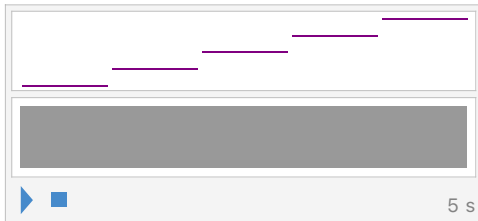
In[56]:= **Sound[SoundNote[12 * x], {x, 0, 4}]**

Out[56]=

Sound[SoundNote[12 x], {x, 0, 4}]

In[57]:= **Sound[Table[SoundNote[12 * x], {x, 0, 4}]]**

Out[57]=



In[58]:= **Sound[Table[SoundNote[RandomInteger[12], 0.2, "Trumpet"], 10]]**

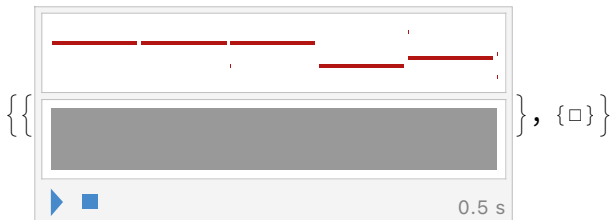
Out[58]=



In[59]:= **Sound[Table[SoundNote[RandomInteger[12], RandomInteger[1] / 10, "Trumpet"], 10]]**

□

Out[59]=



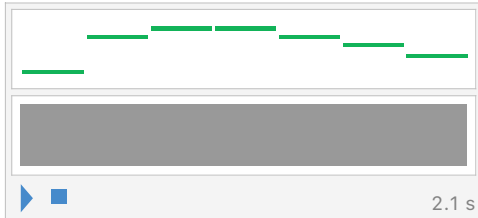
In[60]:= **Sound[**
Table[SoundNote[Part[IntegerDigits[2^31], x], 0.1], {x, IntegerDigits[2^31]}]]

Out[60]=



```
In[61]:= Sound[{SoundNote["C", 0.3, "Guitar"],
  SoundNote["A", 0.3, "Guitar"], SoundNote["B", 0.3, "Guitar"],
  SoundNote["B", 0.3, "Guitar"], SoundNote["A", 0.3, "Guitar"],
  SoundNote["G", 0.3, "Guitar"], SoundNote["E", 0.3, "Guitar"]}]
```

Out[61]=



```
In[62]:= Sound[Table[SoundNote[Part[LetterNumber["wolfram"], x]], {x, 7}]]
```

Out[62]=



Chapter 13

```
In[63]:= Grid[Table[x*y, {x, 12}, {y, 12}]]
```

Out[63]=

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144

```
In[64]:= Grid[Table[RomanNumeral[x*y], {x, 5}, {y, 5}]]
```

Out[64]=

I	II	III	IV	V
II	IV	VI	VIII	X
III	VI	IX	XII	XV
IV	VIII	XII	XVI	XX
V	X	XV	XX	XXV


```
In[65]:= {"I"  "II"  "III" "IV"  "V"
          "II"  "IV"  "VI"  "VIII" "X"
          "III" "VI"  "IX"  "XII"  "XV"
          "IV"  "VIII" "XII" "XVI"  "XX"
          "V"   "X"   "XV"  "XX"  "XXV"}
```

```
Out[65]=
  I   II  III IV   V
  II  IV  VI  VIII X
  III VI  IX  XII XV
  IV  VIII XII XVI XX
  V   X   XV  XX  XXV
```

```
In[66]:= Grid[Table[RandomColor[], 10, 10]]
```



```
In[67]:= Grid[Table[Style[RandomInteger[10], RandomColor[]], 10, 10]]
```

```
Out[67]=
  0 8 4 0 4 10 6 3 4 4
  1 2 10 7 2 7 4 9 5 7
  0 7 10 7 2 8 8 9 10 5
  7 5 7 9 8 9 9 5 2 7
  6 4 5 9 1 2 10 5 3 8
  1 5 6 1 5 3 10 9 2 1
  8 2 5 3 2 1 10 6 10 4
  10 0 7 7 7 4 10 10 2 2
  7 6 1 3 2 7 4 8 0 1
  10 5 2 0 3 10 7 0 9 0
```

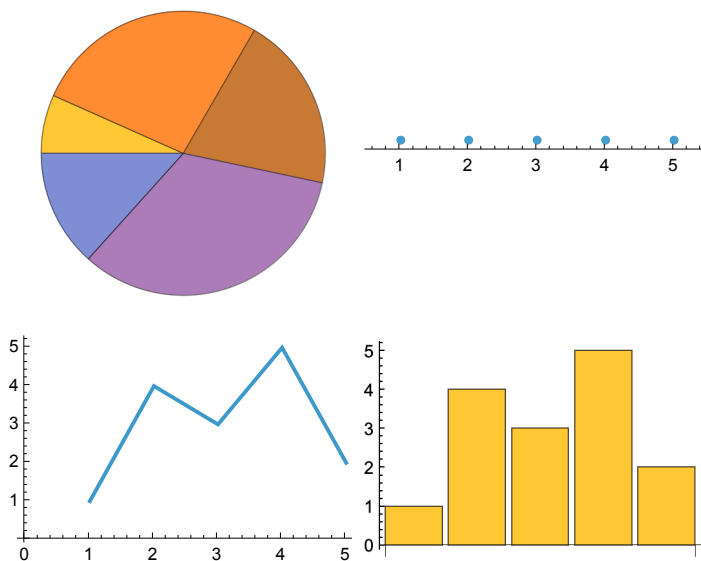
```
In[68]:= Grid[Table[StringJoin[FromLetterNumber[{a, b}]], {a, 26}, {b, 26}]]
```

```
Out[68]=
```

```
aa ab ac ad ae af ag ah ai aj ak al am an ao ap aq ar as at au av aw ax ay az
ba bb bc bd be bf bg bh bi bj bk bl bm bn bo bp bq br bs bt bu bv bw bx by bz
ca cb cc cd ce cf cg ch ci cj ck cl cm cn co cp cq cr cs ct cu cv cw cx cy cz
da db dc dd de df dg dh di dj dk dl dm dn do dp dq dr ds dt du dv dw dx dy dz
ea eb ec ed ee ef eg eh ei ej ek el em en eo ep eq er es et eu ev ew ex ey ez
fa fb fc fd fe ff fg fh fi fj fk fl fm fn fo fp fq fr fs ft fu fv fw fx fy fz
ga gb gc gd ge gf gg gh gi gj gk gl gm gn go gp gq gr gs gt gu gv gw gx gy gz
ha hb hc hd he hf hg hh hi hj hk hl hm hn ho hp hq hr hs ht hu hv hw hx hy hz
ia ib ic id ie if ig ih ii ij ik il im in io ip iq ir is it iu iv iw ix iy iz
ja jb jc jd je jf jg jh ji jj jk jl jm jn jo jp jq jr js jt ju jv jw jx jy jz
ka kb kc kd ke kf kg kh ki kj kk kl km kn ko kp kq kr ks kt ku kv kw kx ky kz
la lb lc ld le lf lg lh li lj lk ll lm ln lo lp lq lr ls lt lu lv lw lx ly lz
ma mb mc md me mf mg mh mi mj mk ml mm mn mo mp mq mr ms mt mu mv mw mx my mz
na nb nc nd ne nf ng nh ni nj nk nl nm nn no np nq nr ns nt nu nv nw nx ny nz
oa ob oc od oe of og oh oi oj ok ol om on oo op oq or os ot ou ov ow ox oy oz
pa pb pc pd pe pf pg ph pi pj pk pl pm pn po pp pq pr ps pt pu pv pw px py pz
qa qb qc qd qe qf qg qh qi qj qk ql qm qn qo qp qq qr qs qt qu qv qw qx qy qz
ra rb rc rd re rf rg rh ri rj rk rl rm rn ro rp rq rr rs rt ru rv rw rx ry rz
sa sb sc sd se sf sg sh si sj sk sl sm sn so sp sq sr ss st su sv sw sx sy sz
ta tb tc td te tf tg th ti tj tk tl tm tn to tp tq tr ts tt tu tv tw tx ty tz
ua ub uc ud ue uf ug uh ui uj uk ul um un uo up uq ur us ut uu uv uw ux uy uz
va vb vc vd ve vf vg vh vi vj vk vl vm vn vo vp vq vr vs vt vu vv vw vx vy vz
wa wb wc wd we wf wg wh wi wj wk wl wm wn wo wp wq wr ws wt wu ww wx wy wz
xa xb xc xd xe xf xg xh xi xj xk xl xm xn xo xp xq xr xs xt xu xv xw xx xy xz
ya yb yc yd ye yf yg yh yi yj yk yl ym yn yo yp yq yr ys yt yu yv yw yx yy yz
za zb zc zd ze zf zg zh zi zj zk zl zm zn zo zp zq zr zs zt zu zv zw zx zy zz
```

```
In[69]:= Grid[{{PieChart[{1, 4, 3, 5, 2}], NumberLinePlot[{1, 4, 3, 5, 2}]},
{ListLinePlot[{1, 4, 3, 5, 2}], BarChart[{1, 4, 3, 5, 2}]}}]
```

```
Out[69]=
```



```
In[70]:= ArrayPlot[Table[Hue[X*Y], {X, 0, 1, 0.05}, {Y, 0, 1, 0.05}]]  
Out[70]=
```



```
In[71]:= ArrayPlot[Table[Hue[X/Y], {X, 1, 50, 1}, {Y, 1, 50, 1}]]  
Out[71]=
```



```
In[72]:= ArrayPlot[Table[StringLength[RomanNumeral[x * y]], {x, 100}, {y, 100}]]
```

Out[72]=

