* **Informatics** is the intersection of information, technology, and society
* World 🡪 Store Data 🡪 Process Data 🡪 Present the Information 🡪 People View Information 🡪 Think About The Information 🡪 Make a Judgement Based on the Information 🡪 Collect Data 🡪 Start Over
* **Structural Inequality** is when political, social, and economic **structures** create an unequal distribution of opportunities and resources **Social stratification**- grouping based on SES status
  + Education—the school a kid is enrolled in has a major effect on social mobility. poor family🡪bad school
* **Structural Racism** is when **systems** generate differential opportunities/outcomes across racial lines
  + Criminal Justice System
* **Structural Oppression** is when **systems** generate differential outcomes for specific communities (race, gender, orientation, religion…)
  + Stereotypes
* Information systems **perpetuate or challenge** these inequalities
* The **information systems we create** as designers and developers **have a tangible impact** on society
* **Information-as-thing**: (noun) data in the form of numbers, characters, records, documents, photos, audio, video, or physical objects; we store and manipulate with information technology
* **Information-as-process**: (verb) the act of being informed by encountering data that has been turned into something meaningful to the person
* **Information-as-knowledge**: (noun) the result of information-as-process; the intangible web of concepts and ideas in your own mind, which can often represent again as information-as-thing
* **Info-as-knowledge** 🡪 Externalization 🡪 **Info-as-thing** 🡪 Processing 🡪 **Info-as-knowledge**
* **How do we actively externalize information?** Talk, write, cook, play music
* **How do we passively externalize information?** Browser info, injuries (scars), race, gender
* **Nominal** (categorical) data- do you have pneumonia? Symptoms?
* **Ordinal** data- how do you feel (healthy, mediocre, sick, very sick)? Rating system
* **Quantitative** data (continuous)- How many days have you been feeling sick?
* **Technology**- the techniques and artifacts we use to reshape our world
* **Information Technology**- techniques and artifacts used to collect, store, analyze, and communicate information
* **Technological Determinism**- technology shapes society
* **Mutual Shaping**- both society and technology shape society
* **Social Determinism**- society shapes technology
* **Implicit Bias**- **unconsciously** following stereotypes, might not know that you have
* **Explicit Bias**- **consciously** following stereotypes, purposely
* **Implicit Bias Reading Takeaways**
  + Exposure to information, even exposure brief enough to avoid being consciously experiences, is sufficient for information to be encoded in memory
  + Implicit preferences favoring some social groups over others are pervasive
  + People may possess associations with which they actively and honestly disagree
  + Implicit social cognition is distinct, but related to self-reported evaluation of the same content
* **Architecture**- the way a system is built; the features it has. Example: Character limits
* **Dynamics**- The way information flows. How you behave, what you know. Example: Hashtags
* **Temporary Architecture**- Facebook Paris profile filter, good and support but ignores other events happening
* **Knowledge Extraction** is difficult, no universal scale, everyone understands things differently, etc.…
* **Who do you ask?** – Mapping from knowledge to data
  + **Sampling**- Ask some people, make inferences about “everyone”
  + **Random Sampling**- could be issues depending on how you randomly choose
  + **Systematic Random**- similar to simple random, different in that put everyone on list and pick a person
  + **Stratified Sampling**- representative random sampling
  + **Cluster**- not necessarily based on characterizes, just split into random clusters and randomly sample
  + **Sampling Bias**- probability of sample inclusion is skewed, depends on who you ask
    - Interview at high school about teen drug use. What about drop outs? Home school?
  + **Non Response Bias**- people who choose to respond are somehow different (in meaningful ways) than those who choose not to
    - Who responds is harder to control, when asking if you think people are working to much, the overworked employees don’t have time to respond because they’re working to much
  + **Reporting Bias**- people might be lying, sampling issues maybe.
    - OKCupid, avg. height is 2 inches taller than US avg. height, are people reporting a taller height?
* **What do you ask?** – mapping from underlying concept to measureable outcome
  + **Recall Bias-** People can’t remember very far into the past and are bad at estimating habits
* **How do we ask?** – Question Type 🡪 Data Type 🡪 Analysis Type
  + Use the data types… Nominal, Ordinal, Quantitative, Qualitative
  + Question Types
    - Open ended: What did you think?
    - Multiple Choice
    - Quantitative: How long did your homework take (minutes)?
    - Likert Scale: “The class was worth taking” No (1) Neutral (2) Yes (3)
* **Data Collection Instruments**
  + Surveys, Amazon Mechanical Tasks, Observation, Cookies, Credit Cards, Social Media, Visitor Book
* **How does information get externalized?**
  + Electronic signals
  + Information now is more truthful, it’s passively collected, invisible
  + Consequences: Different companies track you, NYTimes.com has 26 companies tracking you
* **Collective Wisdom (Crowd Sourcing)—**easy to collect a lot of data at once
  + Crowds are incredibly good at guessing
  + Crowds do better when they disagree
  + **Regulation-** Need a diverse enough crowd of people for the study, STRATIFIED SAMPLING
  + For a group to be smart, you need **diversity of opinion and attitude**, and you need **people to be independent of each other**… STOCK MARKET IS THE ONE EXCEPTION TO THIS
* **StreetBump App**
  + Problems: higher class has smartphones, the people that don’t have access to the app probably have the most pot holes (poverty), people avoid potholes
* **Essential­**- Things that make something what it is
* **Accidental**- Things that we could change or could’ve made otherwise
* **How do computers store data?**
  + Bits- In one state or another, patterns of bits, no text or images, 1’s and 0’s, stored as electrical charges
* **Analog to Digital form**- Greater quality, better editing multiple copies, search/organize data
  + Social Issues- Illegal copies, body image issues, unrealistic images, data to make world better
* **Computers exchange information** by small data packets and routed from sender to receiver
* **Proxies**- stand in-between computer and rest of the web… Everything logged, net neutrality, privacy, block
* Information tools and infrastructure are designed artifacts
* Every design decision makes some things possible and others difficult/impossible
* Every decision creates benefits and costs but not for the same people
* **Gender and Information Systems**
  + What needs to happen for a society to change linguistic practices?
    - Transition the learning environment at a very young age
    - Awareness of pronouns other than he/she
    - Have others talk in classes/raise awareness
  + You can create information systems to solve these gender identity issues…Ex: Refuge Bathrooms
  + Make sure information systems you build accurately reflect its users… Include all genders