

Lecture 1

GitHub Introduction and Class SOP's

قَالَ رَبِّ اشْرَحْ لِي صَدْرِي ۝
﴿٢٥﴾

[فَالَّذِي نَسِيَ كَهُولَ دَعَى رَبَّهُ أَشْرَحَ لَهُ كَهُولَ دَعَى مَنِيرَ لَهُ صَدْرِي مَنِيرَ سِينَهُ]

وَيَسِّرْ لِي آمْرِي ۝
﴿٢٦﴾

[وَيَسِّرْ لَهُ آمْرِي مَنِيرَ لَهُ آمْرِي مَنِيرَ كَامَ لَهُ سِينَهُ]

وَاحْلُلْ عُقْدَةً مِنْ لِسَانِي ۝
﴿٢٧﴾

[وَاحْلُلْ لَهُ كَهُولَ دَعَى عُقْدَةً گَرَهَ مِنْ لَسَانِي مَنِيرَ زِبَانَ لَهُ سِينَهُ]

يَفْقَهُوا قَوْلِي ۝
﴿٢٨﴾

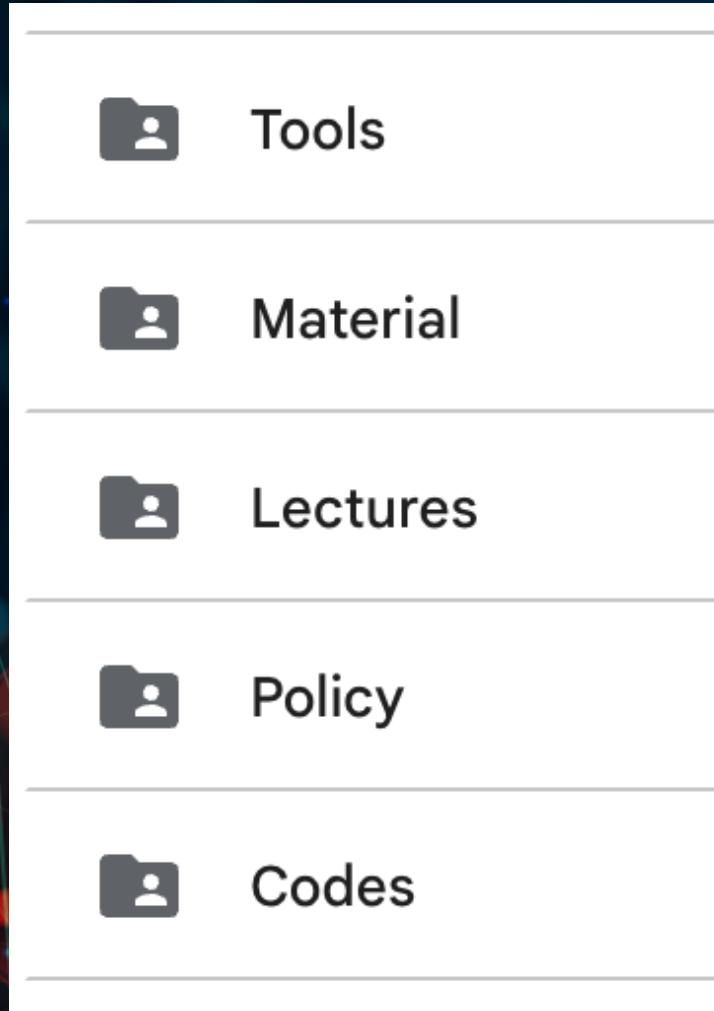
[يَفْقَهُوا وَهُوَ سِجَّهَ سَكِينَ [قَوْلِي مَنِيرَ بَاتَ لَهُ سِينَهُ]



INTRODUCTION

rxmwovt

JOIN GOOGLE CLASSROOM



Google Drive Folder Shared



USAMA BIN SHAKEEL

Monday : 11:00 am - 12:30 pm
Tuesday : 11:00 am - 12:30 pm



Contact me via email
ubs@itu.edu.pk



TOOLS

TOOLS



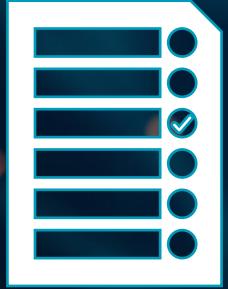
GitHub
Desktop App or
Command Line



CLion
Most part of our
course will be in
C++



Cygwin
In case you are
using windows

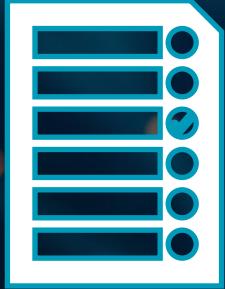


Basic Information



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Assignment 0

Introduction to Github



Github Account

Username should be your roll
number eg. BSSE23000



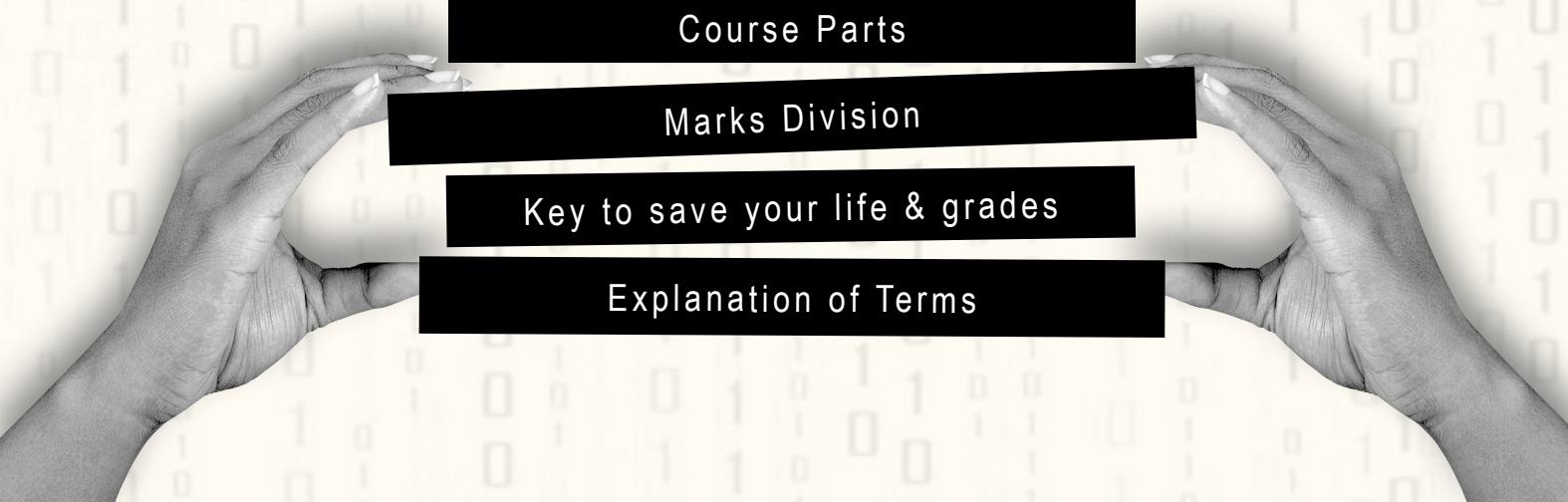
Groups

5 to 6 members

Programming Course Rules



THINGS WE WILL COVER FIRST



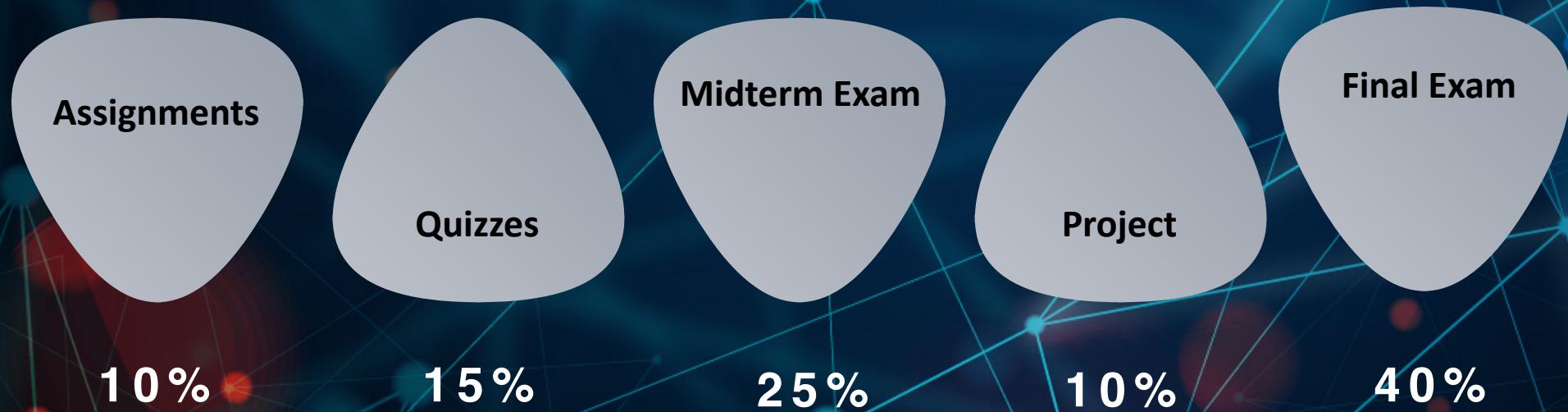
Course Parts

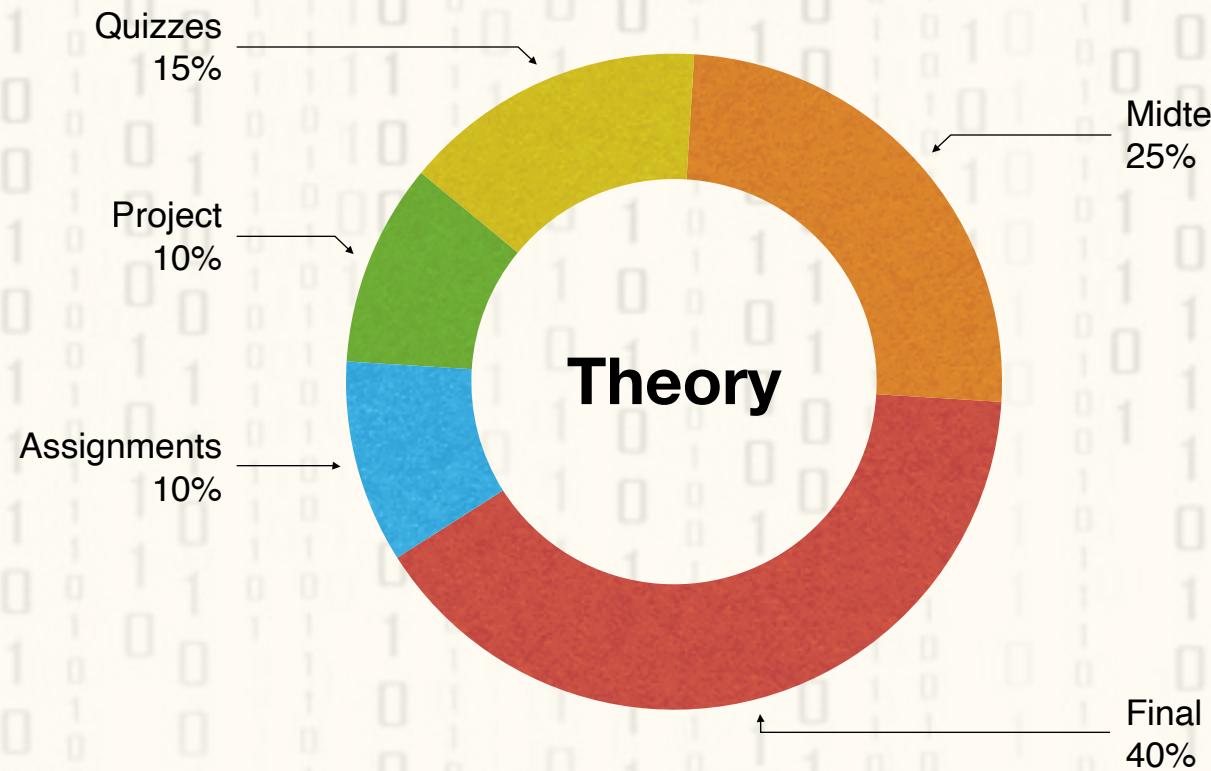
Marks Division

Key to save your life & grades

Explanation of Terms

Theory Part

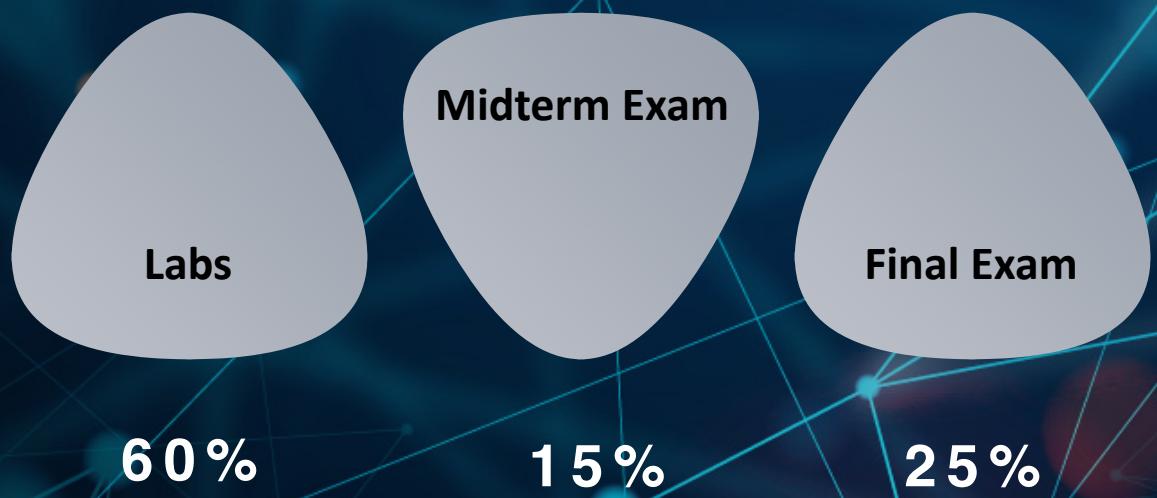


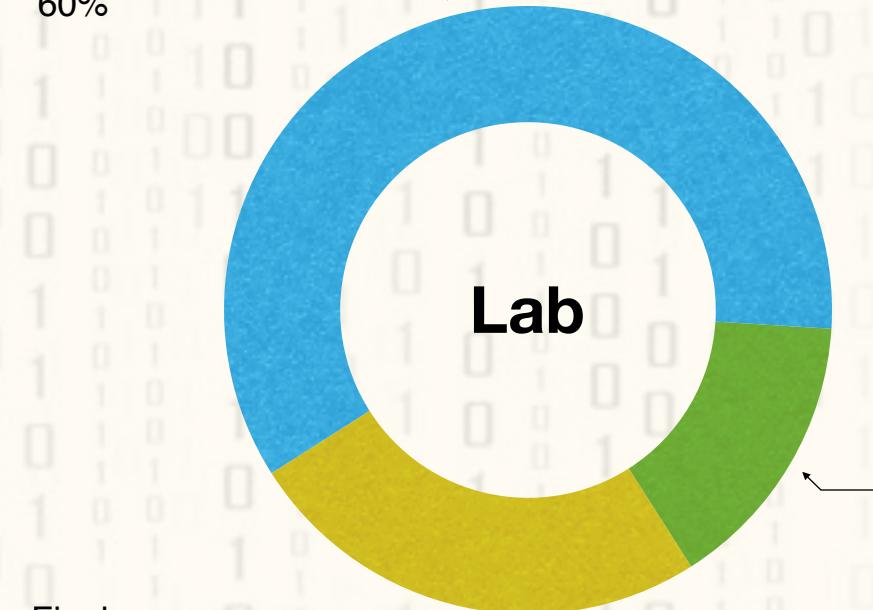


● Assignments ● Project ● Quizzes ● Midterm ● Final

Break up of Theory Part of the Course

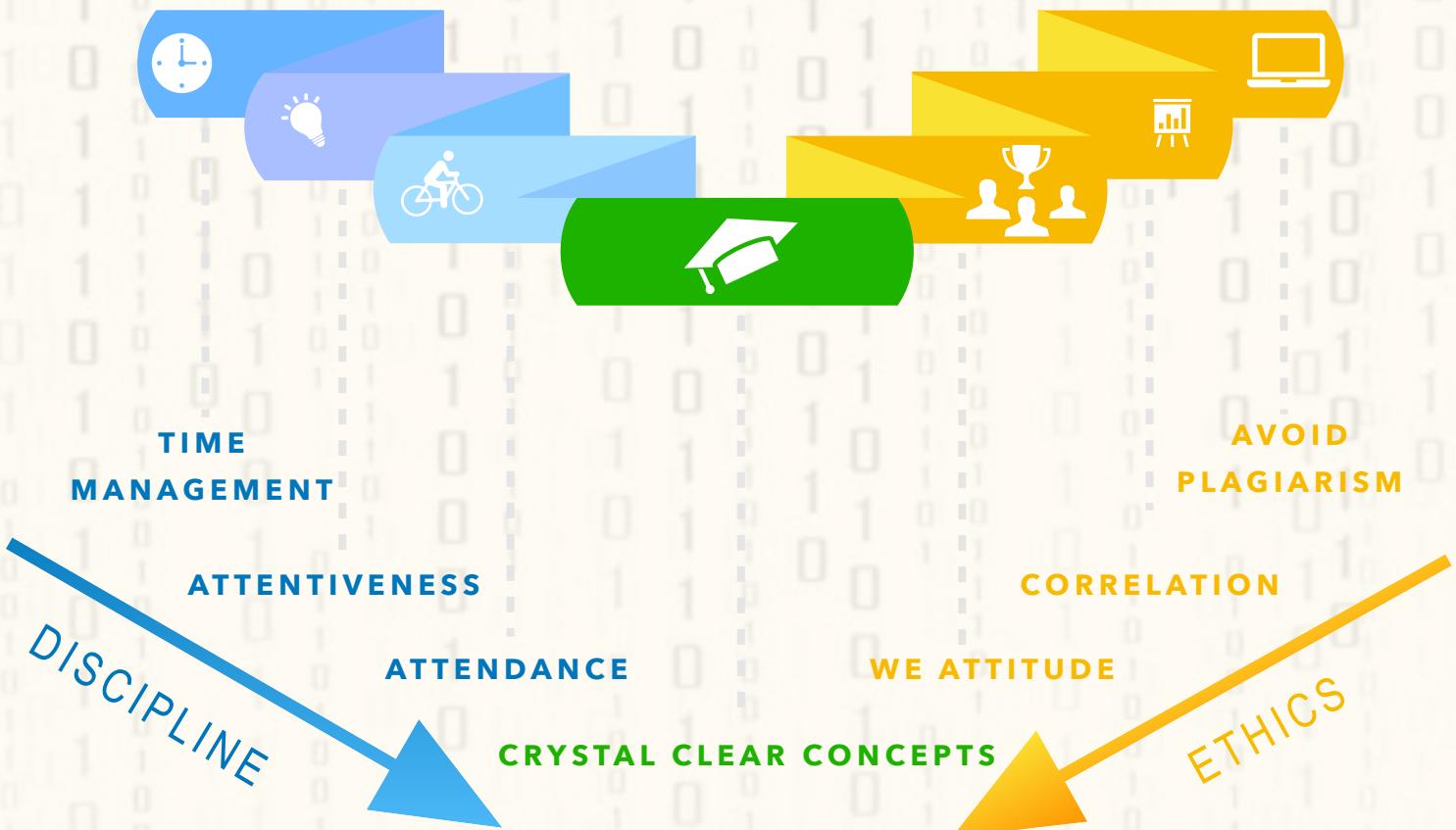
Lab Part



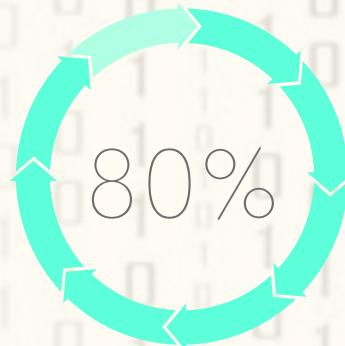


Break up of Lab Part of the Course

KEY TO SAVE YOUR LIFE & GRADES

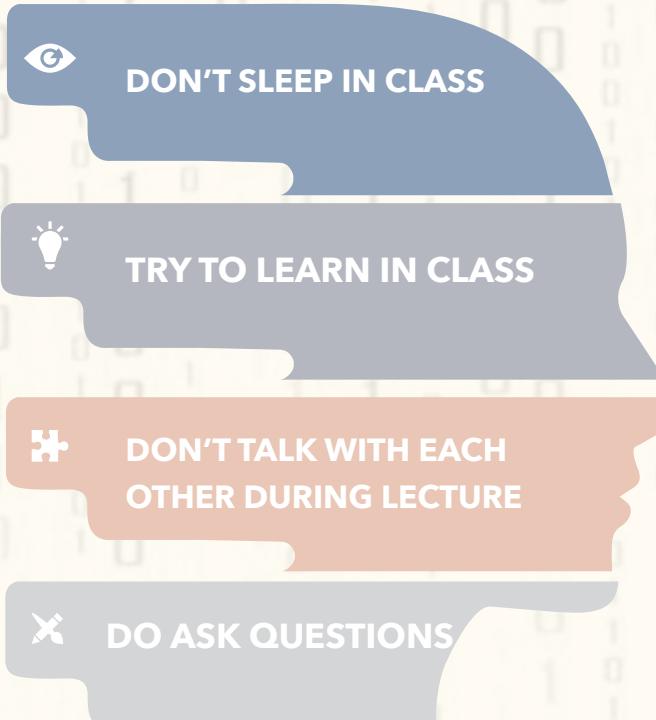


ATTENDANCE



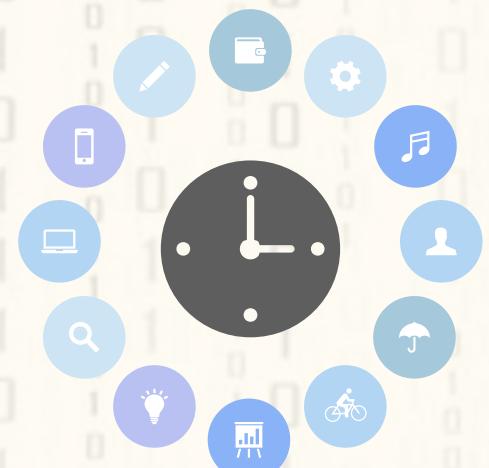
- Attendance will be marked in first 5 mins of the lecture, and anyone coming after attendance is marked, he/she will be considered absent.
- Since our lecture is first in the schedule, make a habit of being 15 mins early
- This 20% margin is to entertain all valid scenarios in life, anyone going **below 80% attendance will not be allowed to sit in the examinations.**

ATTENTIVENESS



- You must stay attentive during the lecture, especially when instructor is delivering the concept. Distraction caused to instructor can result in **deduction of one absolute mark**. Possible distraction to instructor is either you are sleeping during the lecture or talking with class fellows or using your mobile phone.
- You are encouraged to ask questions related to topic or previous topics that we have covered so far, this will help you in grasping the concepts during the lecture time.

TIME MANAGEMENT



- Semester System is different from yearly system, here you have to grasp during the lectures, if you delay things till the end of semester, you will possibly be in trouble.
- Since you are studying multiple courses during the semester, therefore managing other courses is your own responsibility.
- From this course perspective keep in mind that there will / can be a **quiz in every class**.
- There will be **one lab tasks each week**, which will have deadline of the lab ending timings. No late Submission.
- To lab to be marked, you must bring **printed submission of the task in immediate next lab** else it will be marked zero.
- **Every week you will get an assignment** with deadline of **11:59 pm of Saturday night. No late** submissions allowed.
- Therefore it is suggested you create proper time slots for the course to avoid any inconvenience.

Assignments

No extension in deadlines,
Deadline 11:59 pm every Saturday

EVERY WEEK AT LEAST 1 ASSIGNMENT

Labs

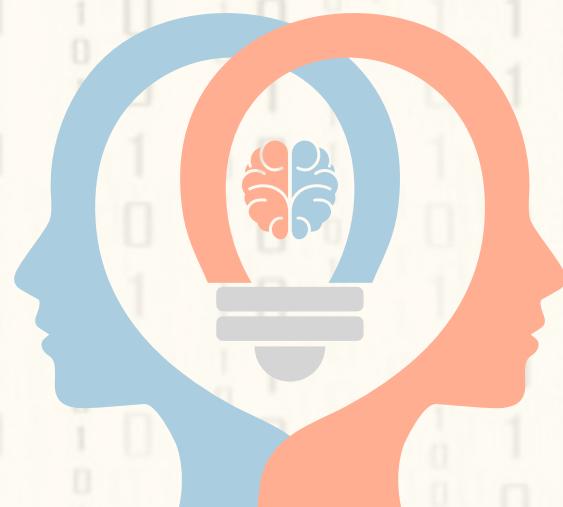
Complete with in lab timings

EVERY WEEK 1 LAB TASK

Quizzes

EVERY LECTURE WILL / CAN HAVE A QUIZ

WE ATTITUDE



- We are not in race with each other, therefore helping fellow members will not only help them in learning, but it will enhance your concepts and take you further. Therefore leave ‘ME’ attitude of keeping things to yourself and **adopt “WE” attitude.**
- Sharing solutions doesn’t come under “WE” attitude, as that won’t enable your friend or class fellows. That is actually a disservice to them. Enable them by explaining some relevant but different problems than the one assigned in lab or assignment to you.

**The satisfaction of helping
others up is way better than
the pain from holding them
down.**



@postsmotivational

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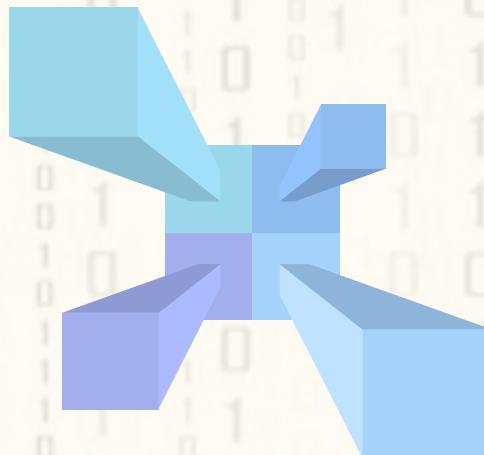
GROUPING

AVOID PLAGIARISM



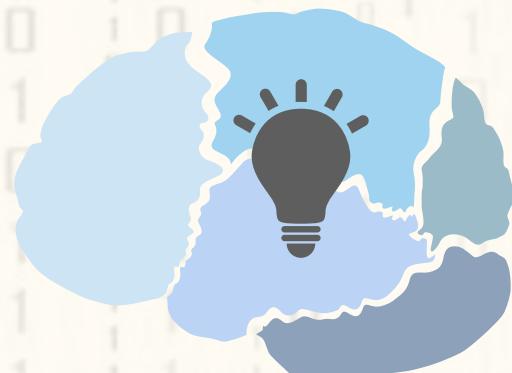
- Plagiarism is presenting work as your submission **when it was not actually produced by you**. This includes copying fellow's work, getting work done by seniors, family members or through outsourcing. In all above scenarios we will trace and penalise.
- In case plagiarism is among your class fellows, both will get same penalty, irrespective of your participation as sharer or receiver.
- So to detect this, not only we compare your code, but will also take **viva or quiz**, where we will ask to reproduce same concepts on a different problem, unable to justify, could lead to zero or greater penalty.
- Case count is accumulative for both theory & lab.
 - First such case of plagiarism detection will get you (Theory & Lab) **-5% absolute penalty**.
 - Second such occurrence will result in **-10% absolute penalty** in theory and **-20% absolute penalty** in lab.
 - Third occurrence will result in **disciplinary committee**, potentially leading to F grade(s).
 - If any favour of removing few bad assignments or quizzes is introduced by the instructor at the end of the course, people with even single plagiarism case won't qualify for it.

CORRELATION IN COMPONENTS



- It has been observed that there is a correlation among results, as in if you are performing well in **submission based tasks** (Assignments, projects & lab tasks), so you should be able to earn similar marks with some small deviation in **evaluations** (quizzes & exams). In case if the deviation is more than reasonable your submission based marks will be replaced by evaluation based marks.

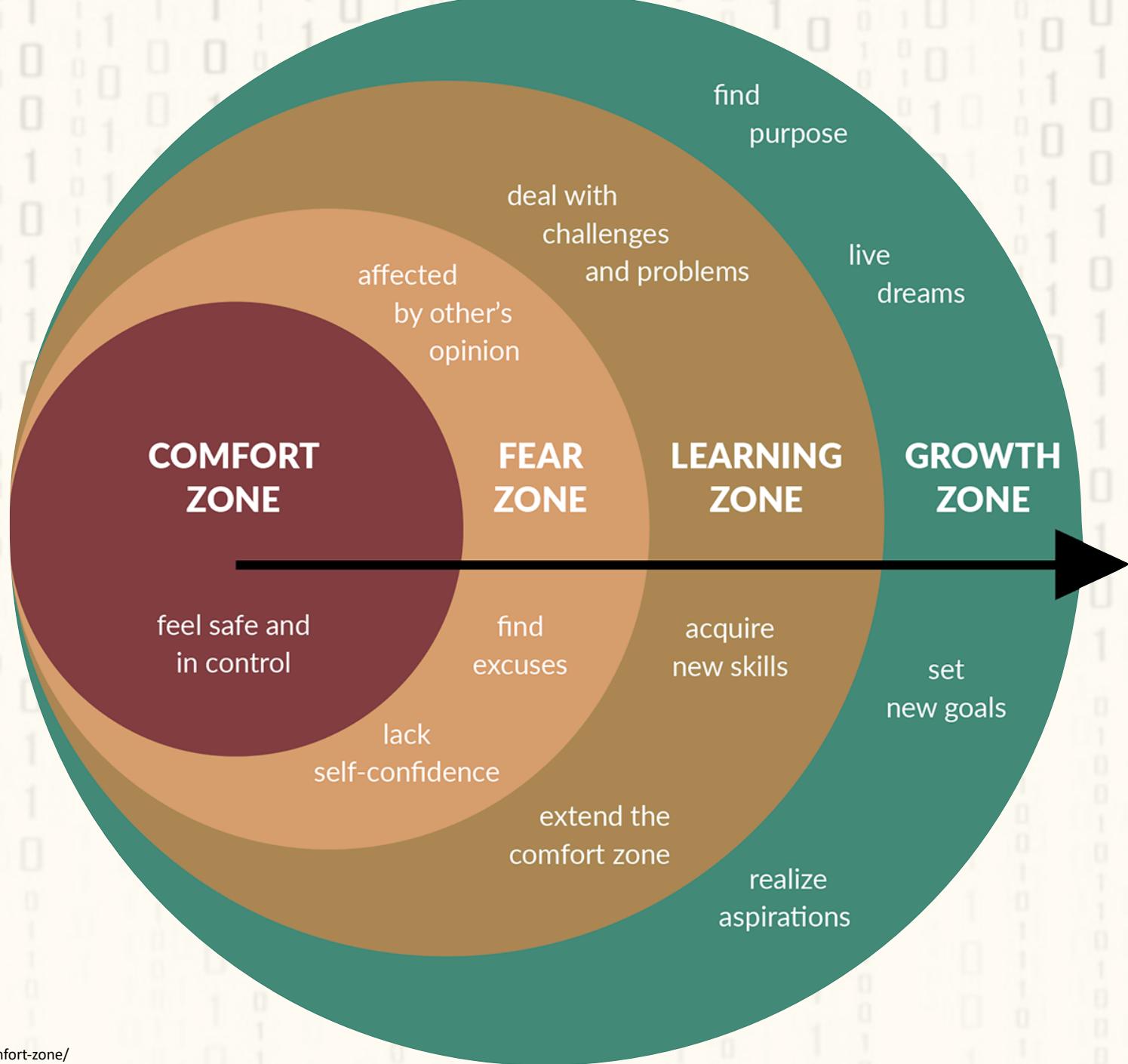
CRYSTAL CLEAR CONCEPTS

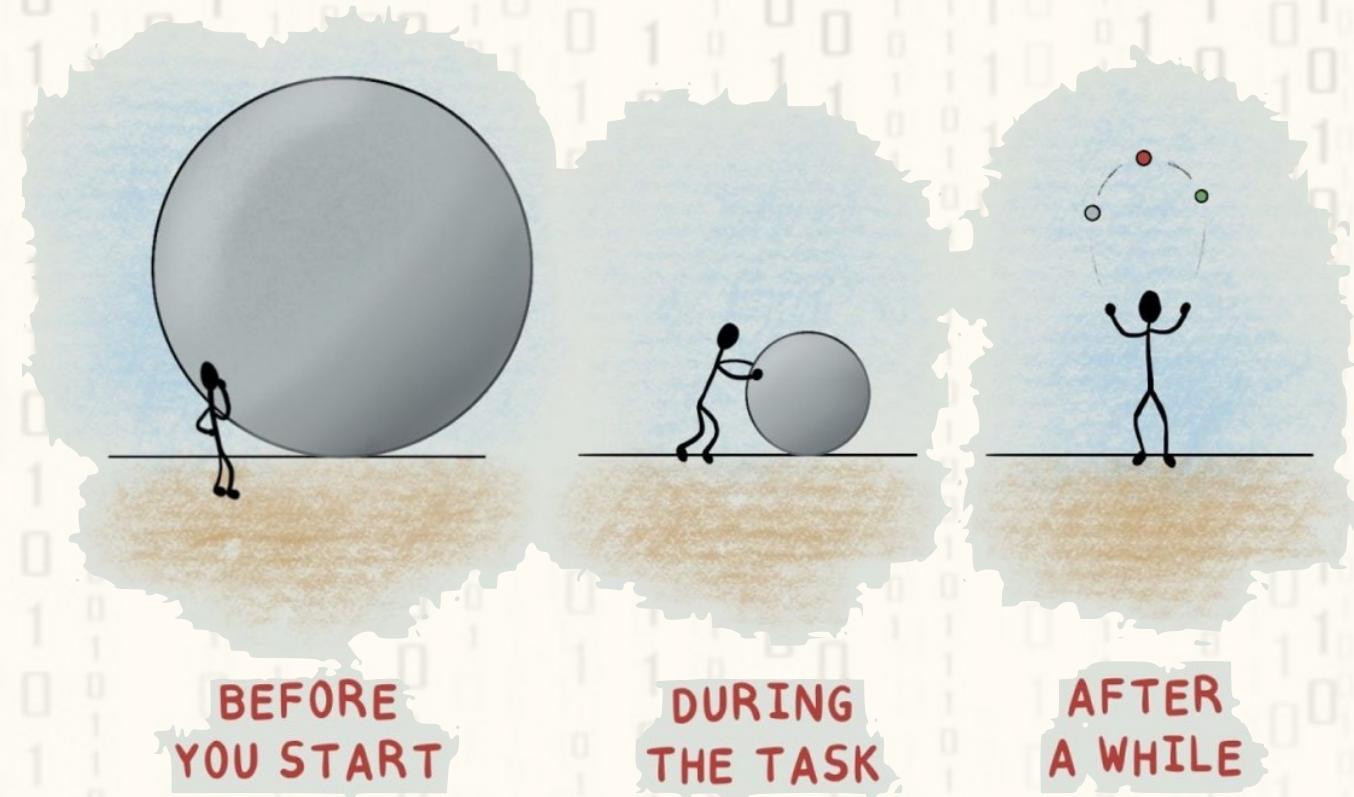


- In semester system every lecture / topic is connected to next topic, similarly every course is connected to next course. If you don't keep your concepts clear, you might not only suffer in the respective course but that deficiency might carry on for the complete chain of courses.
- Forget about rote learning, focus on concepts, understanding and skills.
- If you keep discipline and ethics mentioned above, with eagerness to learn, you have In sha Allah a very bright future ahead. Happy Learning. :)

PROBLEMS

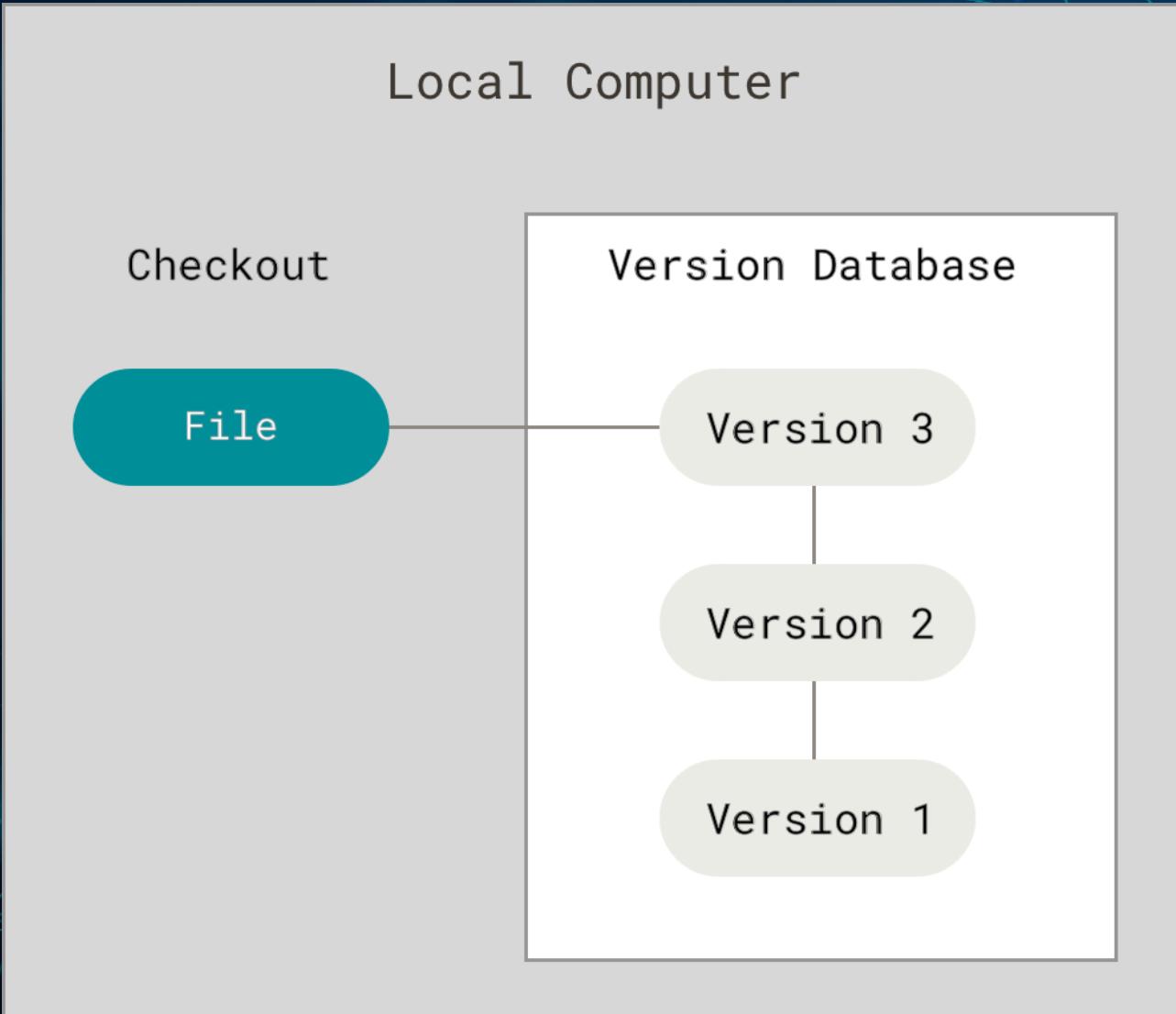




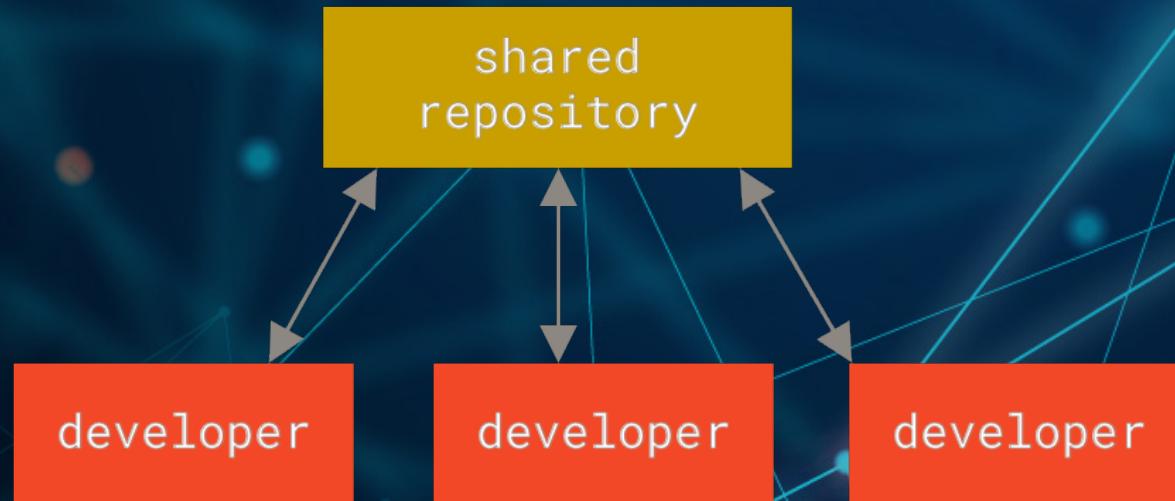




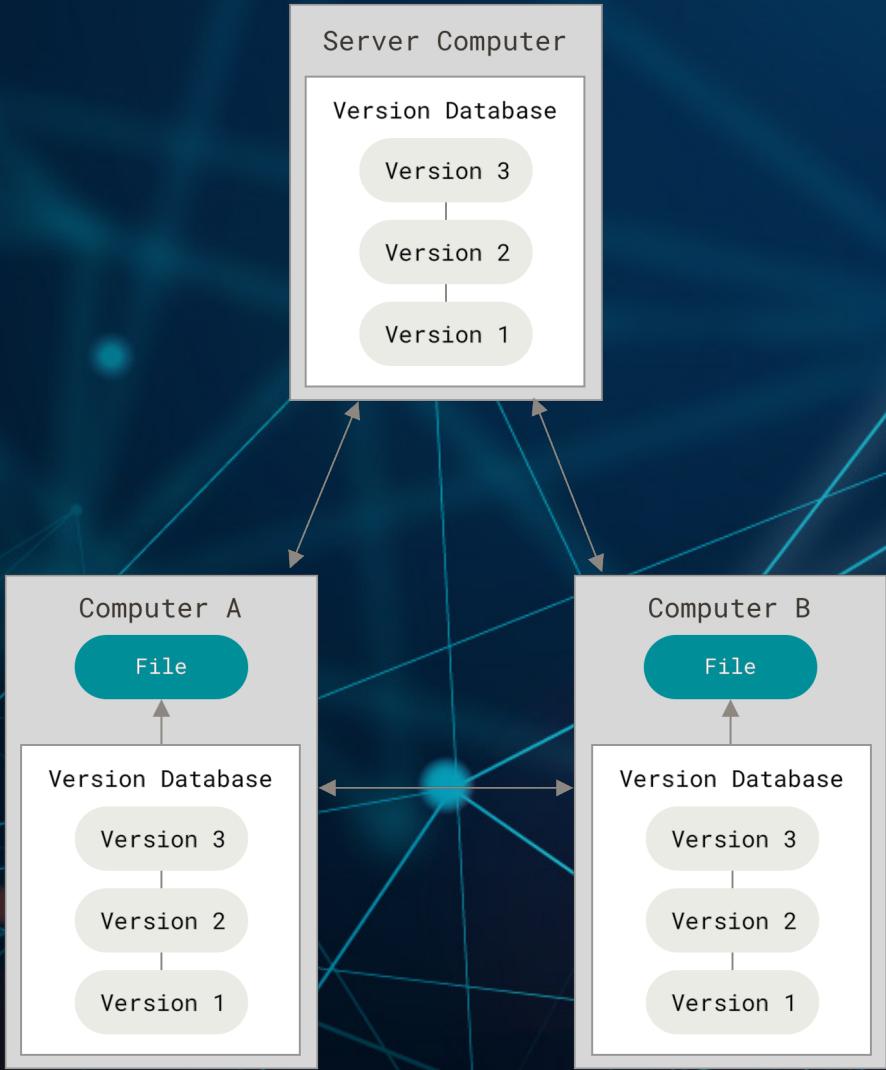
GITHUB



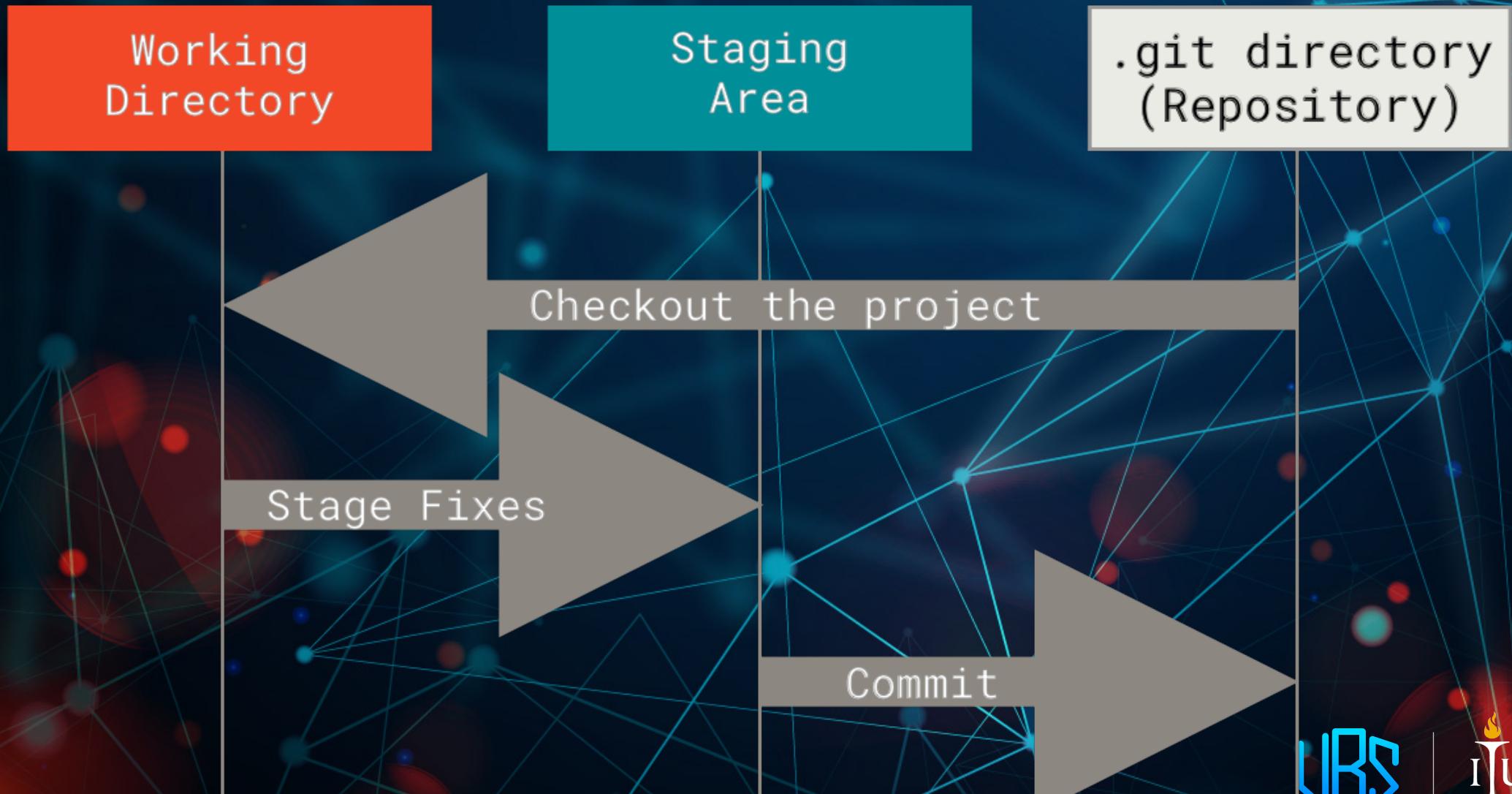
CENTRALISED VERSION CONTROL SYSTEMS



DISTRIBUTED VERSION CONTROL SYSTEMS



SECTIONS OF A GIT PROJECT



Recording of Changes

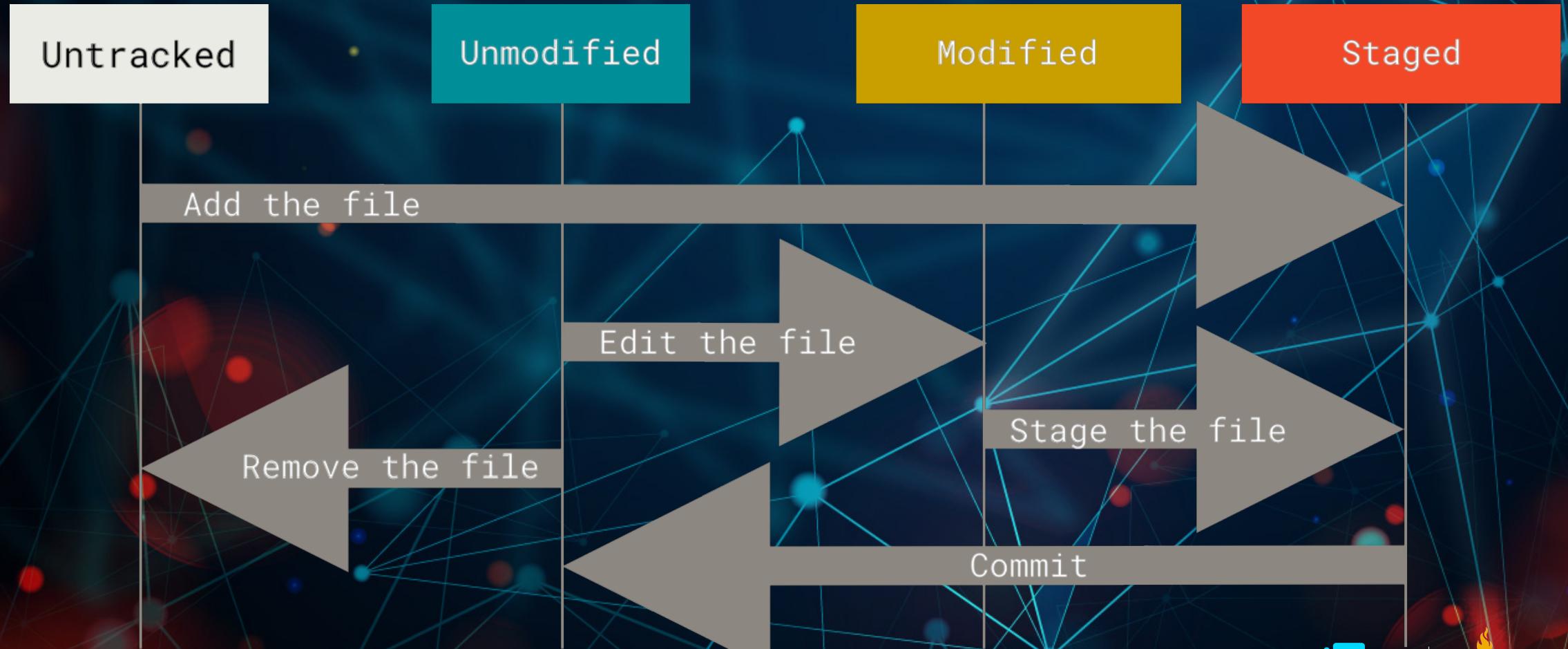


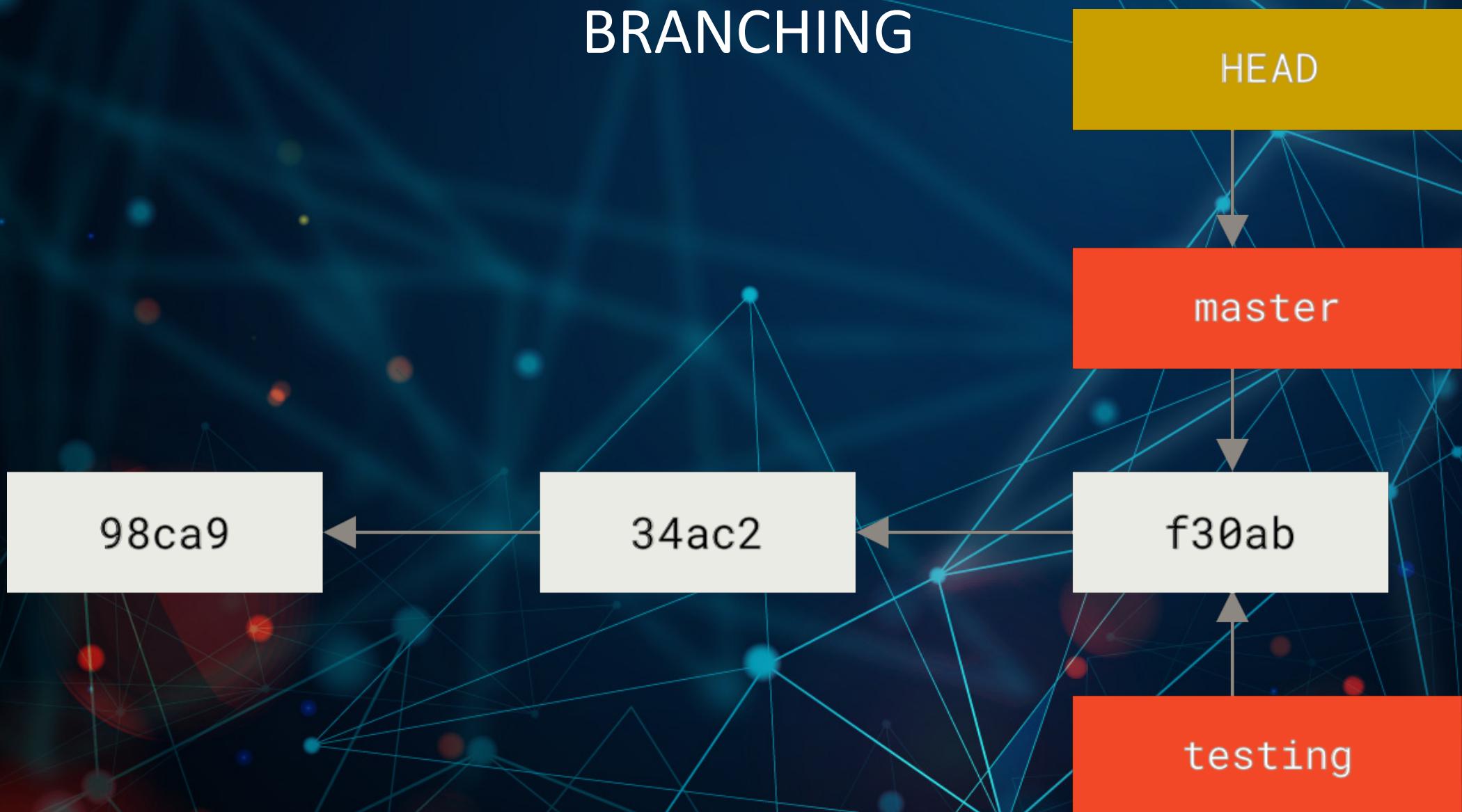
Image reference: Pro Git Book

BRANCHING

git branch testing



BRANCHING

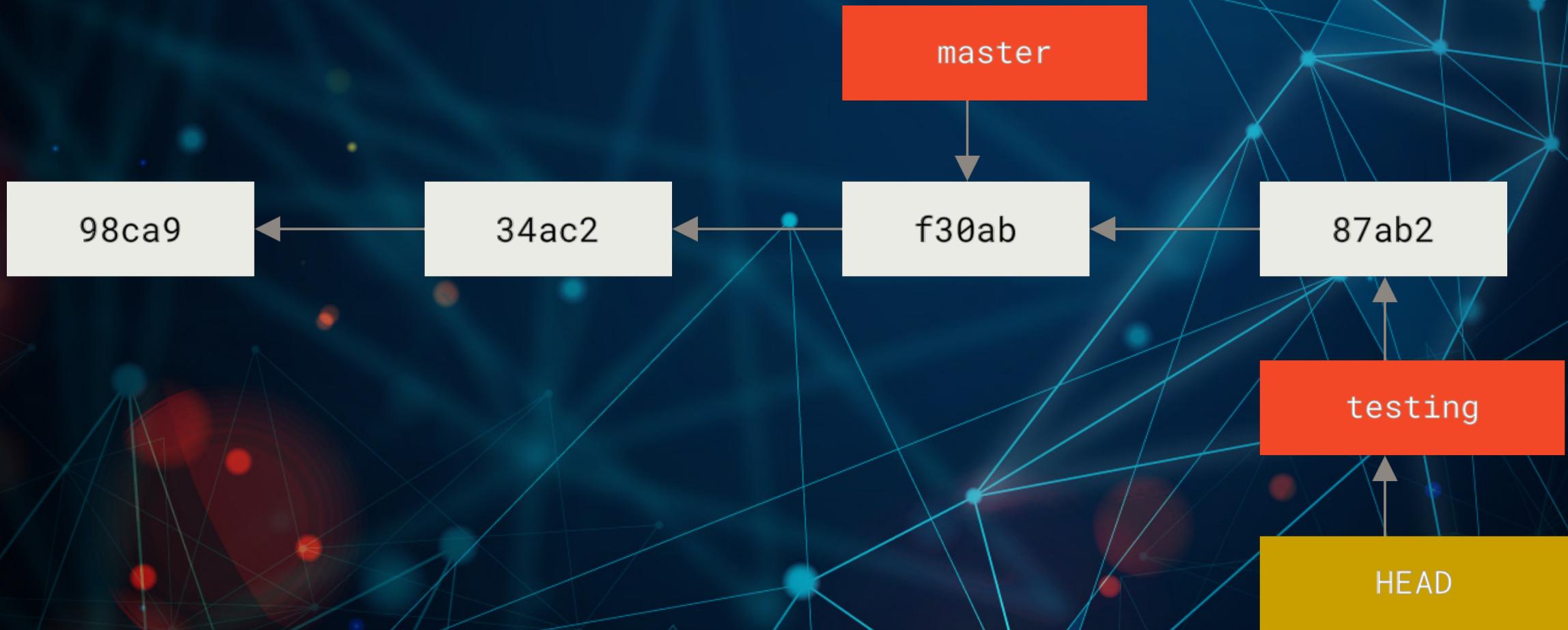


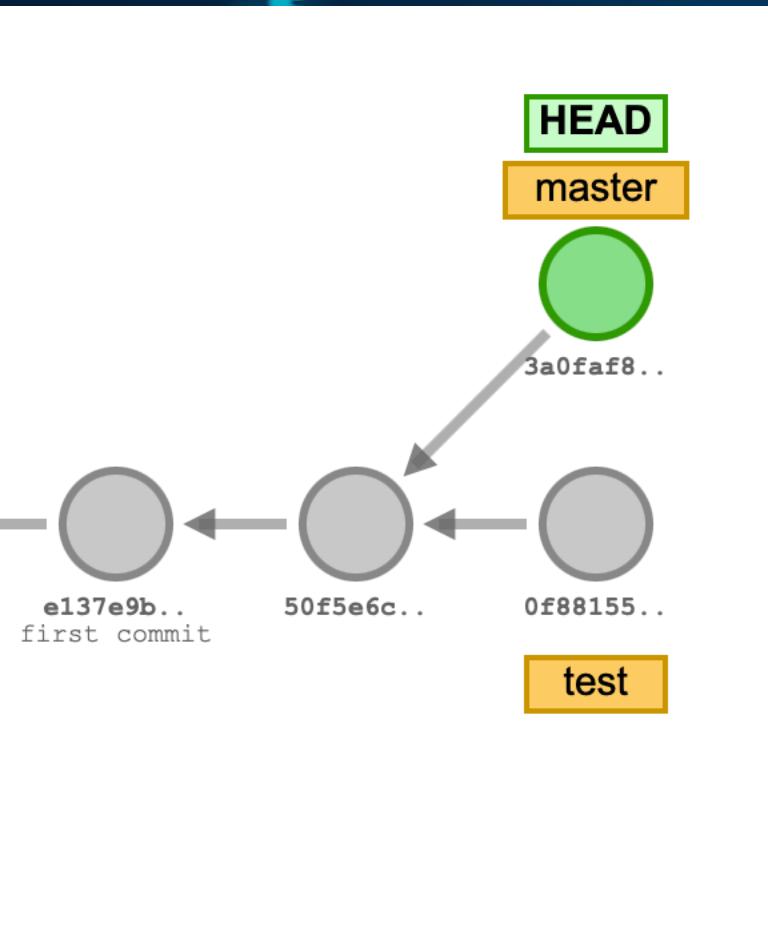
SWITCHING BRANCH

git checkout testing



MULTIPLE BRANCHES





<http://git-school.github.io/visualizing-git/>

Visualisation of the process

GIT IGNORE FILE

```
# ignore all .a files
*.a
# but do track lib.a, even though you're ignoring .a files above
!lib.a

# only ignore the TODO file in the current directory, not subdir/TODO
/TODO
# ignore all files in any directory named build build/

# ignore doc/notes.txt, but not doc/server/arch.txt doc/*.txt
# ignore all .pdf files in the doc/ directory and any of its subdirectories
doc/**/*.pdf
```

Word Problems

- Read the problem.
- Identify and list the facts.
- Figure out exactly what the problem is asking for.
- Eliminate excessive information.
- Pay attention to units of measurement.
- Draw a diagram.
- Find or develop a formula.
- Consult a reference.
- Do the math and check your answer.

Sample Problem

A salesman sold twice as much pears in the afternoon than in the morning. If he sold 360 kilograms of pears that day, how many kilograms did he sell in the morning and how many in the afternoon?

Sample Problem

To deliver an order on time, a company has to make 25 parts a day. After making 25 parts per day for 3 days, the company started to produce 5 more parts per day, and by the last day of work 100 more parts than planned were produced. Find how many parts the company made and how many days this took.

Sample Problem

A train travels from station A to station B. If the train leaves station A and makes 75 km/hr, it arrives at station B 48 minutes ahead of scheduled. If it made 50 km/hr, then by the scheduled time of arrival it would still have 40 km more to go to station B. Find:

- A) The distance between the two stations;
- B) The time it takes the train to travel from A to B according to the schedule;
- C) The speed of the train when it's on schedule.



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QUIZ