Decoding computer science from female lenses
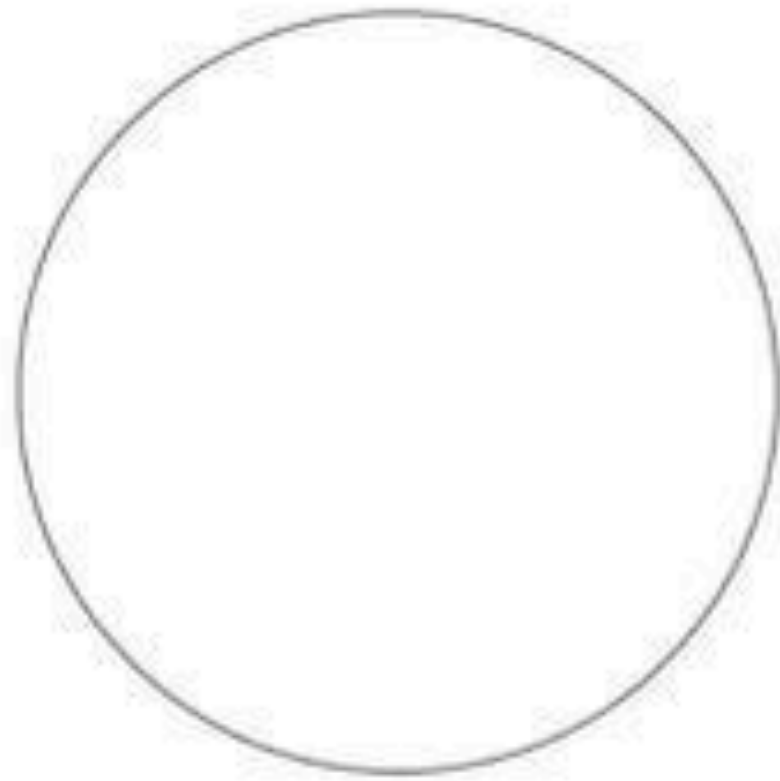
Dr. Pooja Rani
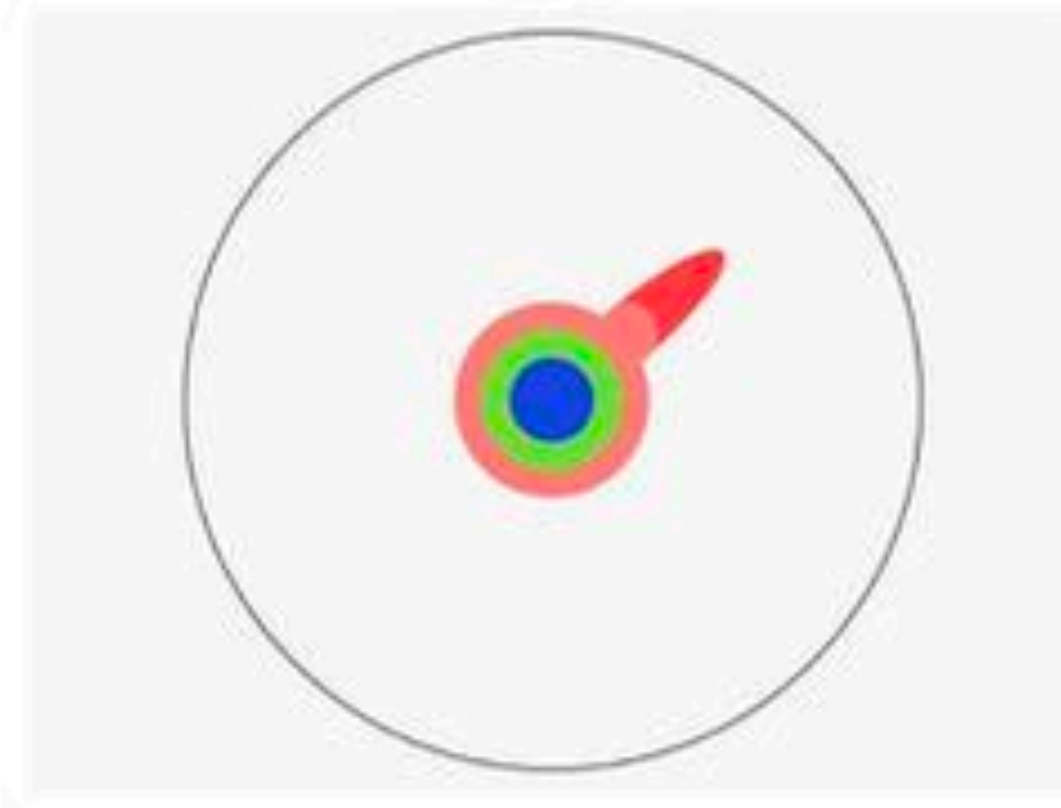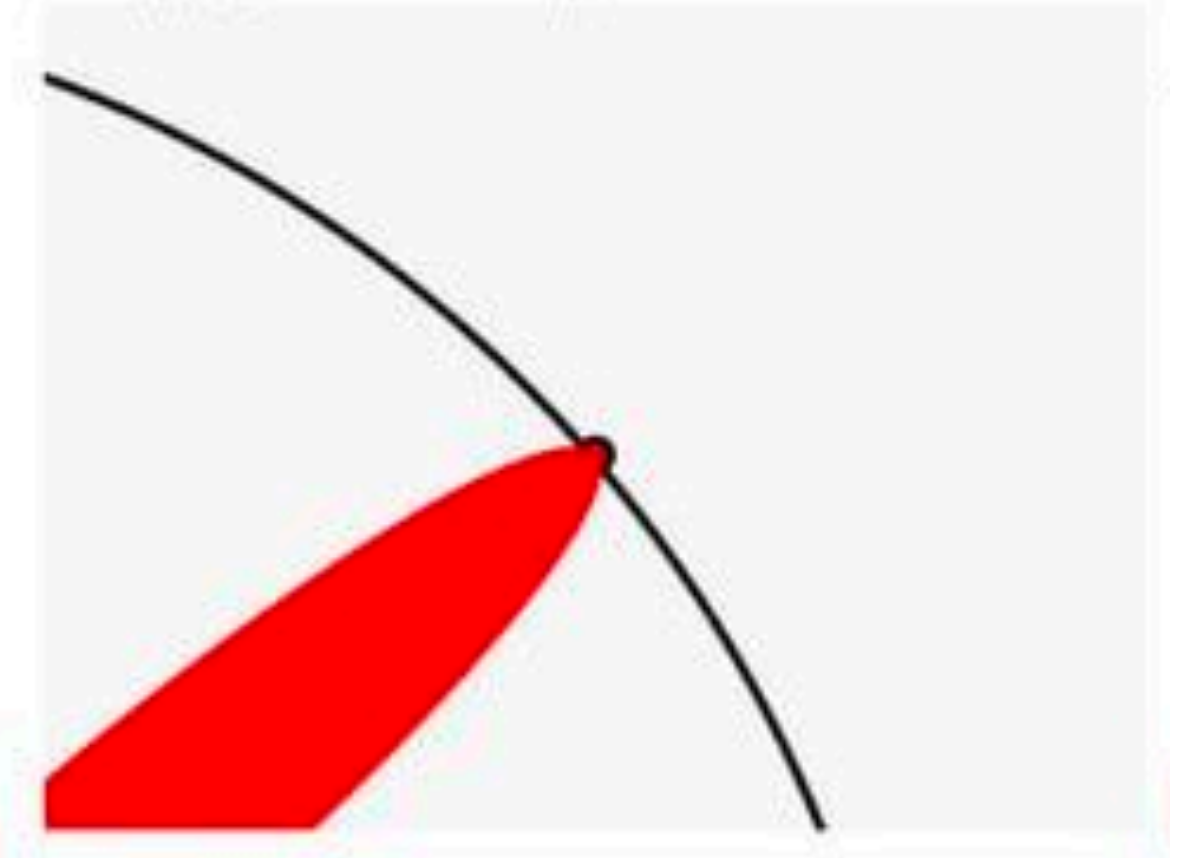Post-doc, University of Zurich,
Switzerland

Why research?

Why research?

Imagine a circle that contains all of human knowledge:

A master's degree deepens that specialty:

Until one day, the boundary gives way:

—-Matt Might

Why **computer science** research?

Because it is **fun**

Because it **helps**

Real world Issues ➡ Practical software solutions

Because it **helps**

Real world Issues → Practical software solutions

↓

Software

Theory

Programming

Quality

People

Process
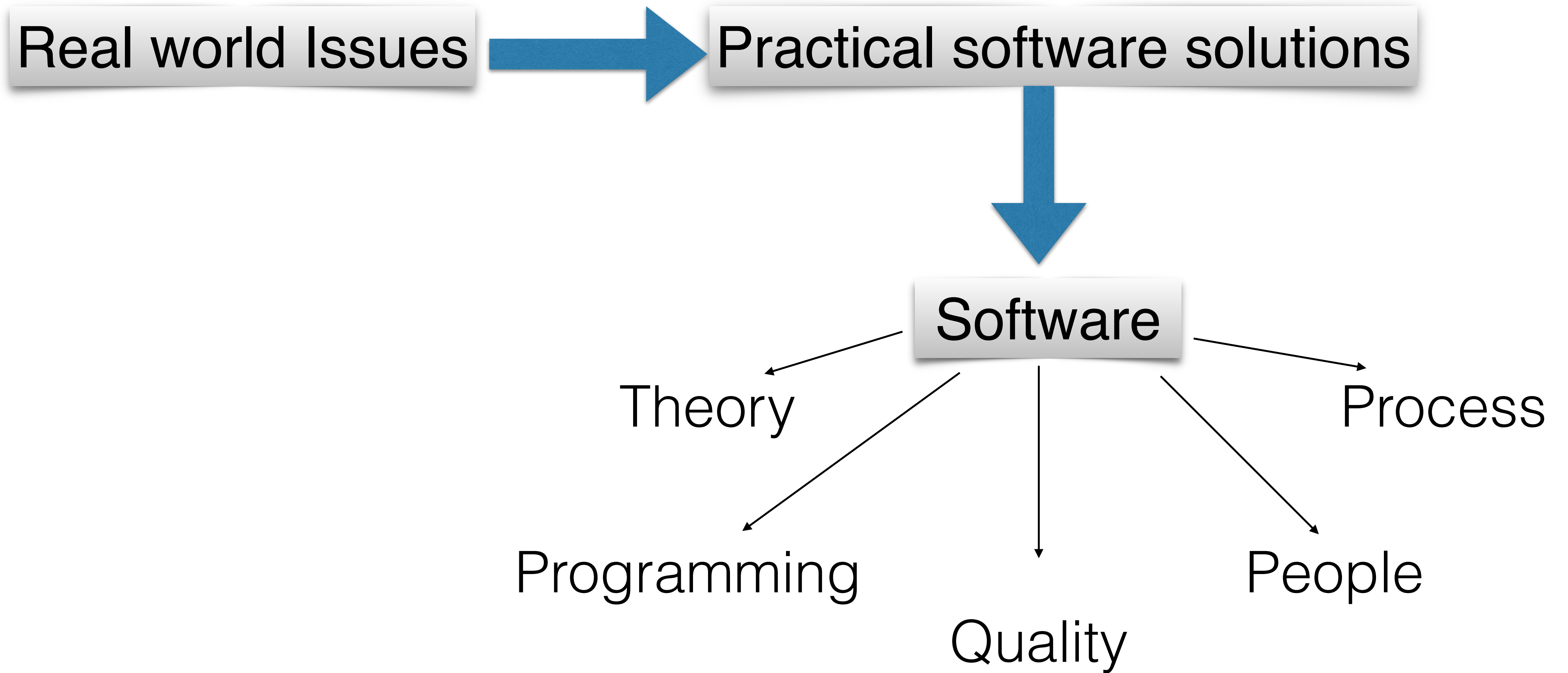
How about others in **computer science** research?

73% of the field comprised of Men

Women are highly underrepresented especially in higher roles

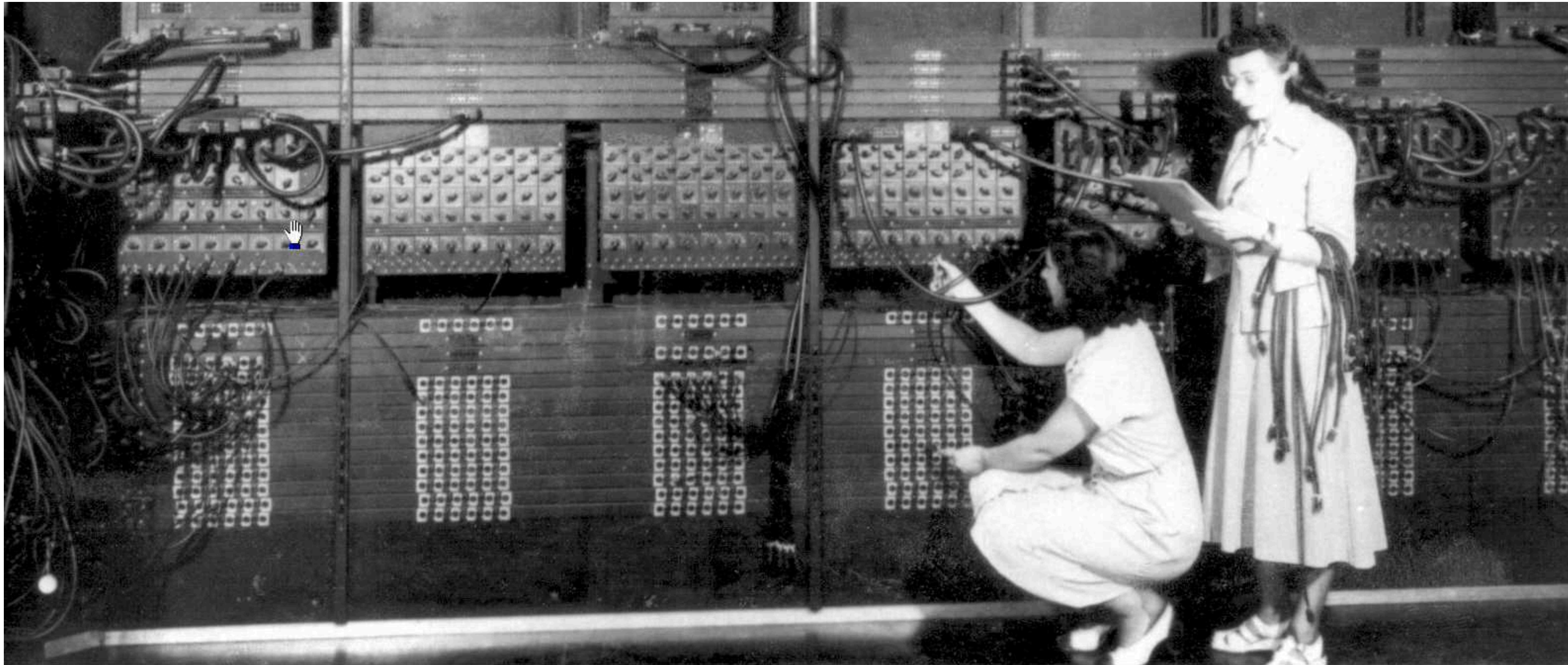# How did we reach here?
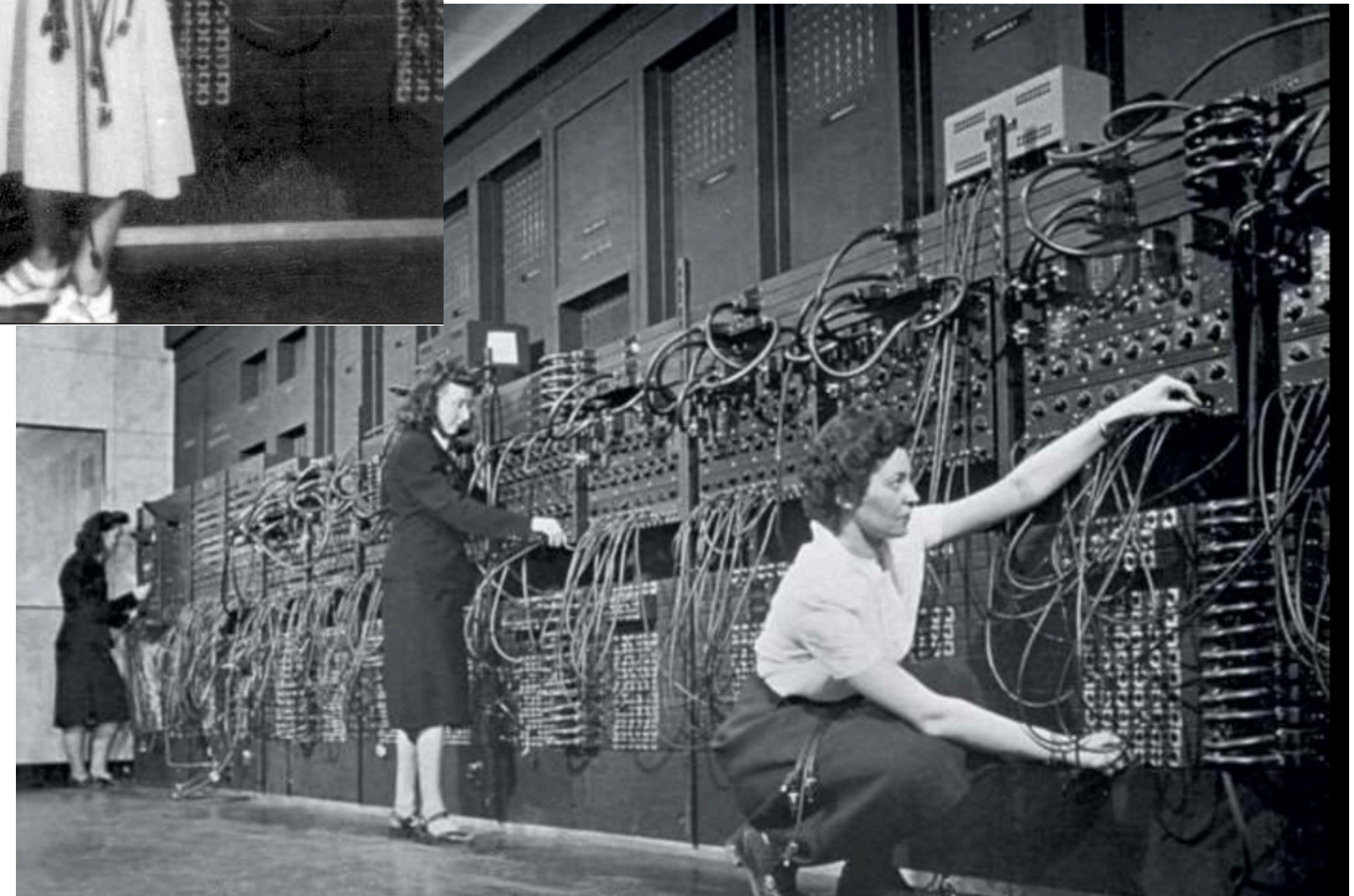
Stereotype

Awareness

How did we reach here?

Culture

Personality

31

We had stereotypes

When Computer Coding was a 'Woman's' Job

https://www.history.com/news/coding-used-to-be-a-womans-job-so-it-was-paid-less-and-undervalued
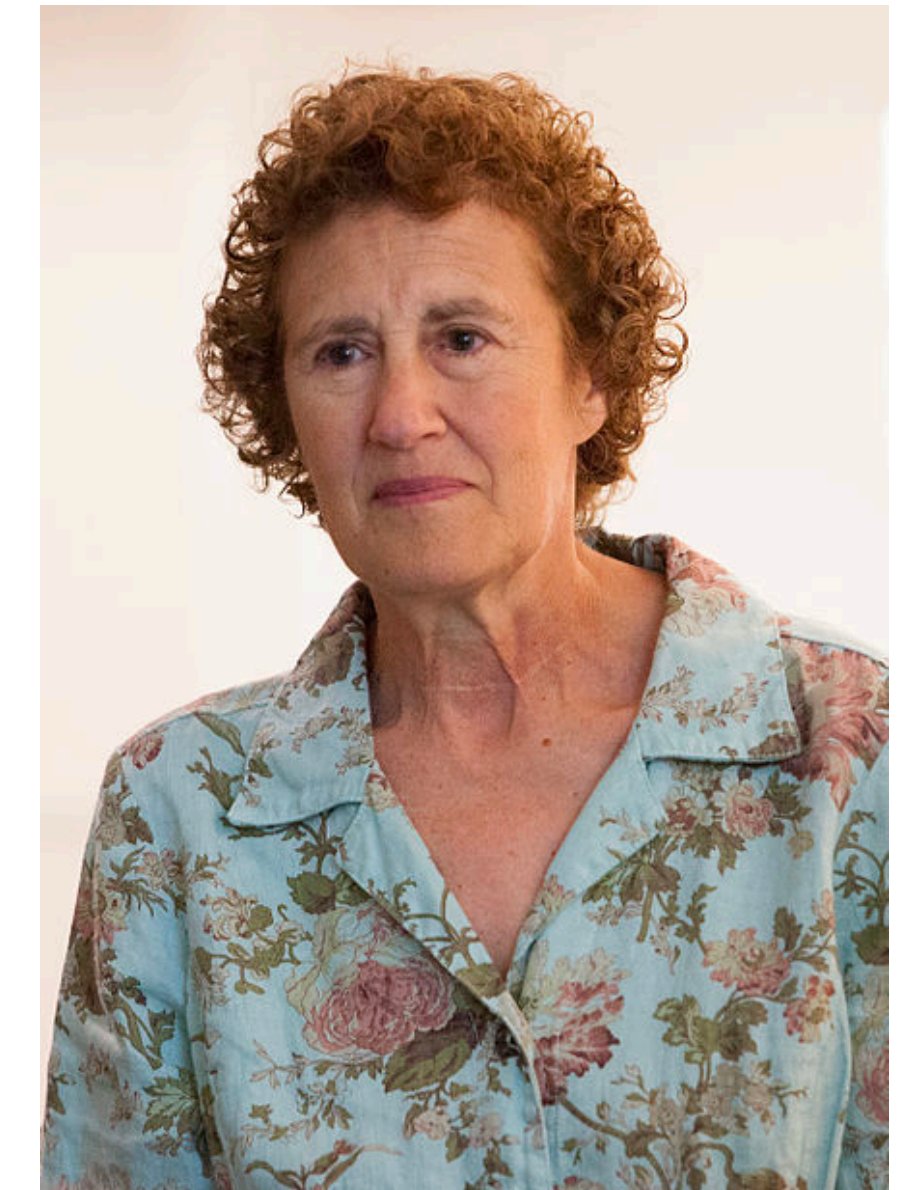
We had career awareness

Ada Lovelace
The first programmer

Margaret Hamilton's
Apollo code

Grace Hopper
First compiler for computer
programming language

Barbara Liskov
Liskov substitution principal

Early role models

https://www.computerhistory.org/babbage/adalovelace/

https://www.history.com/news/coding-used-to-be-a-womans-job-so-it-was-paid-less-and-undervalued

We had culture & personality

Women are 'naturals' at computer programming

34

The Computer Girls

BY LOIS MANDEL

A trainee gets $8,000 a year
...a girl "senior systems analyst"
gets $20,000—and up!
Maybe it's time to investigate....

Ann Richardson, IBM systems engineer, designs a bridge via computer. Above (left) she checks her facts with fellow systems engineer, Marvin V. Fuchs. Right, she feeds facts into the computer. Below, Ann demonstrates on a viewing screen how

Twenty years ago, a girl could be a secretary, a school teacher . . . maybe a librarian, a social worker or a nurse. If she was really ambitious, she could go into the professions and compete with men . . . usually working harder and longer to earn less pay for the same job.

Now have come the big, dazzling computers—and a whole new kind of work for women: programming. Telling the miracle machines what to do and how to do it. Anything from predicting the weather to sending out billing notices from the local department store.

And if it doesn't sound like woman's work—well, it just is.

("I had this idea I'd be standing at a big machine and pressing buttons all day long," says a girl who programs for a

computer can solve a problem, and then instruct the machine to do it."

"It's just like planning a dinner," explains Dr. Grace Hopper, now a staff scientist in systems programming for Univac. (She helped develop the first electronic digital computer, the Eniac, in 1946.) "You have to plan ahead and schedule everything so it's ready when you need it. Programming requires patience and the ability to handle detail. Women are 'naturals' at computer programming."

What she's talking about is aptitude—the one most important quality a girl needs to become a programmer. She also needs a keen, logical mind. And if that zeroes out the old Billie Burke-Gracie Allen image of femininity, it's about time because this is the age of the

Stereotype;

computer as a boy's toy, geeky boys…

Awareness;

limited knowledge about STEM careers…

How did we reach here?

Culture;

culture specific, unequal opportunities, more responsibilities…

Personality;

anti-socialness, impersonal …

36

Culture specific

✦ Women earned only 18% of bachelor's degree in computer science in the U.S

✦ Women constitute 42% of undergraduate students in computer science in India

Stereotype;
Break them…

Awareness;
Find mentors, learn required skills

What can we do?

Culture;
Utilise opportunities, Find balance…

Personality;
personal; educate community

38

Why computer science?

✦ To bring perspective (look at games developed by males)

✦ Less pay gap

✦ Software development requires interpersonal skills

✦ Flexible work schedule

✦ It is fun

Programs

- ✦ <u>Girls who code</u>

- ✦ <u>GirlStart</u>

- ✦ <u>Technovation</u>

- ✦ University programs

"This is not a field women are newcomers to, This is a field where they have a history and belong" - Janet Abbate

https://www.history.com/news/coding-used-to-be-a-womans-job-so-it-was-paid-less-and-undervalued