CS194A

Android Programming Workshop

Lecture 6: Oct 27, 2021
Rahul Pandey
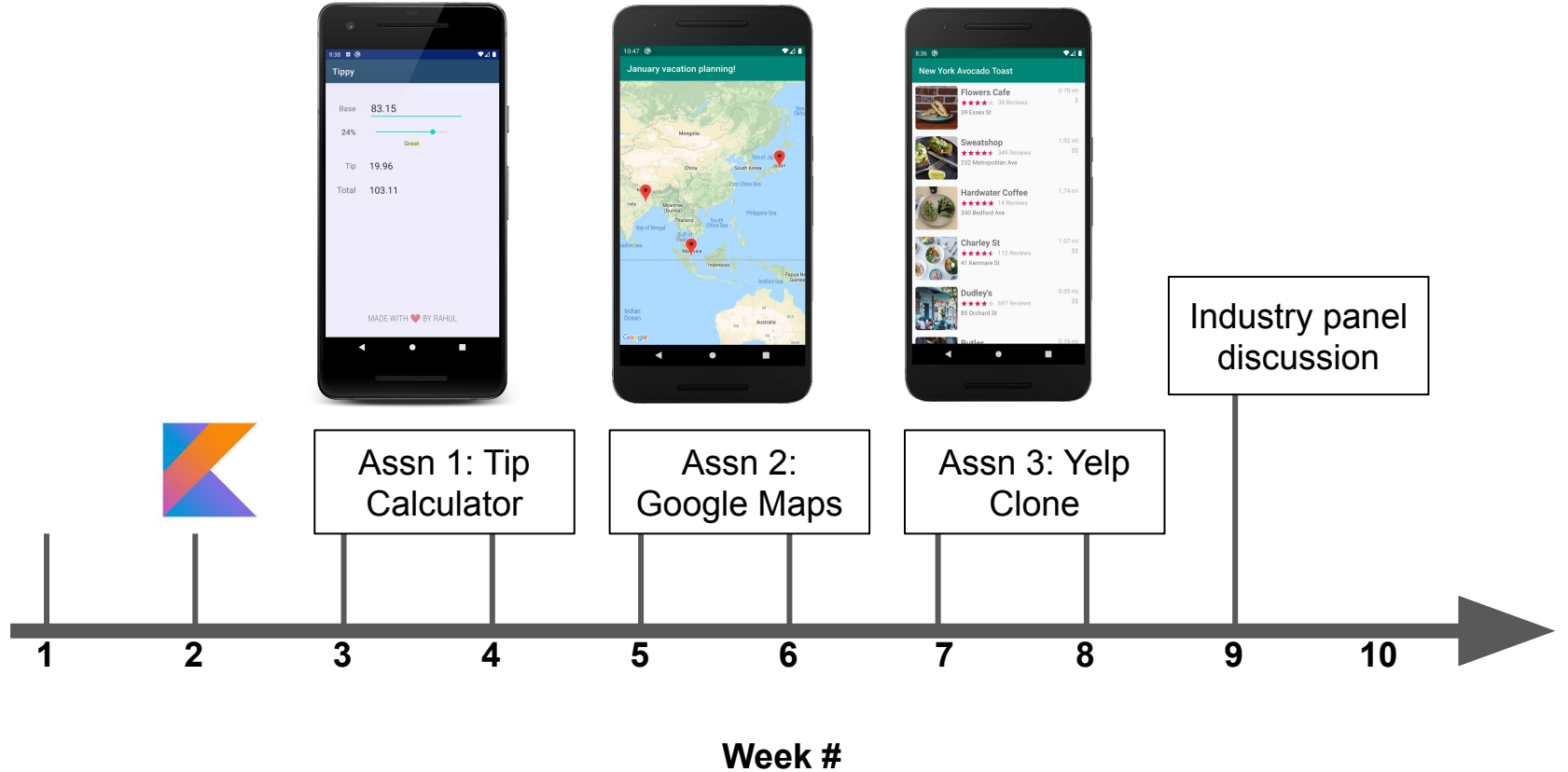
Outline

- Logistics
- Intents review
- Activity lifecycle
- Q&A with Igor
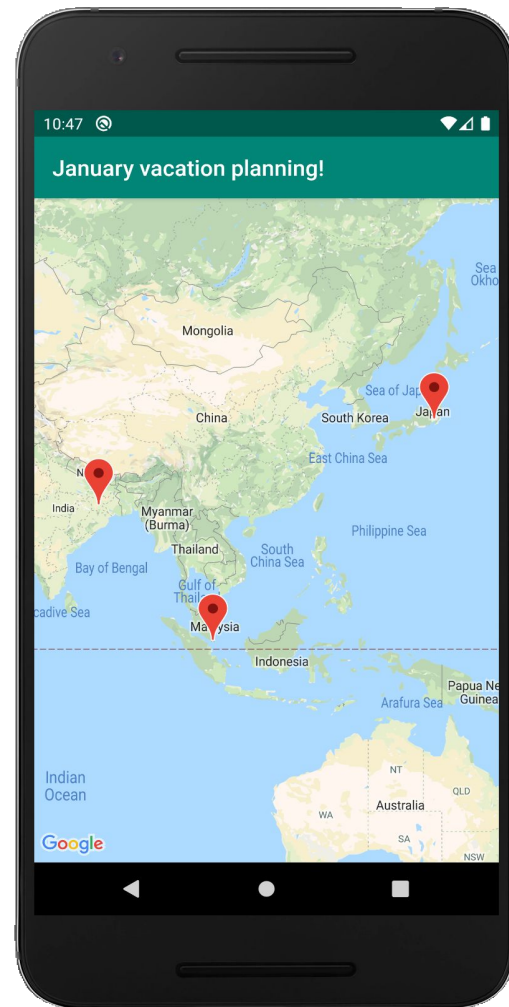
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Assn 1: Tip
Calculator

Assn 2:
Google Maps

Assn 3: Yelp
Clone

Industry panel
discussion

1   2   3   4   5   6   7   8   9   10

Week #

Assignment 2- My Maps

- RecyclerView
- Google Maps integration
- Activities and intents

My Maps app

- Project due Sunday, **October 31, 11:59pm**
- Partner feedback due Wed, **November 3, 5:30pm**
- Submission through Canvas!

Mid-quarter feedback (anonymous)

- https://forms.gle/rivcWaZFUXZQg8TC6
- Should only take a few minutes

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What is an intent?

Types of Intents

- Explicit intent: launch other activities in your app
  - `val myIntent = Intent(this, `**`ActivityName`**`::class.java)`
  - `startActivity(myIntent)`
- Implicit intent: request to perform an action based on a desired result
  - `val browserIntent = Intent(Intent.ACTION_VIEW, Uri.parse("url.com"))`
  - `startActivity(browserIntent)`
  - [Common implicit intents](): start a phone call, take a picture, open the browser/maps

Nullability in Kotlin

Java
```
String name = null;
int length = name.length();     // runtime crash
if (name != null) {
  int length = name.length();  // ok
}
```

Kotlin
```
val bad: String = null           // compiler error!
val name: String? = null         // ok
val lengthBad = name.length()    // compiler error!
val length1 = name?.length() ?: 0
if (name != null) {
  val length2 = name.length()
}
```

Returning data to the parent

Activity A

Activity B

List Screen

Add Contact
Screen
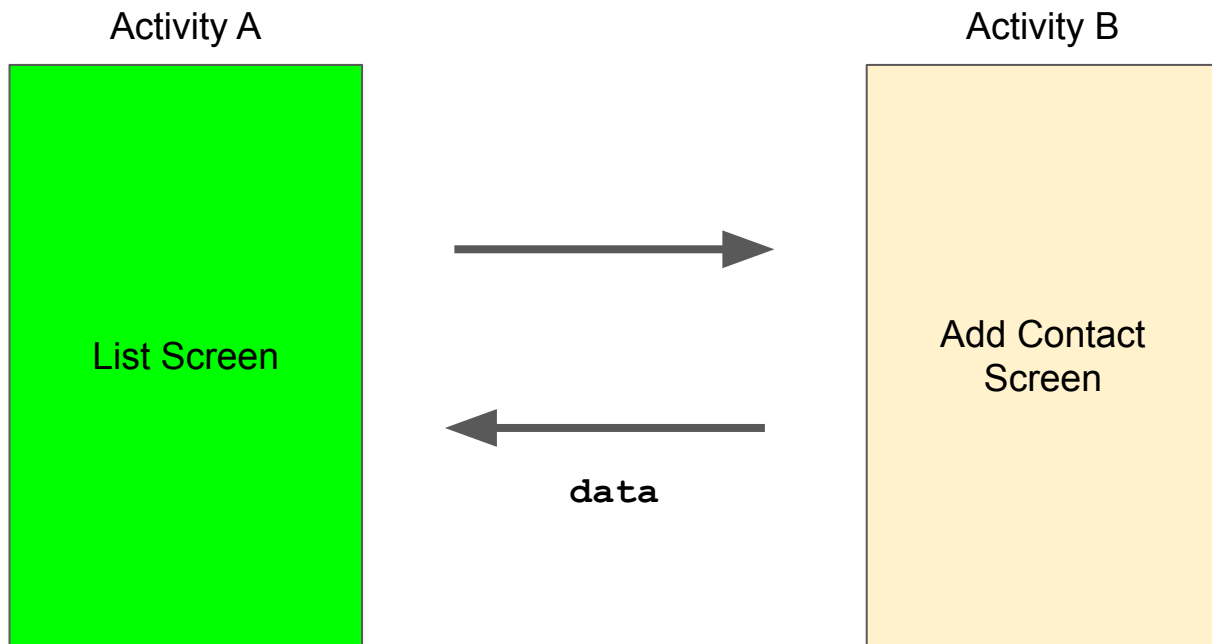
data

Getting a result back from a launched activity

- Sometimes you'll want to get data from the launched activity, e.g.
  - `MainActivity` launched `AddContactActivity`: adding a contact to the list
  - Intent to take a picture
- Call `startActivityForResult` rather than `startActivity`.
  - Pass a request code along with the intent
  - Returns immediately, but the Android system will call another method...
- `onActivityResult` is called when the second activity is done
  - Second activity should call `setResult` and `finish` to communicate back

Activity back stack- like a stack of plates
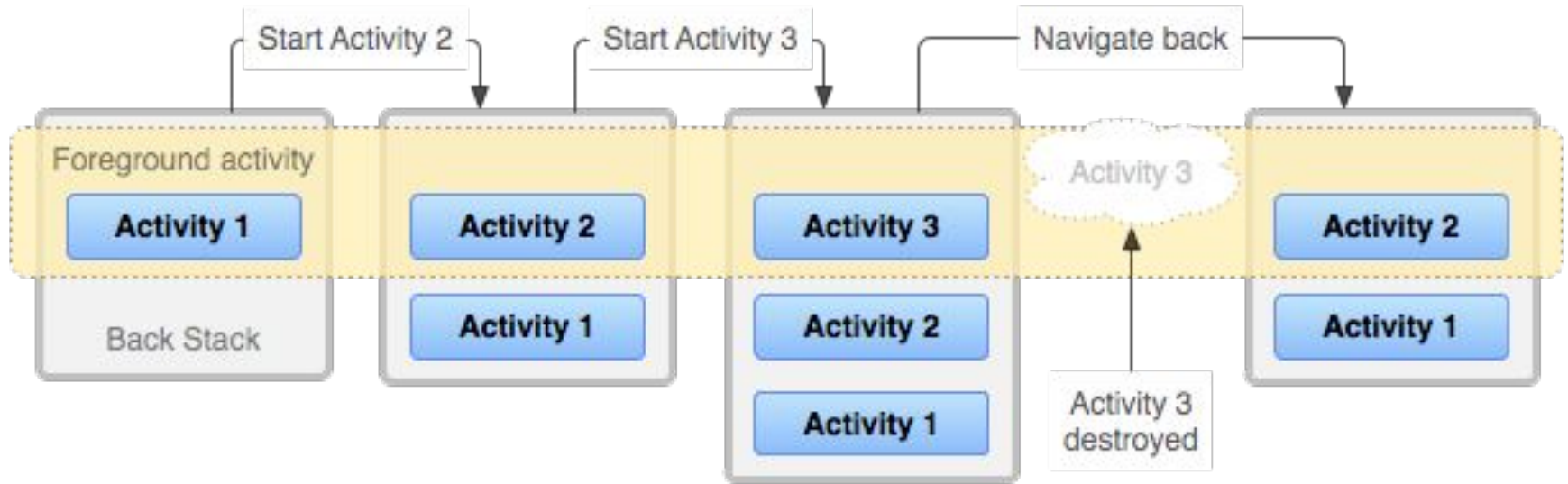
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Activity can be in a number of states

- States:
  - **Resumed**: activity is in foreground
  - **Paused**: activity is partially obscured by another activity. Activity cannot receive user input or execute code
  - **Stopped**: activity is hidden/in the background. Things like member variables are maintained
  - **Destroyed**: Resources of the activity are reclaimed by the Android system. E.g. back button press
- Android system will notify you when a state transition happens

```
                                    ┌──────────────────┐
                                    │     Activity     │
                                    │     launched     │
                                    └──────────────────┘
                                             │
                                             ▼
                                    ┌──────────────────┐
                        ┌──────────▶│     onCreate()   │
                        │           └──────────────────┘
                        │                    │
                        │                    ▼
                        │           ┌──────────────────┐     ┌──────────────────┐
                        │           │     onStart()    │◀────│    onRestart()   │
                        │           └──────────────────┘     └──────────────────┘
    User navigates                           │                        ▲
    to the activity                          ▼                        │
                        │           ┌──────────────────┐              │
                        │           │    onResume()    │◀─────┐       │
                        │           └──────────────────┘      │       │
                ┌──────────────┐             │                │       │
                │ App process  │             ▼                │       │
                │    killed    │    ┌──────────────────┐      │       │
                └──────────────┘    │     Activity     │      │       │
                        ▲           │     running      │      │       │
                        │           └──────────────────┘      │       │
                        │          Another activity comes     │       │
                        │          into the foreground    User returns│
                        │                    │             to the activity
       Apps with higher priority             ▼                │       │
            need memory             ┌──────────────────┐      │       │
                        ┌───────────│     onPause()    │──────┘       │
                        │           └──────────────────┘              │
                        │              The activity is                │
                        │              no longer visible              │
                        │                    │                        │
                        │                    ▼               User navigates
                        │           ┌──────────────────┐     to the activity
                        └───────────│     onStop()     │──────────────┘
                                    └──────────────────┘
                                  The activity is finishing or
                                  being destroyed by the system
                                             │
                                             ▼
                                    ┌──────────────────┐
                                    │    onDestroy()   │
                                    └──────────────────┘
                                             │
                                             ▼
                                    ┌──────────────────┐
                                    │     Activity     │
                                    │     shut down    │
                                    └──────────────────┘
```

Prep for next week

- Finish **My Maps**

- Submit peer feedback through Canvas

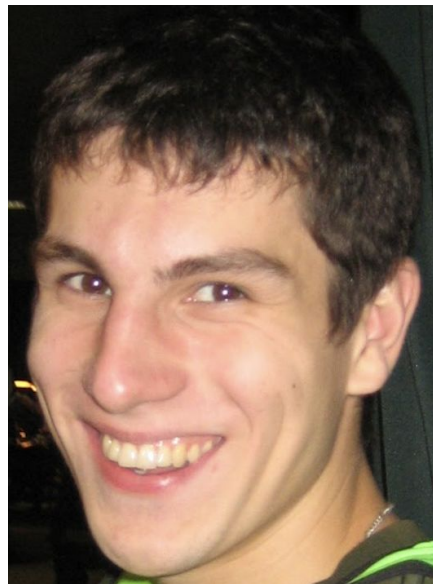# Outline

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- **Q&A with Igor**

Guest speaker: *Igor Podkhodov*

- Worked on Android at startups, **Motorola, Samsung, Netflix**, **Google**, **Snapchat**, and **Facebook**
- Currently a Senior eng manager at **Zoox**
- Agenda

    I. Career
    II. Top 10 advices
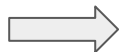   III. Q&A

November 2005 - 19 years old

I. My career path

Russia

S. Korea

USA →

Michael Simuni

II. Top 10 advices to 19 y.o. Igor

1. 😇 Don't compromise on your values

- ⇒ even more success and satisfaction in the long-term!

- Be honest! Speak up! Don't blindly follow!

- Change toxic culture or quit if you can't

- You are the average of the 5 people you spend the most time with
  - Pick your surrounding carefully!

- Respect yourself!

- Lose the battle but don't lie - you will ultimately win the war!

"It takes nothing to join the crowd. It takes everything to stand alone" – Hans Hansen
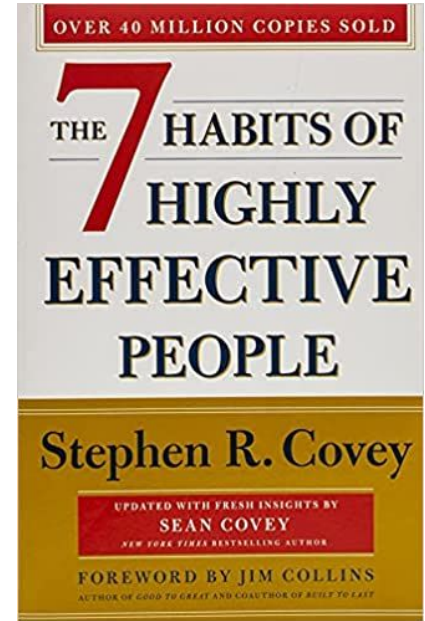
2. 🥷Be Bold

- You can't accomplish Big things without taking High risks!

  - No pain - no gain ;) or No mistakes, only lessons!

  - High risks - High rewards!

- Challenge the status quo

  - There are no stupid questions - only stupid answers

- *"The people who are crazy enough to think they can change the world are the ones who do."* **—** Steve Jobs

- Positive self-talk!

"You miss 100% of the shots you don't take" – Wayne Gretzky

3. 🌼 Be Open

- To new ideas & new people

- To different/opposite points of view!

- To being wrong ⟹ Admit your own mistakes!

- There are no facts, only your own believes ⟹ challenge them!

- Observe yourself and avoid the defensive & negative states!

"Whatever is flexible and living will tend to grow; whatever is rigid and blocked will wither and die." – Laozi

4. 🤩Follow your passion

- That's where you will achieve the ultimate success!

- Invest into your development in those areas!

- Everything is possible!

  - Once you built something in your imagination - it's the 1st creation!

  - Believe you can do it

  - Compile a plan!

- Now you are already ½ way to your dream

  - Just follow the steps

  - And pivot if necessary!

- Focus on contributions not just achievements!
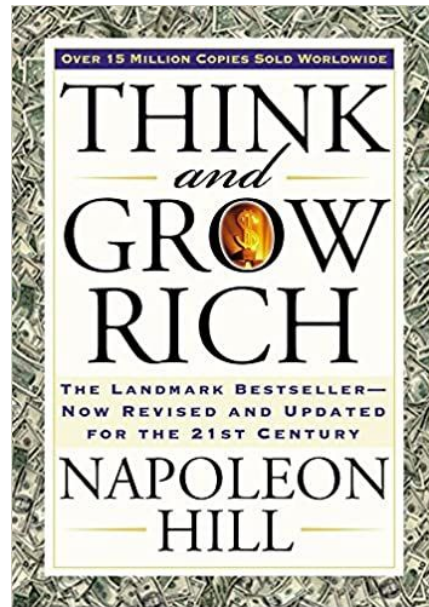
"Follow your passion. It will lead you to your purpose." – Oprah Winfrey

5. 🏄 Befriend Uncertainty

- Give rough estimates
  - Multiply first estimate by 10 → predictions will be better over time → by Pi (~3.14)
- Generate brave ideas!
- Don't fear mistakes
  - Better go somewhere and pivot later instead of delay & stale
- Almost everything in life is uncertain because no one can predict the future
- We can NEVER do enough to be 100% certain
- It's OK to be stressed, struggle, not land the internship and e t c (especially at Harvard)
  - Best school/GPA/internship/company is not the main factor for your success!

"When nothing is sure, everything is possible" – Margaret Drabble

6. 🥾Be Relentless - mistakes=lessons!

- "*I've missed more than 9,000 shots in my career. I've lost almost 300 games. Twenty-six times I've been trusted to take the game-winning shot and missed. I've failed over and over and over again in my life. And that is why I succeed.*"
  - M. Jordan
- JK Rowling was turned down by 12 publishers...before finding the World success with Harry Potter books!
- Rovio failed with 51 games
  - 52nd → Angry birds

"Life itself is your teacher and you are in a state of constant learning" – Bruce Lee

7. 👂 Listening ← top factor for growth & success

- Be genuinely interested in new ideas/thoughts

- Don't just hear, but listen to people!

- Try to understand the other point of view!

- Always assume positive intent!

- Listen before you speak!

- Connect with people → Find common interests

SPECIAL ANNIVERSARY EDITION

HOW TO WIN FRIENDS & INFLUENCE PEOPLE

The Only Book You Need to Lead You to Success

80 YEARS IN PRINT!

Dale Carnegie

"We have two ears and one mouth so that we can listen twice as much as we speak." – Epictetus
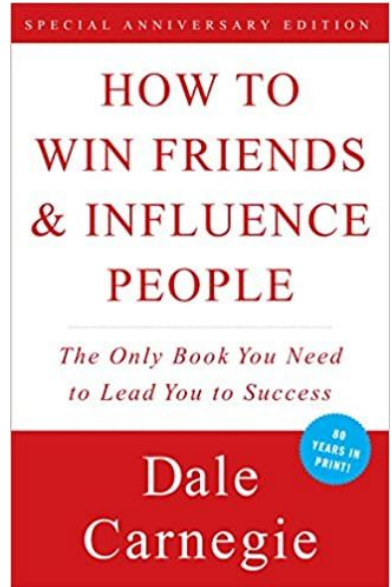
8. ⏳ Ruthless prioritization!

- First, think what's most important in your life!

    - Don't waste time on news/social media or other distractions with low noise to signal ratio!

    - Read great books, talk to real people, ask important questions, debate and think!

- Don't be led by circumstances, but lead & be proactive!

- Never try to deliver a lot → Focus on MVP!

- No perfectionism - Check the theory instead!

    - If works - build on top. If not - move on!

    - Pivot as soon as data directs

- Even Einstein had only 24 hours in a day!

"Good things happen when you get your priorities straight." – Scott Caan

9. 🥑Care about your health

- Chemicals, sugar/coffee/drugs/alcohol
    - Especially alone or regularly!
    - Do more sports/reading instead!
- Avoid <u>any</u> dependency (e.g. social networks)!
- Keep positive attitude + Avoid regular/prolonged stress!
- Regular regime + Time to rest
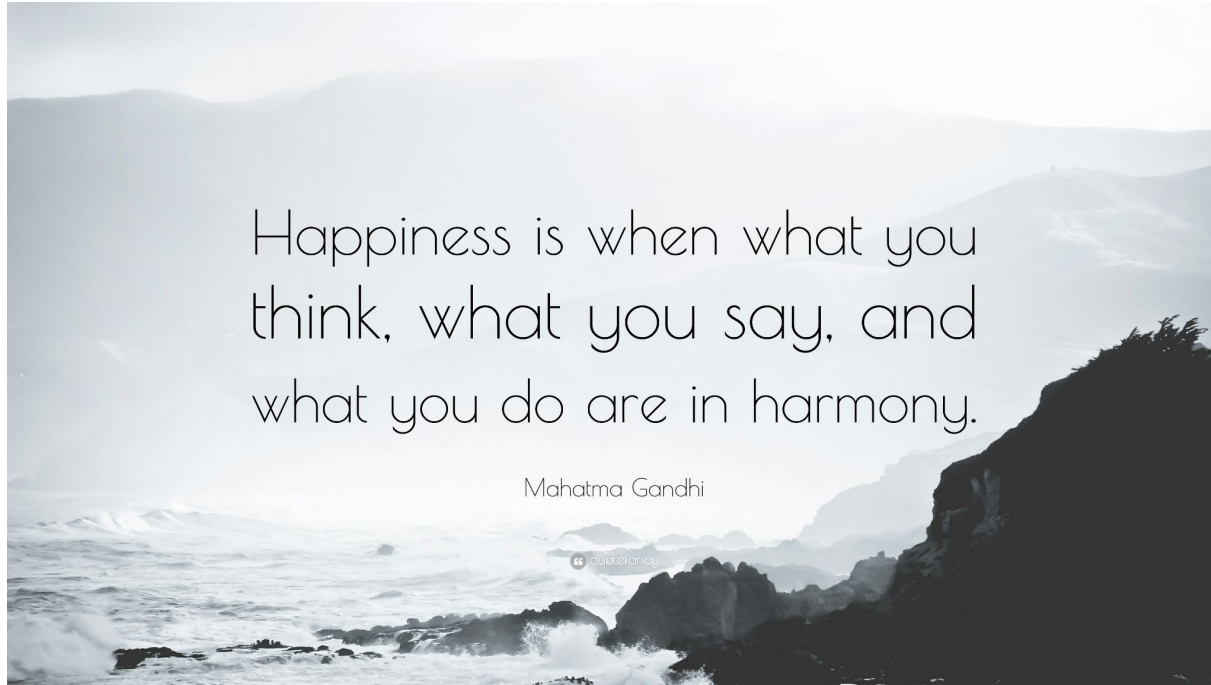- **<u>Your health is an exhaustible resource!</u>**

"Take care of your body. It's the only place you have to live." – Jim Rohn

10. 🏁 Deliver on your promises

- Keep promises to yourself ⇒ friends, colleagues, managers, customers and others

- **Under promise and over deliver!**

  ○ Deliver 110% in your work & personal life!

- Well done → Satisfaction → Emotional rest!

- Procrastination → Stress…

- It's always hard to start

- Win yourself and you will win the world!

  ○ Small things: regime, exercising, reading books, controlling your words/emotions/thoughts

  ○ Compete with yourself!

"To finish first you must first finish." – Rick Mears
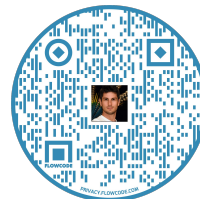
11. 🌱 Appreciate the Now!

- Accept yourself and look around!

  - What a fantastic achiever you already are!

  - How many great people are around!

  - Which things are the most important in your life?

- Life is a journey and a pretty interesting one ⇒ observe & enjoy ;)

- Train your mind to be in NOW: mindfulness, meditation, focus, yoga

- *"There is only one time that is important—NOW! ...it is the only time when we have any power."* – Leo Tolstoy

"Gratitude drives happiness. Happiness boosts Productivity. Productivity reveals mastery. And mastery inspires the world." – Robin Sharma

What is happiness?

Happiness is when what you
think, what you say, and
what you do are in harmony.

Mahatma Gandhi

III. Thank you for listening + Q&A~

- To prepare for adulthood:
  - "The 7 Habits of Highly Effective People" by Stephen Covey
  - "How to Win Friends & Influence People" by Dale Carnegie
  - "How to Stop Worrying and Start Living" by Dale Carnegie
  - "Think and Grow Rich" by Napoleon Hill
  - "The Power of Now" by Eckhart Tolle
- To prepare for interviews:
  - "Cracking the coding interview" by Gayle Laakmann
  - wikipedia.org
  - interviewbit.com / leetcode.com

linkedin.com/in/podkhodov