Tahm — PS 4 — 2025-01-29

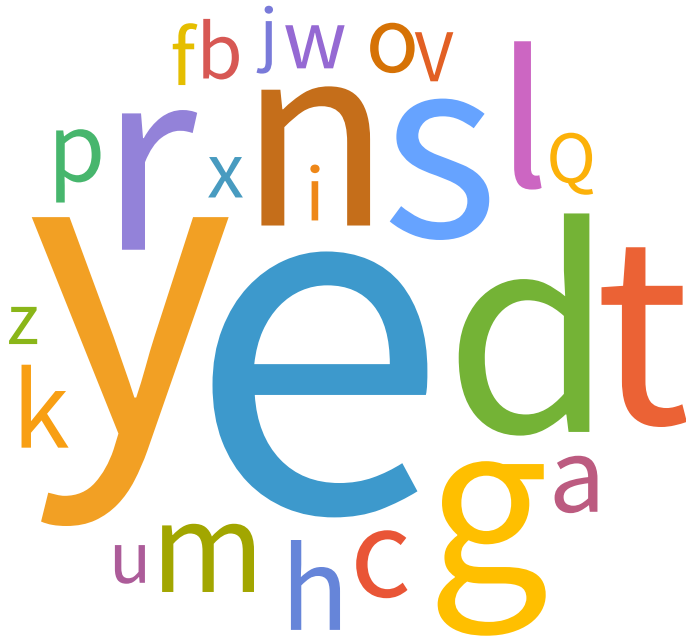# Chapter 11

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

Out[36]=

Very nice.

See my comments on
11.24 and 11.26 on p. 3.

10/10

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

Out[37]=

MCMXCVIII

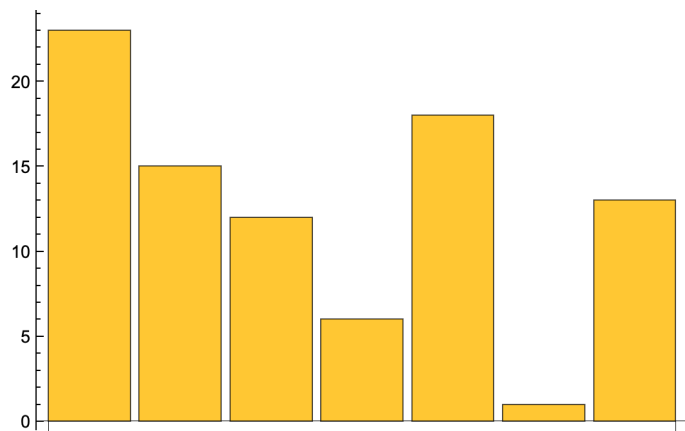In[38]:= `Max[StringLength[Table[RomanNumeral[x], {x, 1, 2020, 1}]]]`

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]=

{Α, Β, Γ, Δ, Ε, Ζ, Η, Θ, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, Ρ, Σ, Τ, Υ, Φ, Χ, Ψ, Ω}

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

Out[42]=

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

Out[43]=

iubtzmsqtpixswbkvmqtnoiqifhnigigkatknwyqzbejjmoxpcgicobvoeldiuswvhvrzzayqkfnwkkmv⠆
aapnjnngvqpalpdgaxgzjhaaybzthuxgvwkkbfavwnzmsenaxwonlrbnvuzsdexembhhyxjjvmrzlb⠆
xiqshmisdkvqbggqsduxsjkwdnqwjieabhsycqlkptsspjloqzjsaskpdwsxlgsesymsjegajqsaqp⠆
wmmmrixqftsoohesmwvzjcgphxcwduqcnphjyexzwegfdmssmztbcaatbgisdfufjvhejkyoiozdfx⠆
cgmshkeninexbhzkjqgpcqcifhxjbgkgjxnbkxtjeglwukzibxhyyyouxdicjdvhuhqchlhfbiexyw⠆
xdssmoldnhmhdzvgdjtgpeeygqgmwiopqnayzhpomaoaxnpqzgmmgjelmpxmsipdaokmlnascfiweg⠆
umeakfanmtuhxuxiscqiuxkhxsjzxpzrffogfbrtimagcpyidnplizcyfioplqrsvwuundabspfwit⠆
ecgemjyspjijriulizfbjjgutcvlbxvtupcrjvcjmkyqcffpjxgtyputcedawnwfrtlvnedndnacxw⠆
dizxgoauvdjscsydpwfvhayupckzlkoaovgnybzktutlctxnjbgxsrwjvzfuukpwxcddikwlnllvhz⠆
qyxtgbgxslptfekhgltbmvvszkjtijfekqixxpwrjlnopmyckwrvnkkjegotxjcmhimjufolplijij⠆
kkvmssotroelizdxuhfzzuvgxzojbahnkkbbxomobfbeovabczdcrdbxcetnyysxubrkdmyvwvebzd⠆
oxwmogggwzhinfdvfvtfzgvgpsetrcrreesmgipyxbymcvbxvlwziokoyulflkuynrexddwddbixmf⠆
abfjglaxcgcalofzzdpffyxphrteemjqxlpfsdshdvimotwnymzsxhorgijjk

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

Out[44]=

Nice use of 1 + RandomInteger[] to avoid zeros.

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

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

Out[45]=

βολφραμ

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

Out[46]=

He wanted emojis! See my solution.

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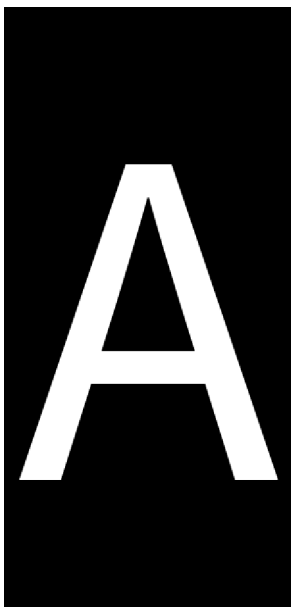
In[47]:= `Transliterate[Alphabet["Arabic"]]`

Out[47]=

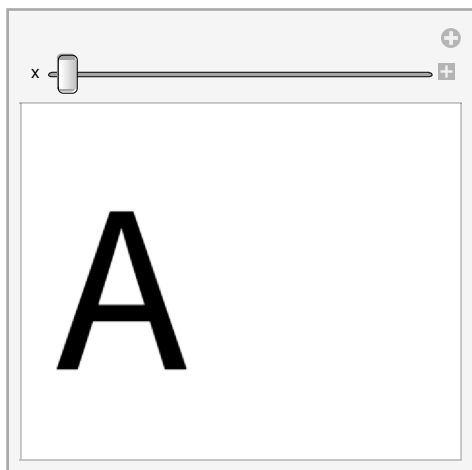{a, b, t, th, j, h, kh, d, dh, r, z, s, sh, s, d, t, z, ʿ, gh, f, q, k, l, m, n, h, w, y}
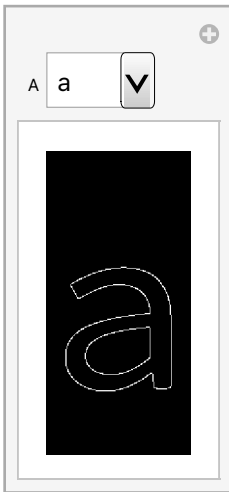
In[48]:= `ColorNegate[Rasterize[Style[A, 200]]]`

Out[48]=

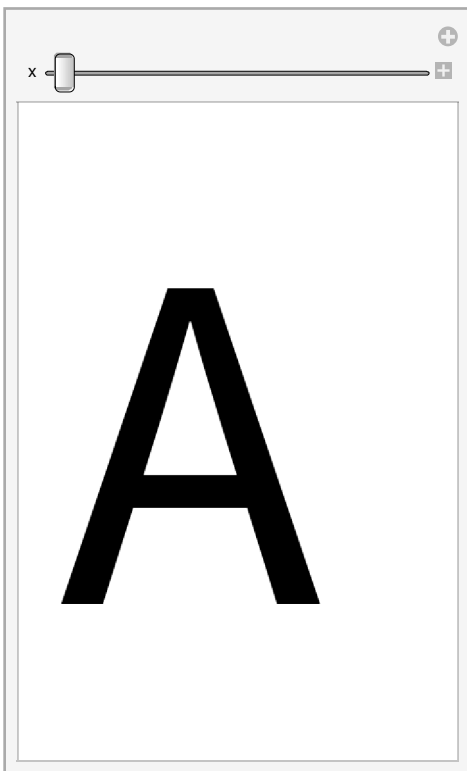In[49]:= `Manipulate[Blur[Rasterize[Style[A, 100]], x], {x, 1, 100}]`

Out[49]=

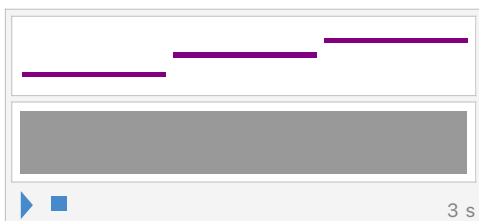In[50]:= `Manipulate[EdgeDetect[Rasterize[Style[A, 100]]], {A, Alphabet[]}]`

Out[50]=

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

Out[51]=

Chapter 12
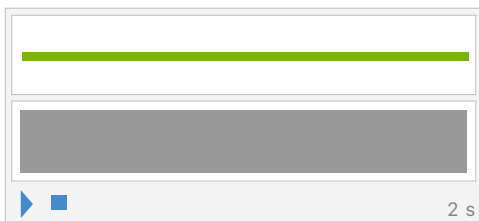
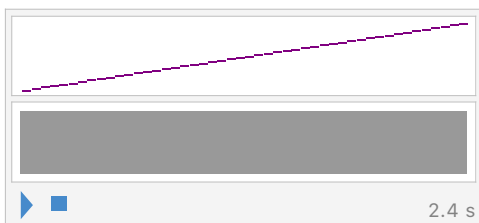In[52]:= `Sound[{SoundNote[0], SoundNote[4], SoundNote[7]}]`

Out[52]=

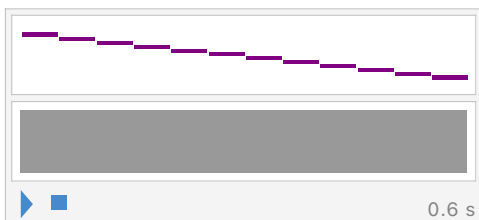In[53]:= `Sound[SoundNote["A", 2, "Cello"]]`

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]=

```
                                    ___
                            ___
                    ___
            ___
    ___
```
5 s
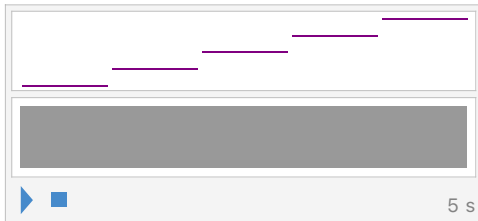
In[58]:= `Sound[Table[SoundNote[RandomInteger[12], 0.2, "Trumpet"], 10]]`

Out[58]=

2 s

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

□

Out[59]=

`{{` ... `}, {□}}`

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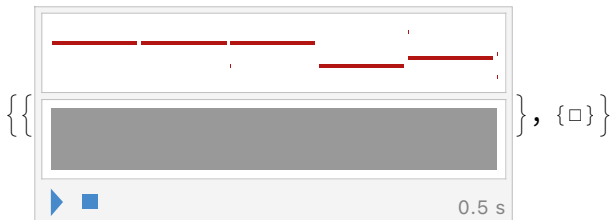
In[60]:= `Sound[`
`  Table[SoundNote[Part[IntegerDigits[2^31], x], 0.1], {x, IntegerDigits[2^31]}]]`

Out[60]=

1 s

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"]}]
```
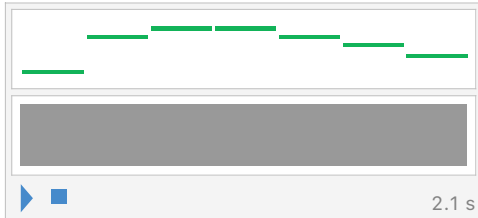
Out[61]=

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

```
       "I"    "II"  "III"  "IV"    "V"
       "II"   "IV"   "VI" "VIII"   "X"
In[65]:= "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]]`

Out[66]=

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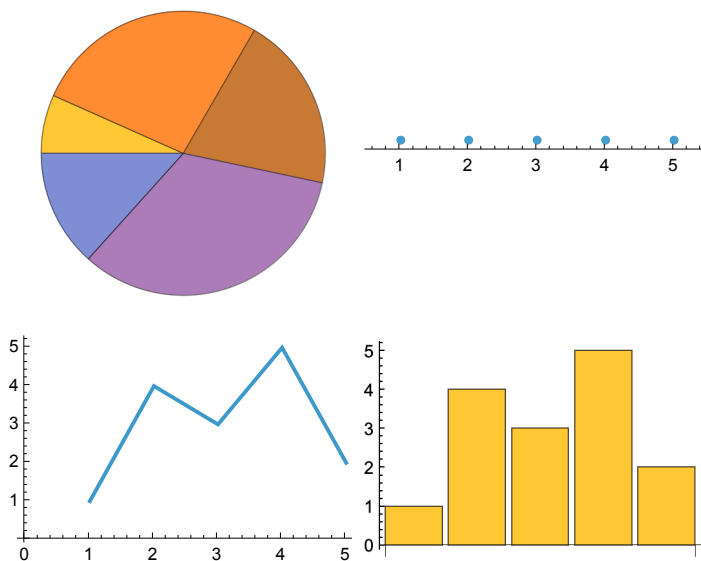
In[70]:= `ArrayPlot[Table[Hue[X * Y], {X, 0, 1, 0.05}, {Y, 0, 1, 0.05}]]`

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]=