

INCAI PROJECT PRESENTS

THE SIGNIFICANT ROLE OF ARTIFICIAL INTELLIGENCE IN ADULT EDUCATION : WIREFRAMES

A STEP BY STEP GUIDE ON
HOW TO MAKE WIREFRAMES

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INTRODUCTION

THE INCAI PROJECT AIMS TO EXAMINE THE WAYS SPECIFIC **AI TECHNOLOGY** CAN SUPPORT DIVERSE LEARNERS AND HOW AI IS USED IN PARTICULAR IN THE CONTEXT OF **ADULT EDUCATION** TO PROVIDE A MORE INCLUSIVE AND FLEXIBLE **LEARNING ENVIRONMENT**.

THE OVERALL AIM OF THE PROJECT IS TO PRODUCE A MORE **EFFECTIVE EDUCATIONAL EXPERIENCE** FOR ADULT LEARNERS THROUGH EFFECTIVE STRATEGIES FOCUSED ON IMPROVING THE **INCLUSION** OF ADULTS FROM MARGINAL, VULNERABLE AND DISADVANTAGED GROUPS.

THEREFORE, WE WANT TO IMPROVE THE **SKILLS** AND COMPETENCIES OF THE ADULT EDUCATORS AND PROVIDE THEM WITH INNOVATIVE LEARNING **METHODOLOGIES** TO MAKE THEIR SERVICES MORE INCLUSIVE.

WE HAVE CREATED THIS GUIDE TO DEMONSTRATE THE SIGNIFICANT ROLE AI TECHNOLOGY CAN PLAY IN ADULT EDUCATION AND TO GIVE TOOLS TO ADULT EDUCATORS ON HOW TO MAKE **WIREFRAMES**.

I- A LITTLE BACKGROUND ABOUT ARTIFICIAL INTELLIGENCE

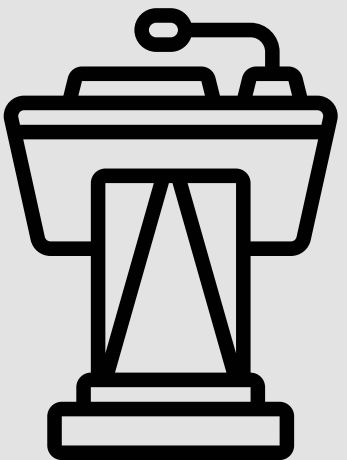
“MAY THE FORCE BE WITH YOU”. THIS SENTENCE FROM STAR WARS IS CERTAINLY ONE OF THE MOST FAMOUS QUOTES IN THE CINEMATIC UNIVERSE. EVERYONE IS FAMILIARISED WITH THE SCIENCE FICTION GENRE YET THERE IS A GENERAL MISCONCEPTION OF ARTIFICIAL INTELLIGENCE TECHNOLOGY. THIS CAN BE EXPLAINED BY THE THEMES THAT ARE ADDRESSED IN THESE TYPES OF MOVIES. INDEED, MOST OF THE TIME, THE PLOT CONSISTS OF ENCOUNTERS WITH ALIENS, APOCALYPTIC PLANETARY CATASTROPHE, OR CONFRONTATION BETWEEN THE HUMAN SPECIES AND ROBOTS OR CLONES. AS A RESULT, THE AUDIENCE TENDS TO FOCUS ON THE NEGATIVE AND PEJORATIVE SIDES OF AI WHEREAS SCIENCE FICTION IS FIRST AND FOREMOST A **NARRATIVE GENRE THAT HIGHLIGHTS SCIENTIFIC AND TECHNICAL PROGRESS.**

LET’S GO BACK TO THE FIRST HALF OF THE 20TH CENTURY. IN 1921, KAREL CAPEK PUBLISHED A PLAY NAMED ROSSUM’S UNIVERSAL ROBOTS (R.U.R) WHERE THE WORD “**ROBOT**” WAS INTRODUCED FOR THE FIRST TIME. SINCE THEN, ARTIFICIALLY INTELLIGENT ROBOTS WERE PUT AT THE CORE OF MOST SCIENCE FICTION MOVIES. THE MOST POPULAR EXAMPLES ARE THE CHARACTER OF “MARIA THE ROBOT” IN THE MOVIE METROPOLIS RELEASED IN 1927 AND THE CHARACTER OF “TIN MAN” IN THE MOVIE WIZARD OF OZ, RELEASED IN 1939.

BY THE 1950S, A WHOLE BUNCH OF SCIENTISTS, MATHEMATICIANS, AND PHILOSOPHERS WERE THUS CULTURALLY ASSIMILATED WITH **AI TECHNOLOGY**. ALAN TURING IS ONE OF THE MATHEMATICIANS THAT ADDRESSED THIS TOPIC IN A PAPER ENTITLED *COMPUTING MACHINERY AND INTELLIGENCE* IN 1950. THE AIM OF THIS PUBLICATION WAS TO DISCUSS THE INTELLIGENCE OF “MACHINES” AND ANSWER THE TRADITIONAL QUESTION OF WHETHER MACHINES CAN THINK AND MAKE DECISIONS.



THE CORE OF HIS PAPER REVOLVED AROUND A MAJOR INTERROGATION: CAN A COMPUTER TAKE THE PLACE OF A HUMAN BEING IN THE GAME OF IMITATION? HOWEVER, IT IS WELL KNOWN THAT WE CANNOT BASE OURSELVES ON ASSUMPTIONS. THEORIES HAVE TO BE PROVEN AND THIS WAS THE MAIN CHALLENGE BACK IN THE EARLY 1950S: CONVINCE GOVERNMENTS TO INVEST IN AI RESEARCH. INDEED, AT THE TIME, COMPUTERS WERE NOT AFFORDABLE BECAUSE OF THEIR HIGH PRICES AND THEY DIDN'T HAVE ALL THE FUNCTIONS THAT WE HAVE TODAY. THEY HAD VERY LIMITED CAPACITY AND COULD ONLY EXECUTE BASIC COMMANDS.



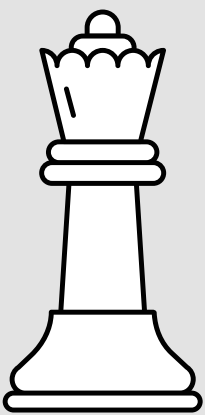
A GREAT TURNING POINT IN AI HISTORY OCCURRED IN 1955 WITH THE **CREATION OF THE FIRST ARTIFICIAL INTELLIGENCE PROGRAM: LOGIC THEORIST**. THIS COMPUTER PROGRAM WAS DESIGNED BY ALLEN NEWELL, HERBERT SIMON AND CLIFF SHAW TO REPLICATE THE PROBLEM-SOLVING SKILLS OF A HUMAN BEING. IT WAS PRESENTED IN 1956 AT THE **DARTMOUTH SUMMER RESEARCH PROJECT ON ARTIFICIAL INTELLIGENCE**, A CONFERENCE THAT MARKED THE BIRTH OF ARTIFICIAL INTELLIGENCE AS AN AUTONOMOUS FIELD OF RESEARCH. EVER SINCE, THE PROGRESS CONTINUED. SUCCESSES LIKE THESE, ALONG WITH THE SUPPORT OF ACADEMICS, PERSUADED GOVERNMENT ORGANISATIONS SUCH AS THE DEFENSE ADVANCED RESEARCH PROJECTS AGENCY (DARPA) TO SUPPORT AND GIVE MORE FUNDING TO ARTIFICIAL INTELLIGENCE RESEARCH IN 1963. SINCE THEN, COMPUTERS HAVE IMPROVED IN SPEED, AFFORDABILITY, AND ACCESSIBILITY WHILE BEING ABLE TO STORE MORE DATA.



IN THE 1980S, ARTIFICIAL INTELLIGENCE IMPROVED AGAIN MAINLY THANKS TO THE EXPANSION AND DEVELOPMENT OF ALGORITHMS. JOHN HOPFIELD AND DAVID RUMELHART POPULARISED '**DEEP LEARNING**' **TECHNIQUES** THAT ALLOWED COMPUTERS TO LEARN USING EXPERIENCE. IN ADDITION TO THIS, WHAT WE CALL "**EXPERT SYSTEMS**" WERE DEVELOPED BY EDWARD ALBERT FEIGENBAUM. AN EXPERT SYSTEM IS A TOOL CAPABLE OF REPRODUCING THE COGNITIVE MECHANISMS OF AN EXPERT IN A PARTICULAR FIELD.

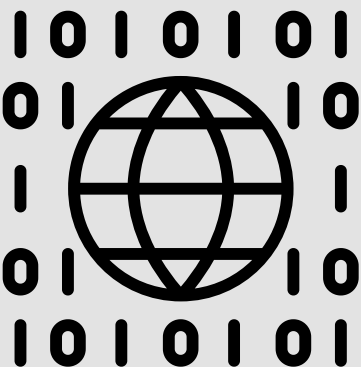


THAT IS TO SAY THAT THIS IS A SOFTWARE CAPABLE OF ANSWERING QUESTIONS BY REASONING FROM KNOWN FACTS AND RULES. IT IS USED IN MANY INDUSTRIES AND CAN BE USED AS A **DECISION SUPPORT TOOL**. THE FIRST EXPERT SYSTEM WAS DENDRAL AND WAS USED TO IDENTIFY CHEMICAL CONSTITUENTS. IN 1982, THE JAPANESE GOVERNMENT FUNDED EXPERT SYSTEMS AND OTHER AI-RELATED PROJECTS UNDER A 10 YEAR INITIATIVE CALLED FIFTH GENERATION COMPUTER PROJECT (FGCP). \$400 MILLION WERE INVESTED WITH THE MAIN OBJECTIVE OF “**REVOLUTIONISING COMPUTER PROCESSING, IMPLEMENTING LOGIC PROGRAMMING AND IMPROVING ARTIFICIAL INTELLIGENCE**”.



LAST BUT NOT LEAST, A VERY FAMOUS EVENT MARKED THE HISTORY OF AI IN 1997 AS WORLD CHESS CHAMPION GARY KASPAROV LOST AGAINST **IBM’S DEEP BLUE**, A CHESS PLAYING COMPUTER PROGRAM. THIS HISTORICAL AND HIGHLY MEDIATISED EVENT SHOWED HOW POWERFUL AI TECHNOLOGY IS AND HOW USEFUL IT CAN PROVE TO BE IN A LOT OF SECTORS SUCH AS TECHNOLOGY, ENTERTAINMENT, MARKETING ETC.

WE ARE NOW IN THE **ERA OF “BIG DATA,”** AN AGE WHERE DATA IS INCREASING AND PRODUCED MASSIVELY EACH AND EVERY DAY MOSTLY THROUGH SOCIAL APPLICATIONS AND SOCIAL NETWORKS. ARTIFICIAL INTELLIGENCE IS SPREADING MORE AND MORE AND USED MASSIVELY IN OUR DAILY LIVES. A NON EXHAUSTIVE EXAMPLES ARE:



- VIRTUAL ASSISTANTS (SIRI, ALEXA, GOOGLE, WINDOWS)
- SELF DRIVING CARS (TESLAS)
- KITCHEN ROBOTS
- CONTENT AND ADS RECOMMENDATION
- IMAGE AND VIDEO RECOGNITION

AI SYSTEMS USE DIFFERENT TYPES OF INTELLIGENCE SUCH AS LINGUISTIC, LOGICAL, MATHEMATICAL, MUSICAL, SPATIAL OR INTRA PERSONAL INTELLIGENCE. A SYSTEM CAN USE ONE OR SEVERAL INTELLIGENCES DEPENDING ON THE PURPOSE AND THE NEEDS OF THE USER.

THE DEFINITION OF AI SYSTEMS AS ESTABLISHED BY THE
EUROPEAN COMMISSION IN 2018 IS:

“ **SOFTWARE** (AND POSSIBLY ALSO HARDWARE) SYSTEMS DESIGNED BY HUMANS THAT, GIVEN A COMPLEX GOAL, ACT IN THE PHYSICAL OR **DIGITAL** DIMENSION BY PERCEIVING THEIR ENVIRONMENT THROUGH DATA ACQUISITION, INTERPRETING THE COLLECTED STRUCTURED OR UNSTRUCTURED DATA, REASONING ON THE **KNOWLEDGE**, OR PROCESSING THE INFORMATION, DERIVED FROM THIS DATA AND DECIDING THE BEST ACTION(S) TO TAKE TO ACHIEVE THE GIVEN GOAL. AI SYSTEMS CAN EITHER USE SYMBOLIC RULES OR LEARN A NUMERIC MODEL, AND THEY CAN ALSO ADAPT THEIR BEHAVIOUR BY ANALYSING HOW THE **ENVIRONMENT** IS AFFECTED BY THEIR PREVIOUS ACTIONS.

AS A SCIENTIFIC DISCIPLINE, AI INCLUDES SEVERAL APPROACHES AND TECHNIQUES, SUCH AS **MACHINE LEARNING** (OF WHICH DEEP LEARNING AND REINFORCEMENT LEARNING ARE SPECIFIC EXAMPLES), **MACHINE REASONING** (WHICH INCLUDES PLANNING, SCHEDULING, KNOWLEDGE REPRESENTATION AND REASONING, SEARCH, AND OPTIMIZATION), AND **ROBOTICS** (WHICH INCLUDES CONTROL, PERCEPTION, SENSORS AND ACTUATORS, AS WELL AS THE INTEGRATION OF ALL OTHER TECHNIQUES INTO CYBER-PHYSICAL SYSTEMS).”



II- THE ROLE OF AI IN ADULT EDUCATION

“AS AI EDUCATIONAL SOLUTIONS CONTINUE TO MATURE, THE HOPE IS THAT AI CAN HELP FILL NEEDS GAPS IN LEARNING AND TEACHING AND ALLOW SCHOOLS AND TEACHERS TO DO MORE THAN EVER BEFORE” SAID BERNARD MARR IN AN ARTICLE FOR FORBES ON HOW AI IS USED IN EDUCATION.



THERE IS A POPULAR BELIEF THAT ROBOTS WILL REPLACE TEACHERS. WE WANT TO PROVE THAT AI IS NOT HERE TO TAKE OVER JOBS IN THE EDUCATION FIELD BUT RATHER TO PROVIDE USEFUL TOOLS AND MATERIALS FOR LEARNERS WHILE MAKING IT EASIER FOR TEACHERS TO PROVIDE MORE PERSONALISED LESSONS AND SUCCESSFULLY MANAGE MORE TASKS.

HOLONIQ’S 2019 REPORT ON THE STATE OF ARTIFICIAL INTELLIGENCE IN GLOBAL EDUCATION IDENTIFIED **SIX AREAS WHERE AI IS CREATING VALUE IN EDUCATION**:

1. “LEARNING PROCESSES”:



HOW CAN IT HELP ADULT EDUCATORS? WITH THE HELP OF AI IN EACH STUDENT LEARNING PROCESS, THE EDUCATOR CAN CREATE A **UNIVERSAL COURSE** THAT CAN BE UNDERSTOOD AND FOLLOWED BY EVERYONE WITHOUT CREATING DISADVANTAGES.

HOW CAN IT HELP ADULT LEARNERS? LEARNERS ARE TUTORED BY **INTELLIGENT TUTORING SYSTEMS** THAT GENERATE ADAPTED AND PERSONALISED LEARNING MATERIALS. NOT ONLY WILL THE AI GIVE THE CORRECT ANSWER BUT IT WILL ALSO PROVIDE THE STUDENT WITH **PERSONALISED FEEDBACK** DEPENDING ON HIS ANSWERS AND PROGRESS. THIS ADJUSTMENT IS ESSENTIAL AND VERY IMPORTANT AS ADULT LEARNERS HAVE DIFFERENT LEARNING METHODS, WORK AT DIFFERENT PACE AND HAVE DIFFERENT LEVELS OF UNDERSTANDING.



2. “ASSESSMENT AND FEEDBACK”:



HOW CAN IT HELP ADULT EDUCATORS? EDUCATORS HAVE THE OPPORTUNITY TO ASSESS EACH **STUDENT'S PROGRESS** AND MODIFY THE SPEED AND SUBJECT MATTER TO MEET THE REQUIREMENTS OF EACH PERSON.



HOW CAN IT HELP ADULT LEARNERS? LEARNERS MAY UNDERSTAND THEIR STRENGTHS AND PLACES FOR IMPROVEMENT THANKS TO THE DETAILED FEEDBACK.

3. “LEARNER/TALENT ACQUISITIONS”:



HOW CAN IT HELP ADULT EDUCATORS? CHATBOTS CAN ALSO HELP EDUCATORS IN BETTER IDENTIFYING **LEARNERS PROFILES** AND QUALIFICATIONS



HOW CAN IT HELP ADULT LEARNERS? **CHATBOTS** ALSO KNOWN AS VIRTUAL HUMAN ASSISTANTS CAN HELP STUDENT WITH ANY INQUIRIES THEY MAY HAVE AT ANY MOMENT

4. “ADMINISTRATION/BUSINESS PROCESSES”:



HOW CAN IT HELP ADULT EDUCATORS? AI TECHNOLOGY CAN CONTRIBUTE TO EASE ADMINISTRATION TASKS BY SORTING A HUGE AMOUNT OF DATA. THIS CAN SAVE EDUCATORS A LOT OF TIME TO FOCUS ON OTHER DUTIES THEY MAY HAVE.

5. “LANGUAGE LEARNING”:



HOW CAN IT HELP ADULT LEARNERS? WITH THE USE OF VOICE RECOGNITION TECHNOLOGY, AI CAN EVALUATE STUDENTS' KNOWLEDGE AND LEARNING POTENTIAL, AND OFFER ADAPTIVE INFORMATION BASED ON **LEARNING PATTERNS**

6. CORPORATE TRAINING:



HOW CAN IT HELP ADULT LEARNERS? AI CAN GIVE PERSONALISED, **ADAPTIVE SUPPORT** AND REAL-TIME MONITORING OF DAILY WORKFLOW TO REDUCE GAPS BETWEEN TRAINING AND PERFORMANCE

THE SAME REPORT HIGHLIGHTED **FIVE KEY AREAS** WHERE AI TECHNOLOGY IS BEING DEVELOPED AND USED FOR EDUCATION :

ARTIFICIAL INTELLIGENCE & GLOBAL EDUCATION

Holon IQ

Core AI Applications

AI applications have been categorised into five areas that help map the underlying technology to specific use-cases. Generally, uses of artificial intelligence will deploy in one or more of the following categories.



Vision

Vision-base AI is being used in learning and administrative contexts. Emotion recognition can assist in detecting learners' confusion or engagement while face detection can be used for attendance management, parent/carer access or identity management for testing.



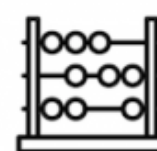
Voice

Campuses and classrooms are starting to use speech to text and voice interface to support campus life and learning activities. Applications for literacy development and language learning are some of the first to use voice recognition in education settings.



Natural Language

Deciphering human language is still one of the most difficult AI problems due to its complexity. However, advances over the past few years have seen applications of NLP into educational contexts such as assessing levels of understanding, providing feedback and plagiarism detection.



Algorithms

Deep learning and machine learning are most prevalent in 'personalized learning' systems. Content intelligence and automation, behavioural recommendations provide notifications, intelligent content delivery and personalized learning pathways.



Hardware

At the intersection of AI, Robotics and IoT, hardware-based AI is being deployed on a variety of devices to reduce latency and lower networking costs. Smart devices on campus, in labs and classrooms connect software systems, data for learning and the physical environment in new and smart ways.

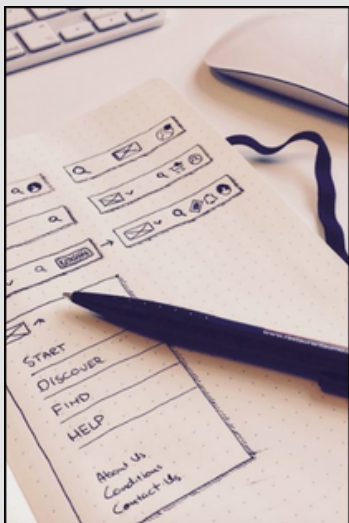
III- INTRODUCTION TO WIREFRAMES: WHAT THEY ARE AND WHY THEY MATTER



NOW THAT YOU HAVE READ THIS, YOU WANT TO USE AI IN YOUR DAILY WORK WITH YOUR LEARNERS BUT YOU DON'T KNOW WHERE TO BEGIN. YOU WOULD LIKE TO CREATE AI TOOLS, APPLICATIONS OR EVEN WEBSITES THAT COULD EASE THE LEARNING PROCESS OF YOUR LEARNERS? HERE IS WHY YOU SHOULD MAKE WIREFRAMES.

WHAT IS A WIREFRAME?

A WIREFRAME IS A **DRAWING** THAT MAY BE USED TO FACILITATE **COMMUNICATION** BETWEEN THE PROGRAMMERS, AND UX DESIGNERS ON THE ORGANISATIONAL LAYOUT OF THE SOFTWARE, WEBSITE OR APPLICATION THAT IS GOING TO BE DEVELOPED. THAT IS TO SAY THAT BEFORE THE DEVELOPERS BEGIN WRITING CODE FOR THE INTERFACE, DESIGNERS USE WIREFRAMES TO AGREE ON WHERE THE **INFORMATION** WILL BE PLACED. DEPENDING ON HOW MUCH INFORMATION IS NEEDED, WIREFRAMES CAN BE PRODUCED **DIGITALLY** OR BY **HAND**.



THEREFORE, WIREFRAMES ARE SIMPLE **PICTURES** THAT PROVIDE A QUICK OVERVIEW OF THE DESIGN, A MAP OF HOW PAGES ARE ORGANISED, AND INSTRUCTIONS ON HOW VISITORS MAY FIND THE INFORMATION THEY NEED. MOST DESIGNERS DON'T INCLUDE LOGOS, PICTURES, TYPEFACES, STYLE, COLOUR OR GRAPHICS AS THEY FOCUS ONLY ON THE ORGANISATION. WHAT IS USUALLY OUTLINED IS:

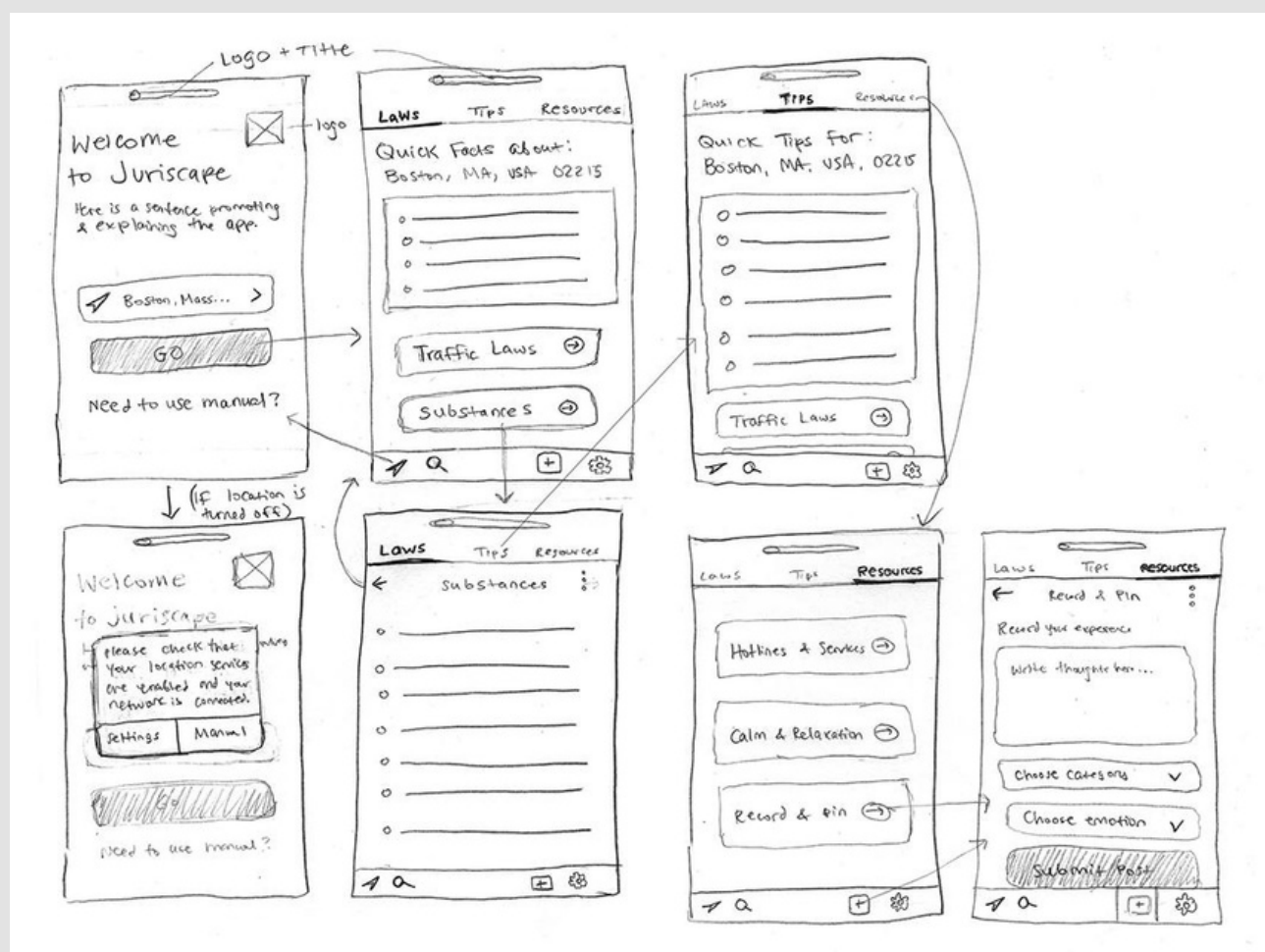
- THE PAGE STRUCTURE
- THE LAYOUT
- THE INFORMATION ARCHITECTURE
- THE USER FLOW
- THE FUNCTIONALITY
- THE EXPECTED BEHAVIOURS

WHAT ARE THE DIFFERENT TYPES OF WIREFRAMES?

MOST OF THE TIME, DESIGNERS PREFER TO MAKE A MANUAL WIREFRAME. IT CAN BE MORE CONVENIENT TO COMMUNICATE IDEAS, TEST OUT MULTIPLE DIFFERENT VERSIONS, AND DETERMINE WHAT WORKS AND WHAT DOESN'T. **PAPER WIREFRAMES** ARE EXCELLENT FOR STARTING AN EARLY DRAFT AND DEVELOPING YOUR IDEAS VISUALLY. HOWEVER, YOU MUST UPLOAD YOUR DESIGN TO YOUR COMPUTER BEFORE YOU CAN BEGIN ADDING DETAILS. IF YOU CREATE YOUR **WIREFRAME DIGITALLY**, THE ADVANTAGE IS THAT YOU CAN COLLABORATE WITH PEOPLE ONLINE AND SAVE MORE TIME BY SHARING IT.

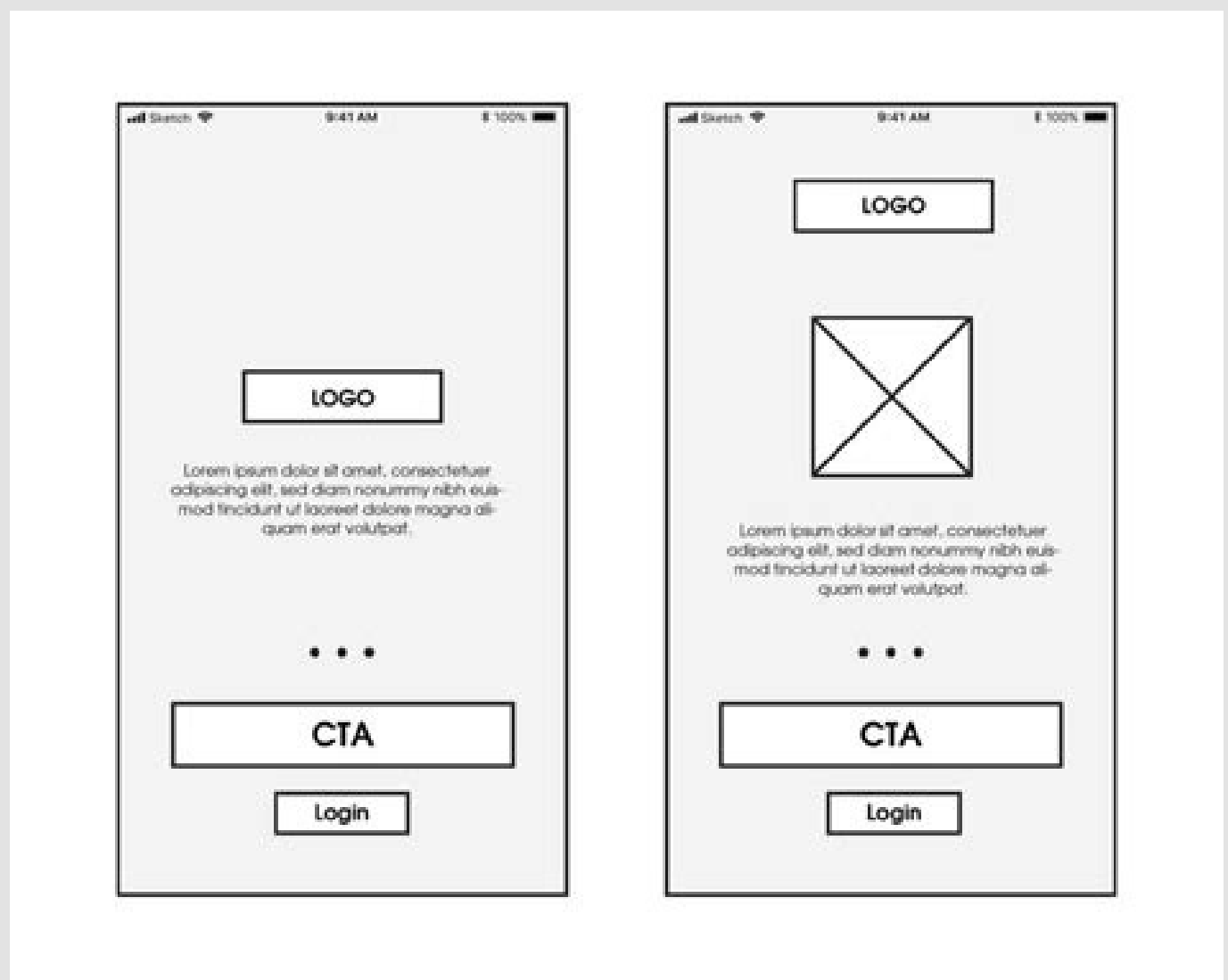
YOU CAN CHOOSE TO MAKE 3 DIFFERENT TYPES OF WIREFRAMES:

LOW-FIDELITY WIREFRAMES ARE OFTEN A SIMPLE REPRESENTATION OF WHATEVER CONTENT YOU INTEND TO USE WHEN YOU ADD DETAILS. LOREM IPSUM WORDS, BASIC PICTURES, BLOCK FORMS ARE USUALLY USED AS CONTENT. ANY INFORMATION THAT WOULD SERVE AS A POSSIBLE DISTRACTION IS NOT USED IN THIS TYPE OF WIREFRAME. BY DOING THIS, YOU CAN **FOCUS ON THE CRUCIAL ASPECTS** OF YOUR OVERALL DESIGN WHILE ALSO SAVING TIME. IT IS ALSO HELPFUL FOR KICKING OFF DISCUSSIONS, CHOOSING AMONGST SEVERAL DIFFERENT PRODUCT IDEAS, AND MAPPING USER FLOWS.



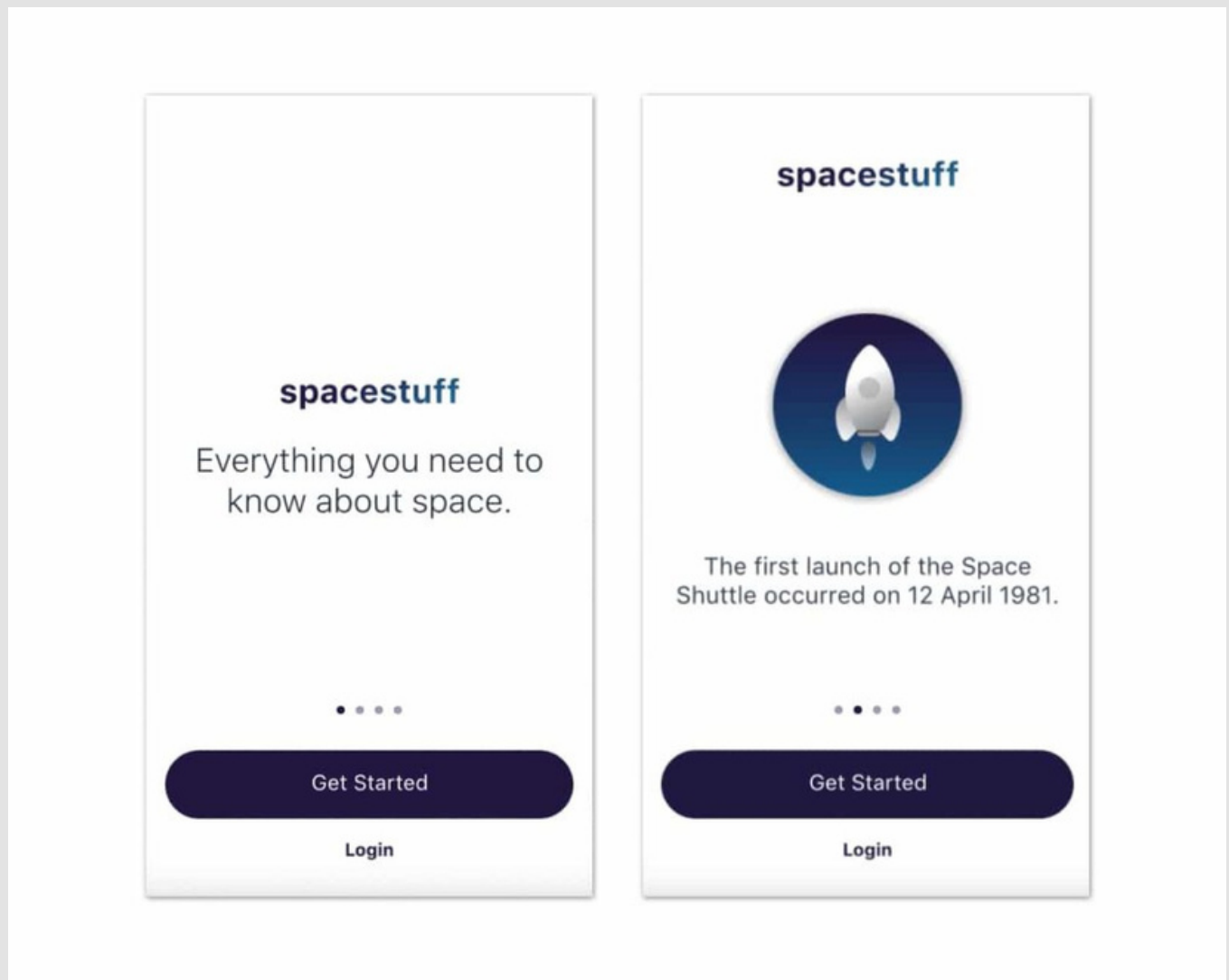
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MEDIUM-FIDELITY WIREFRAMES SHOW YOUR LAYOUT IN GREAT DETAIL AS THEY INCLUDE **MORE PRECISE REPRESENTATIONS**. THEY PROVIDE A SOLID OVERVIEW OF THE MAIN FEATURES, EVEN IF THEY STILL LACK DETAILS LIKE PHOTOS, TYPOGRAPHY, AND EXTENSIVE TEXT. THEY ALSO MINIMISE DISTRACTIONS LIKE GRAPHICS SO THAT MORE CARE IS DEVOTED TO PARTICULAR COMPONENTS. FOR INSTANCE, HEADINGS AND BODY MATERIAL MIGHT BE SEPARATED USING DIFFERENT FONT WEIGHTS. MEDIUM-FIDELITY WIREFRAMES ARE OFTEN PRODUCED WITH THE USE OF A DIGITAL WIREFRAMING PROGRAMME, SUCH AS **SKETCH** OR **BALSAMIQ**.



3

HI-FIDELITY WIREFRAMES HAVE CONSEQUENTLY **HIGHER DETAILS** THAN IN LOW OR MEDIUM. INDEED, IT INCLUDES PARTICULAR TYPOGRAPHIC CHOICES, PHOTOS, AND DETAILED TEXT. AS A MATTER OF FACT, THEY CLOSELY LOOK LIKE THE FINISHED PRODUCT DESIGN AS THEY ARE DESIGNED TO DISPLAY THE ACTUAL COMPONENTS. TO CREATE HI-FI WIREFRAMES, YOU WILL NEED AN ONLINE TOOL. THEY ARE USED BY DESIGNERS AS A MEANS OF COMMUNICATING THEIR VISION FOR A DESIGN TO DEVELOPERS.



WHY IS IT HIGHLY RECOMMENDED TO CREATE WIREFRAMES?

- **WIREFRAMES CLARIFY AND OUTLINE WEBSITE FEATURES:** THE GOAL OF WIREFRAMES IS TO GIVE ABSTRACT IDEAS A VISUAL FRAME. THEY **ASSIST DESIGNERS** IN PUTTING THEIR CONCEPTS ON PAPER OR IN DIGITAL FORM SO THEY MAY DECIDE WHAT KINDS OF FEATURES AND FUNCTIONALITY THEIR DESIGNS REQUIRE. MAKING IT **VISIBLE** ALLOWS THEM TO QUICKLY IDENTIFY ANY APPARENT ISSUES. IT IS A DRAFT VERSION SO IT IS EASY TO ELIMINATE OR MODIFY ANY FEATURES IF THEY DON'T FIT WITH THE OTHER PAGE CONTENTS. A MASSIVE AMOUNT OF TIME WILL BE SAVED IF THE ADJUSTMENTS ARE DONE IN THIS FIRST PHASE BEFORE ANY CODE IS WRITTEN AND BEFORE THE VISUAL DESIGN IS COMPLETE.





- **WIREFRAMES ARE NOT THE FINAL DESIGN THEY ARE UP FOR DISCUSSION:** WIREFRAMES ARE USEFUL AS COMMUNICATION TOOLS BECAUSE THEY ENCOURAGE USER **FEEDBACK**, STIMULATE DISCUSSIONS WITH STAKEHOLDERS, AND BOOST CREATIVITY AMONG DESIGNERS. THE WIRE-FRAMING STAGE ENABLES THE DESIGNER TO RECEIVE INPUT THAT SUPPORTS THE CREATION AND DEVELOPMENT OF THE PRODUCT CONCEPT. IT IS A WAY TO PREDICT HOW USERS WILL INTERACT WITH THE FINAL INTERFACE WHEN IT'S CREATED AND THEREFORE IT IS AN ESSENTIAL STEP TO MEET A MAXIMUM OF **EXPECTATIONS**.



- **WIREFRAMES ARE VERY EASY TO CREATE:** THE GREATEST BENEFIT OF WIREFRAMES IS THAT THEY DON'T REQUIRE MONEY AND A LOT OF EFFORT TO MAKE. WIREFRAMES CAN BE CREATED MANUALLY WITH A PEN AND A PAPER OR DIGITALLY WITH **FREE** ONLINE TOOLS AVAILABLE ON THE NET.

IV- WIREFRAMES IN PRACTICE: HOW TO CREATE THEM

BEGINNING WIREFRAMING MIGHT BE DIFFICULT FOR NOVICES. DON'T WORRY IF YOU'VE NEVER DONE IT BEFORE, HERE ARE FOUR EASY STEPS FOR YOU TO FOLLOW!

- **BRAINSTORM BEFORE YOU GET STARTED**

IN ORDER FOR YOUR WIREFRAME TO BE EFFICIENT AND USEFUL, YOU HAVE TO KNOW WHAT YOU WANT YOUR FINAL PRODUCT TO LOOK LIKE. **DRAFT** YOUR IDEAS AND DEVELOP A **PLAN** THAT WILL **GUIDE** YOU THROUGH YOUR WHOLE PROCESS. WHEN BRAINSTORMING, ALWAYS KEEP IN MIND THAT YOUR INTERFACE SHOULD PROVIDE A USEFUL USER EXPERIENCE. YOU CAN DO SOME USER EXPERIENCE RESEARCH AND ANALYSE SOME CASES TO BEST MEET YOUR DESIRED RESULTS AND YOUR TARGET GROUP EXPECTATIONS. IT'S OKAY TO MAKE A LOT OF DRAFTS AS LONG AS YOU KNOW YOUR OBJECTIVE. WHAT IS IMPORTANT IS TO REMAIN FOCUSED ON THE CONTENT YOU WANT TO ENHANCE RATHER THAN LOSE YOURSELF IN SMALL DETAILS THAT WON'T BE NECESSARY FOR THE NEXT STEPS

ONCE YOU'VE BRAINSTORMED YOU WILL KNOW YOUR OVERALL **GOALS**. FROM THERE IT'S USEFUL TO RANK WHAT FUNCTIONS AND FEATURES ARE MOST IMPORTANT TO KEEP IN YOUR STRATEGY.



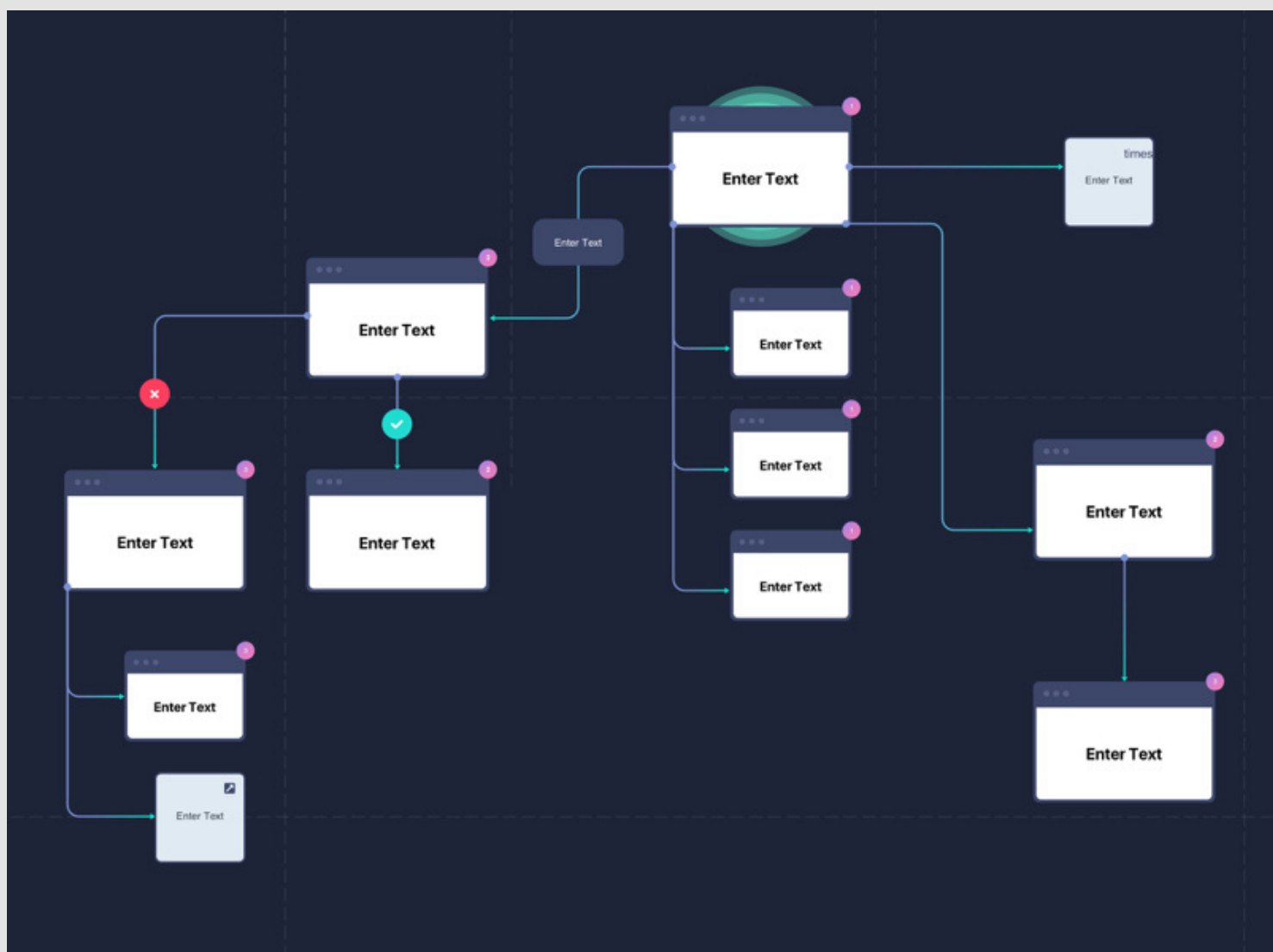
• DRAW UP FLOW CHARTS TO ORGANISE YOUR PAGES

HOW DO YOU WANT YOUR USERS TO INTERACT WITH YOUR APP OR WEBSITE? YOU WILL ANSWER THIS VERY IMPORTANT QUESTION THROUGH A FLOWCHART. INDEED, FLOWCHARTS ARE ESSENTIAL FOR YOU TO UNDERSTAND WHERE CERTAIN BUTTONS GO AND HOW THEY INTERACT WITH THE REST OF YOUR DESIGN.

KEEP IT **SIMPLE**. YOU CAN START USING ARROWS TO SHOW INTERACTION AND FLOW. WHEN YOU HAVE FINISHED YOUR FLOWCHART TRY IT OUT YOURSELF AND SEE IF YOU CAN NAVIGATE THROUGH YOUR APP OR WEBSITE AS YOU FIRST INTENDED.

DON'T PANIC, YOU DON'T NEED TO BE A PRO !

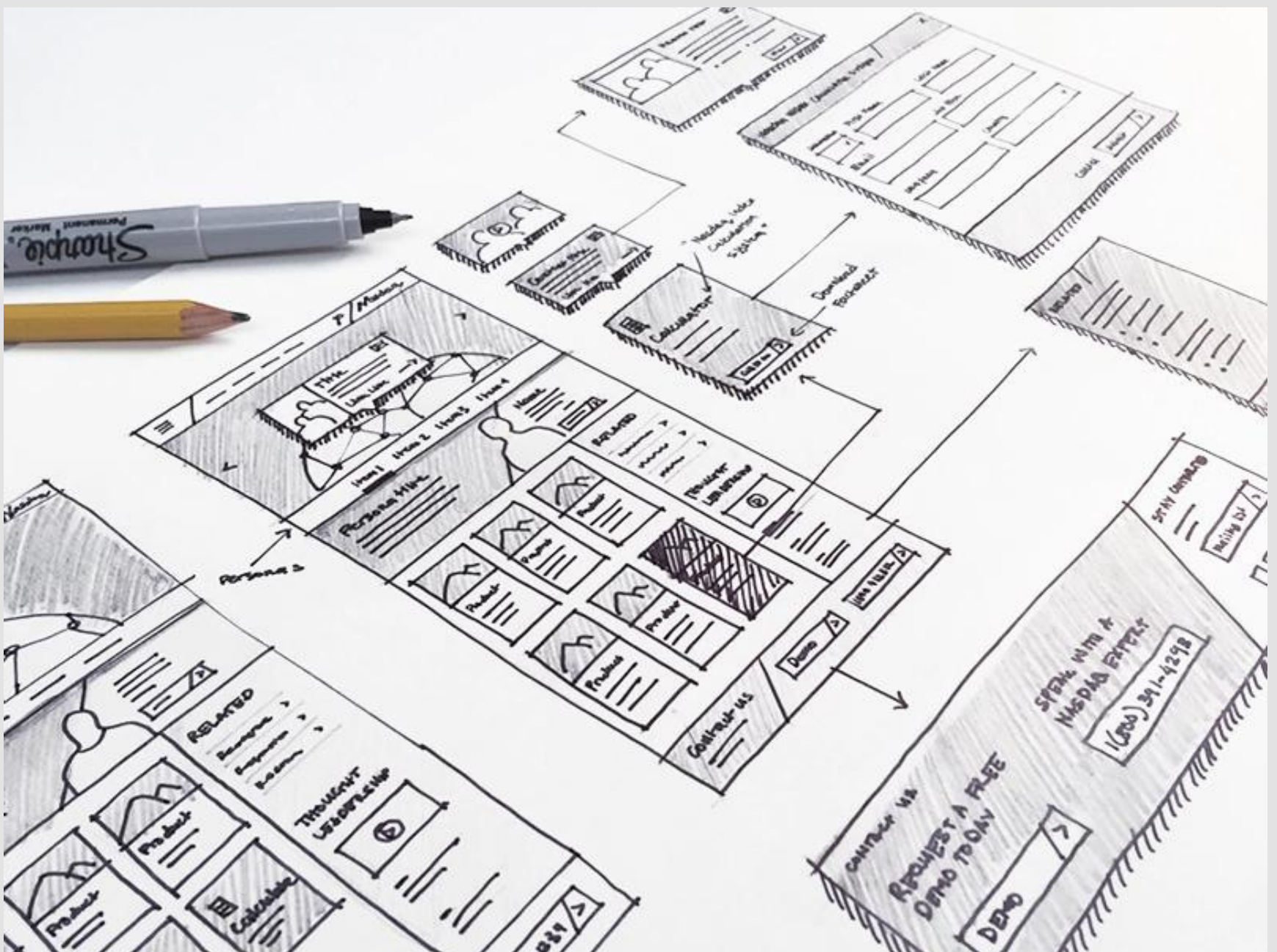
OBVIOUSLY, MAKING A FLOWCHART NEEDS MORE DETAILS THAN THE PREVIOUS STEPS AND WE ALL KNOW IT CAN BE DIFFICULT TO START YOUR DESIGN FROM SCRATCH. YOU DON'T NEED TO DRAW COMPLEX DESIGNS OR TO HAVE PRE-REQUISITE IN THIS FIELD. HERE ARE SOME GREAT UI/UX EXAMPLES AND TEMPLATES TO TRY OUT, LEARN FROM THEM AND GET INSPIRATIONS FOR WHEN YOU WILL DRAW YOUR OWNS.



• SKETCH OUT YOUR PAGES

ONCE AGAIN, SKIP MEANINGLESS DETAILS AND FOCUS ON THE CORE OF YOUR PROJECT. YOUR BRAINSTORMING AND FLOWCHART WILL BE A GREAT HELP FOR THIS STEP.

WE HAVE SEEN PREVIOUSLY DIFFERENT TYPES OF WIREFRAMES. YOU CAN CHOOSE THE TYPE THAT SUITS YOU MORE. FOR EXAMPLE, IF YOU WANT TO GET YOUR IDEAS OUT QUICKLY IT WILL BE BETTER TO USE WORK ON A PAPER. YOU WANT TO BE QUICK AND EFFICIENT ? NO PROBLEM, A **WIREFRAME TOOL** ONLINE WILL HELP YOU SAVE TIME AND LET YOU SET OUT YOUR IDEAS CLEARLY WHILE ALSO MAKING THEM EASY TO SHARE. IT WILL ALSO BE MORE CONVENIENT IF YOU WISH TO TRY OUT DIFFERENT MODELS OF LAYOUT AND COMPARE THEM.



- **TEST YOUR WIREFRAME AND ADD DETAILS TO MAKE IT MORE COMPLETE.**

AFTER COMPLETING YOUR INITIAL WIREFRAME, YOU MUST CONTINUE MODIFYING IT AND INCLUDING LITTLE ELEMENTS THAT YOU DISCOVER VIA TESTING. AS YOU BEGIN TO CONSTRUCT YOUR WIREFRAME, YOU SHOULD ALSO BEGIN TO INCLUDE SPECIFICS LIKE COMPONENTS, COLOURS, AND FONTS.

IN ADDITION, YOUR WIREFRAME HAS TO BE **REVIEWED** AND **TESTED** BY OTHER PEOPLE. INDEED, YOU MAY IMPROVE YOUR DESIGN BY SOLICITING FEEDBACK FROM FRIENDS, COWORKERS, OR USERS OF SOCIAL MEDIA FOR EXAMPLE.

BY FOLLOWING THE ABOVE-DESCRIBED PROCEDURES, YOU MAY QUICKLY GET STARTED WITH SKETCHES AND FLOWCHARTS AND THEN SIMPLY IMPROVE BY GOING ONLINE AND FILLING IN YOUR WIREFRAME, GRADUALLY ADDING MORE AND MORE DEPTH. YOU'LL SOON RECEIVE A WELL-MADE, USEFUL APP OR WEBSITE AS COMPENSATION!



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