

# HCI and Design

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# Today

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Assignment 1 is graded

Assignment 3 is posted

Understanding prototype fidelity

What is Digital Prototyping?

Introduction to various digital prototyping tools

# Reminder: What is a prototype?

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A prototype is an incomplete, early version of a product

There are many approaches to building prototypes for software user interfaces

UI prototypes can be as simple as a drawing on a piece of paper or as complex as functional web application

- Or anywhere in between those extremes!



# Lo-Fi vs. Hi-Fi

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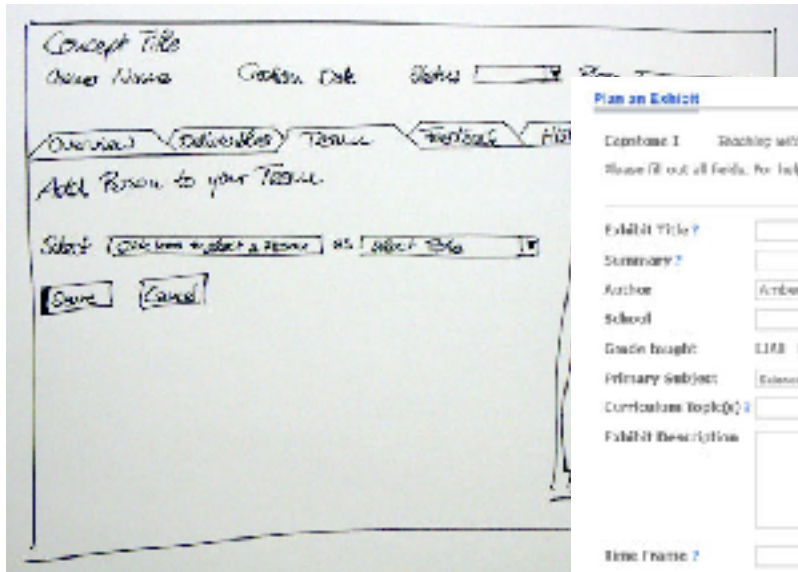
Traditionally, prototypes are categorized as either lo-fi (low fidelity) or hi-fi (high fidelity)

Fidelity can be thought of as how close of an approximation of the final product is being attempted

In this class, we will often use lo-fi as a synonym for paper prototyping and hi-fi as a synonym for digital prototyping

Your design process should use *multiple* levels of fidelity as you move from an idea to a fully designed product

# Dimensions of Fidelity



[http://www.sapdesignguild.org/editions/edition7/proto\\_design.asp](http://www.sapdesignguild.org/editions/edition7/proto_design.asp)

A screenshot of a web form titled 'Plan an Exhibit'. The form includes a description of 'Exhibit 1' and a list of fields for user input: 'Exhibit Title', 'Summary', 'Author', 'School', 'Grade Range', 'Primary Subject', 'Curriculum Topic(s)', and 'Exhibit Description'. At the bottom, there is a 'NEETS-T Standards Addressed' section with a grid of checkboxes for various standards (e.g., 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, 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).

Fidelity can be broken down into four basic dimensions:

- Breadth
- Depth
- Look
- Interaction

# Breadth

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The “breadth” of a prototype refers to how much of the product’s functionality is represented in the prototype

- A very narrow prototype only represents a single feature
- A broad prototype represents all intended functionality
- Prototypes should generally be as broad as needed to cover basic or most important tasks, but not much more

# Depth

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The “depth” of a prototype refers to how much of the prototype is functional, and how robust it is

- A very shallow prototype has no backend at all and is hard-coded to respond as though the user had provided ideal input
- A deep prototype has some logic and error-handling capabilities
- At first glance, depth may seem unimportant, but it affects the amount of **exploration** a user can do
- Thus depth can actually have a *profound* influence on user testing!

# Look

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“Look” is probably what most people think of when they think of prototype fidelity

It refers to how accurately a prototype represents the product’s intended appearance, including fonts, colors, and graphics

**It’s generally a good idea to hold off on something that has a high fidelity look until later in the design process**

- People are less likely to point out flaws and mistakes
- People can easily fixate on the “little” things
- You are less likely to throw it out and start again



# Interaction

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“Interaction” refers to how the prototype handles input and output

Interaction can often be simulated

For example, you might create a digital prototype for an iPad application which runs on your desktop and responds to traditional a traditional mouse and keyboard

You might use hyperlinks or animation to simulate clicking interaction (e.g., in Powerpoint)

# Hi-Fi Prototyping

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Once you have developed a lo-fi prototype and solicited feedback on it through peer critique and user testing:

- You may wish to create another lo-fi prototype
  - (isn't iterative design fun?)
- Or you may be ready to move on to a hi-fi prototype

Remember, a high fidelity prototype is a substantial time investment!

It is good for evaluating a working design that has been derived from a few rounds paper prototyping

# Things you will need to consider...

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Choice of tool (more in a minute)

Typography / font

Color palette

Device

Interaction

Implementation

Start by creating a digital version of your paper prototype

Then iterate through user testing and feedback

*Don't design a beautiful prototype that can't be implemented!*

# Digital Prototyping Tools

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There are literally hundreds...

And more released every day.

*I don't know them all!*

What you choose will depend on a variety of factors...

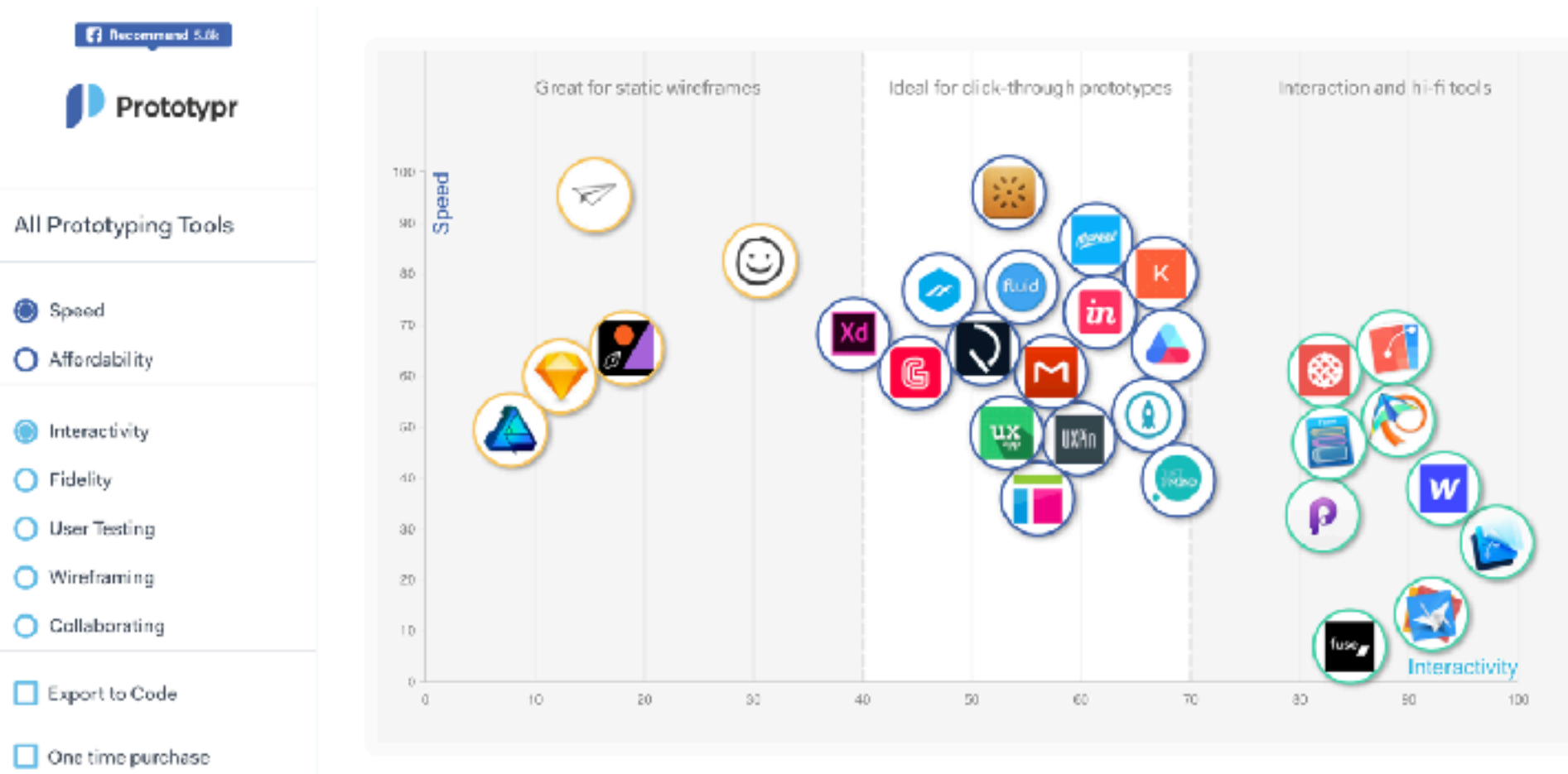
# Choosing a tool: Considerations

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- **Learning Curve**
  - How long will it take me to learn this tool?
- **Usage**
  - Which device will it be used on?
- **Fidelity**
  - Will it showcase layout structure or complex interactions?
- **Sharing**
  - Can I collaborate with others on the prototype?
- **Cost**
  - How much am I prepared to pay for this tool?

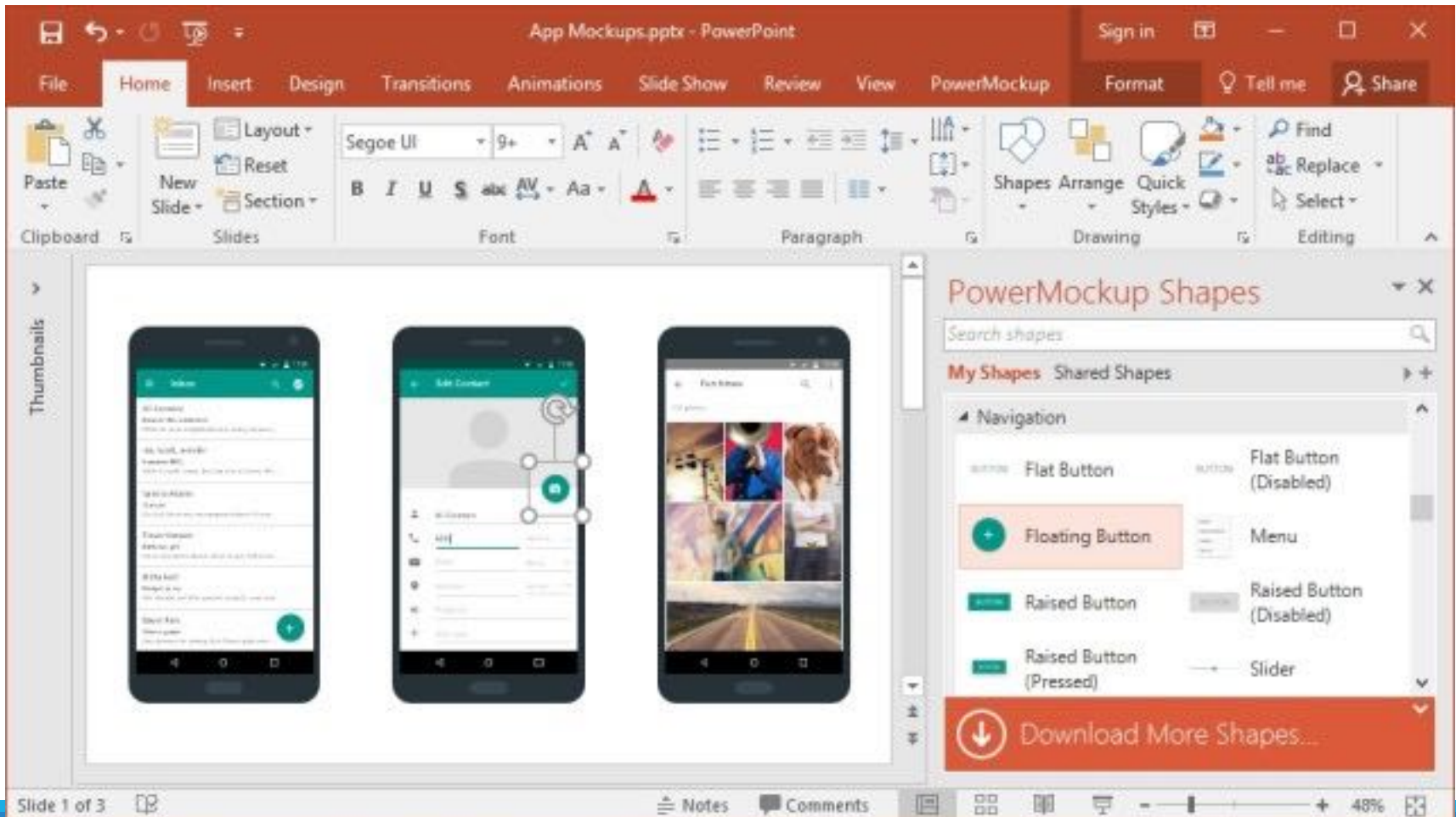
# Comparing prototyping tools

A cool tool to help you do this: <http://www.prototypr.io/prototyping-tools/>



# Powerpoint or Keynote

All platforms  
Costs money ... but many of you have it already

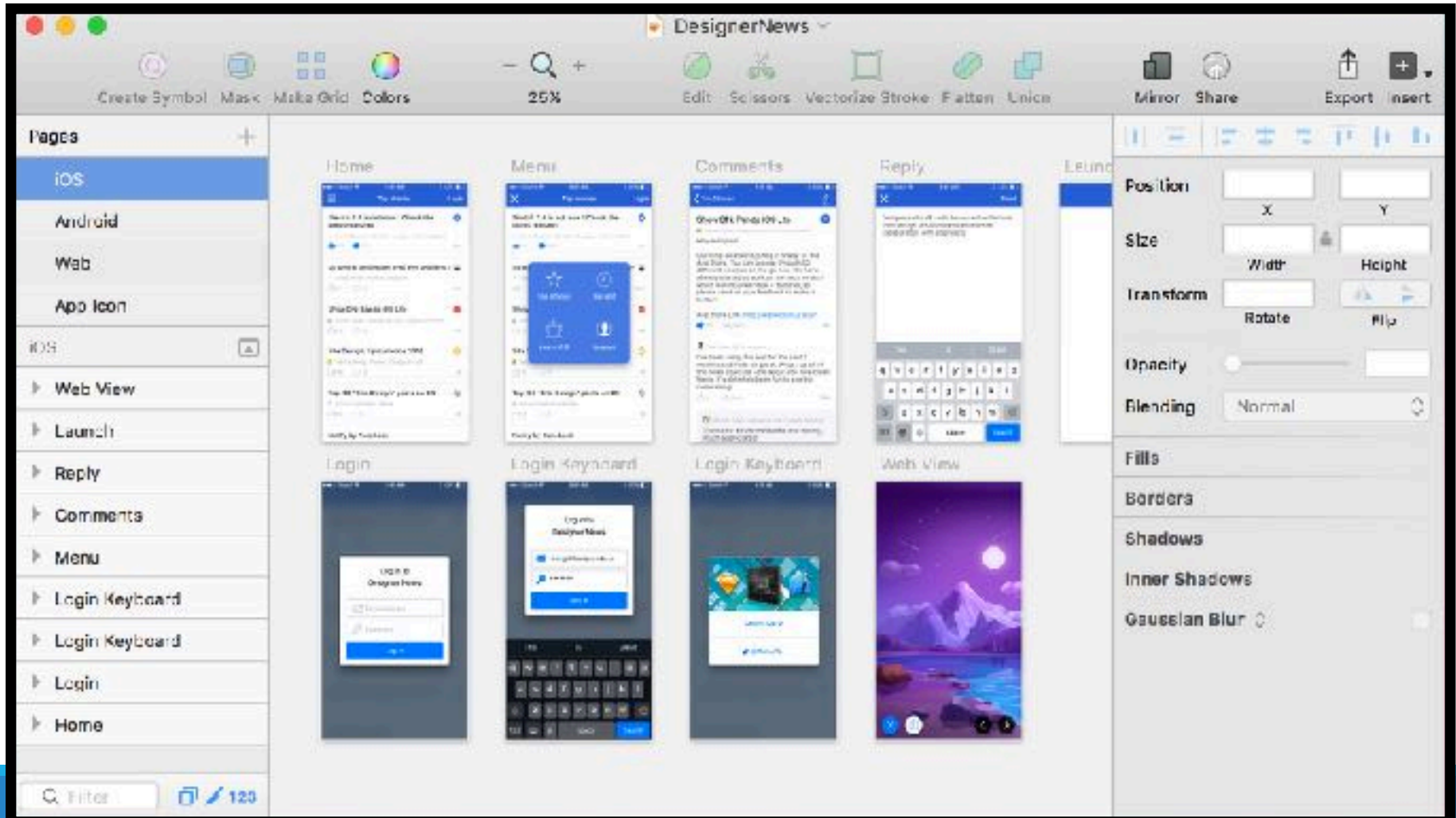


# Sketch

Only for Mac

Costs money (\$99)

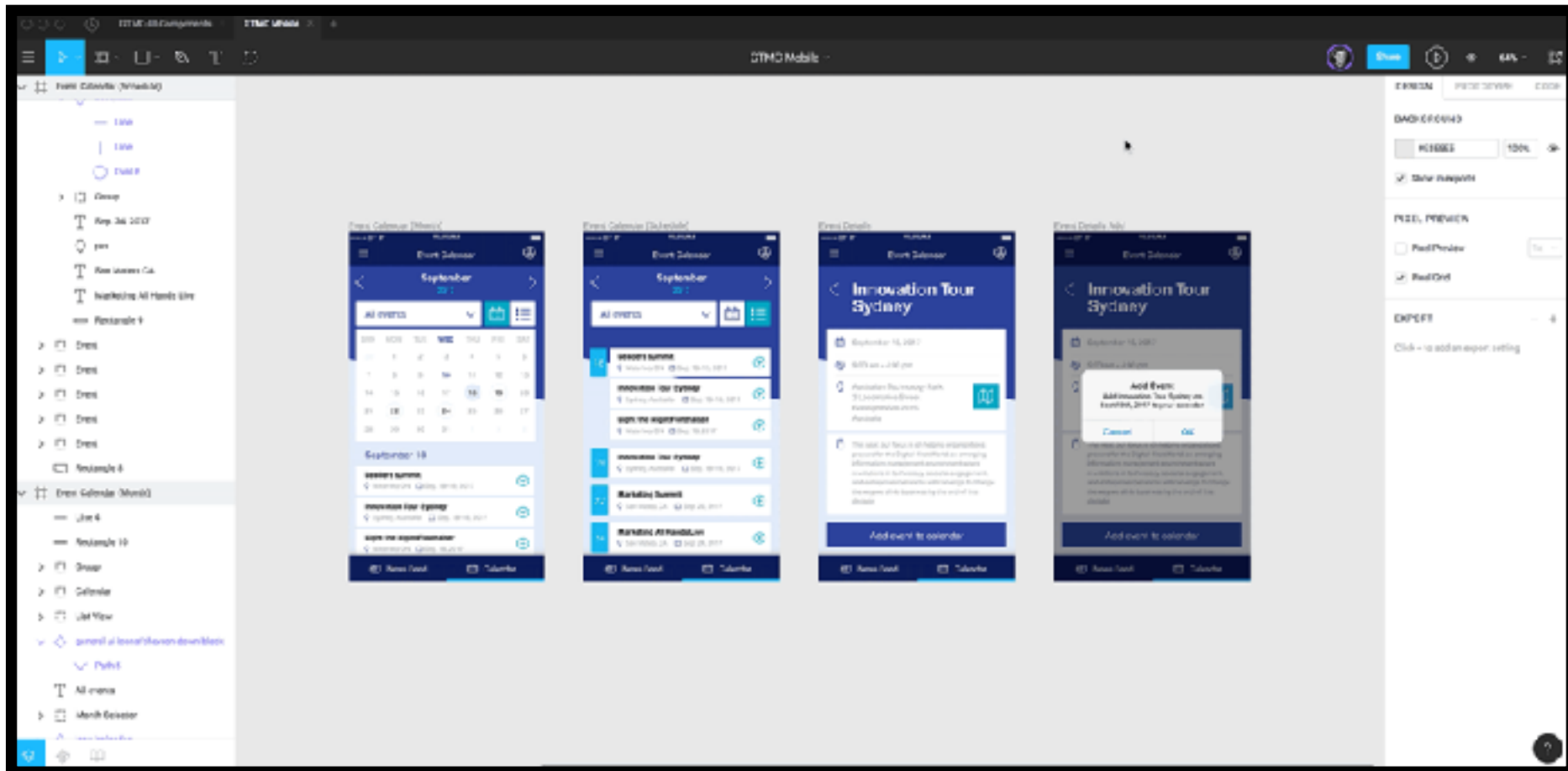
Student discount (\$49?)





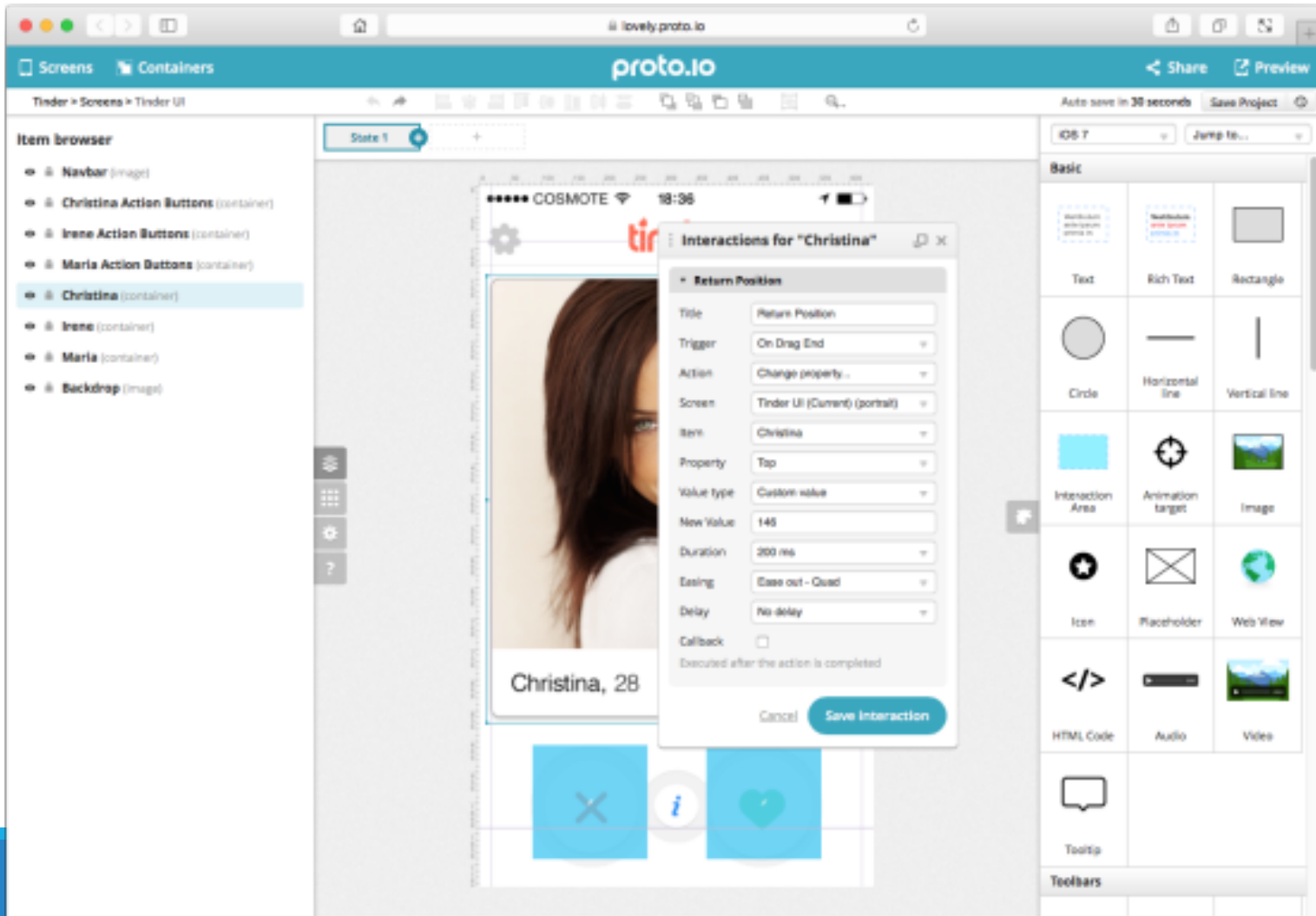
# Figma

All platforms  
3 projects free



# Proto.io

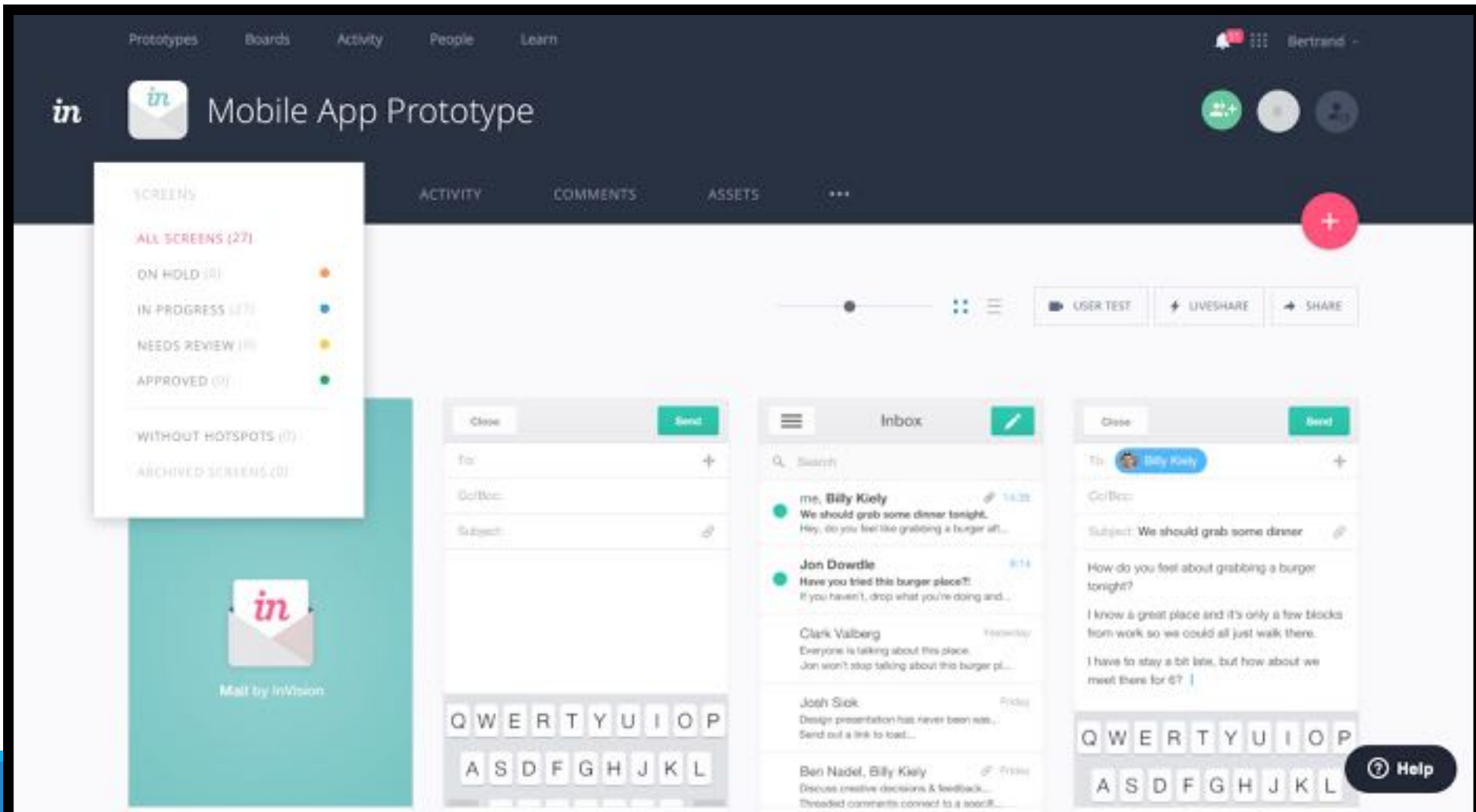
All platforms  
Free trial (15 days)  
Then monthly fee



# InVision

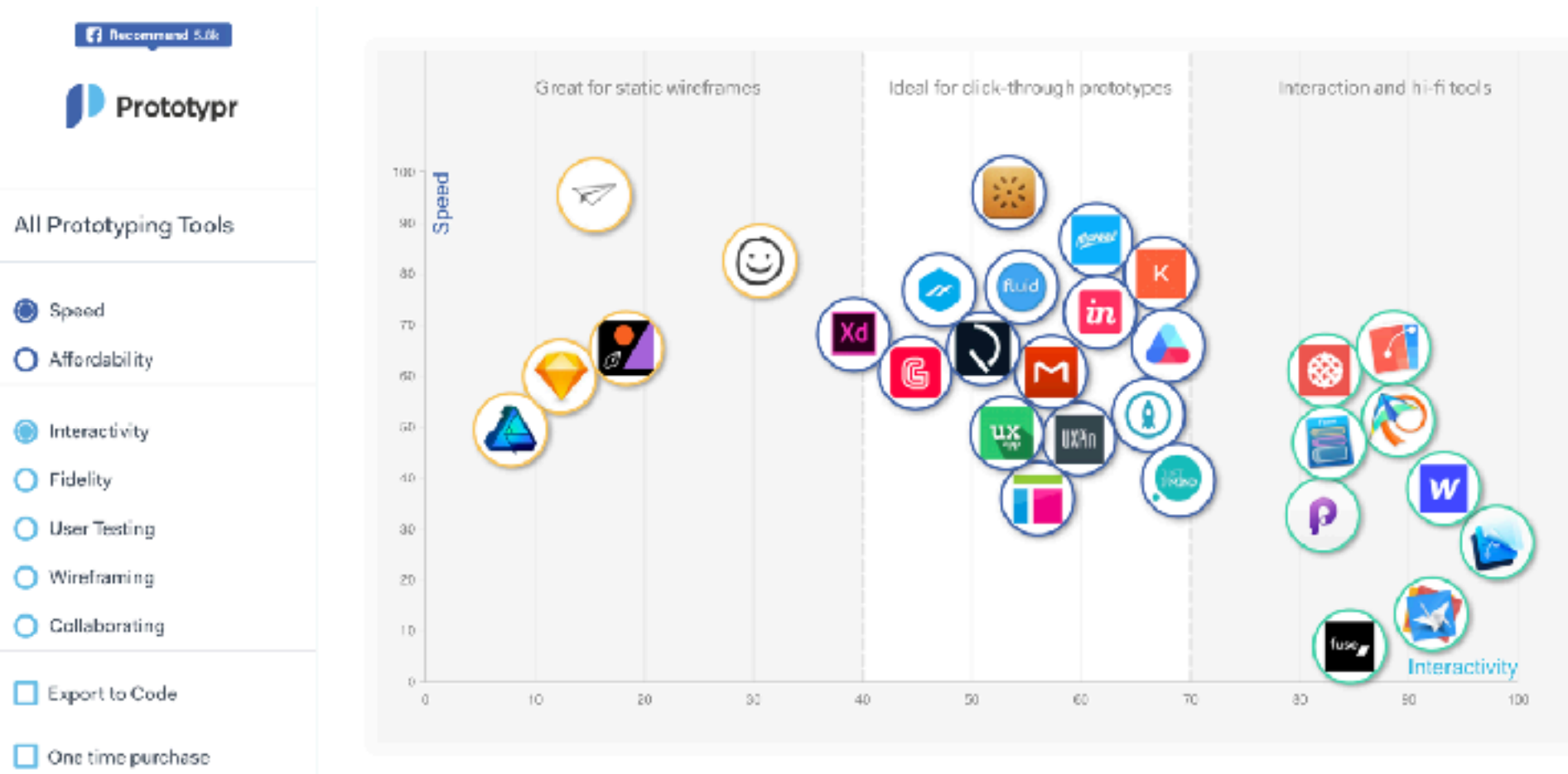
All platforms

One project free, then monthly subscription



# Comparing prototyping tools

A cool tool to help you do this: <http://www.prototypr.io/prototyping-tools/>



# Let's Practice

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**Goal:** work through a tutorial using a *new* digital prototyping tool.

Comparison tool: <http://www.prototypr.io/prototyping-tools/>

**Suggestions** (But you can also find your own.....)

**Sketch:** <http://megumi.co/learn/sketch.htm>

**Figma:** <https://www.creativebloq.com/how-to/create-a-responsive-dashboard-with-figma>

**InVision:** <https://support.invisionapp.com/hc/en-us/articles/203009719-How-do-I-get-started->

**Proto.io:** <https://support.proto.io/hc/en-us/articles/221499147-Step-by-step-Tutorial-Getting-Started>

**Submit:** Upload a screenshot of your work to this google folder.

<http://bit.ly/2FtoMW1> **THE FILENAME SHOULD BE YOUR NETID!**