

Predicting Young People

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Introduction & Motivation

- Through the use of SVMs and Deep Neural Networks, we classified and predicted preferences, interests, habits, opinions, and fears of young people.

The image shows a screenshot of a dataset page titled "Young People Survey". The title is at the top left, followed by a subtitle: "Explore the preferences, interests, habits, opinions, and fears of young people". Below the title, there is a profile picture of a man and the name "Miroslav Sabo". A note indicates the dataset was "last updated a year ago". In the top right corner, there is a small box containing the number "153" with an upward-pointing arrow icon. The background of the page features silhouettes of many people against a warm, orange-toned sunset or sunrise sky.

Reviewed Dataset

Young People Survey

Explore the preferences, interests, habits, opinions, and fears of young people

Miroslav Sabo • last updated a year ago

153

Problem Formulation & Lit Review

- Data set: <https://www.kaggle.com/miroslavsabo/young-people-survey>
- Based on : Slezia, P. - Sabo, M.: Gender differences in the prevalence of specific phobias. Forum Statisticum Slovacum. 2014, Vol. 10, No. 6. [Differences (gender + whether people lived in village/town) in the prevalence of phobias.]
- Sabo, Miroslav. Multivariate Statistical Methods with Applications. Diss. Slovak University of Technology in Bratislava, 2014. [Clustering of variables (music preferences, movie preferences, phobias) + Clustering of people w.r.t. their interests.]

Proposed Solution

- We trained a Deep Neural Network to perform regression and use the mean squared error evaluation as our scoring function.
 - For all groups we predict all the other groups
 - Ex. Predict Movies based on Music, Spending based on Personality, etc.
- Further we use multi-class SVMs to perform classification.
 - For some pairs of groups we classified different columns based on a group.
 - Ex. Classify how much you like shopping malls (Spending) based on Personality, Comedy (Movies) based on Music, etc.
 - For some pairs of columns we classified one based on the other.
 - Ex. Classify How much money you save (Spending) based on how early you get up (Personality), etc.

Data Description: Young People Survey - Kaggle

- All participants were of Slovakian nationality, aged between 15-30.
- 1010 data entries
- Data (scale of 1-5)
 - Music preferences (19 items)
 - Movie preferences (12 items)
 - Hobbies & interests (32 items)
 - Phobias (10 items)
 - Personality traits, views on life, & opinions (57 items)
 - Spending habits (7 items)
 - Demographics (4 items)

SPENDING HABITS

1. I save all the money I can.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
2. I enjoy going to large shopping centres.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
3. I prefer branded clothing to non branded.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
4. I spend a lot of money on partying and socializing.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
5. I spend a lot of money on my appearance.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
6. I spend a lot of money on gadgets.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
7. I will happily pay more money for good, quality or healthy food.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)

PERSONALITY TRAITS, VIEWS ON LIFE & OPINIONS

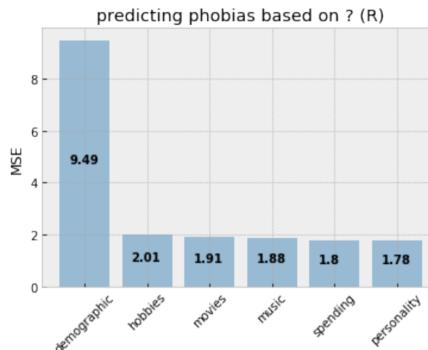
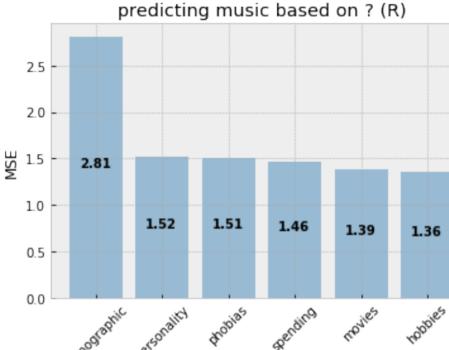
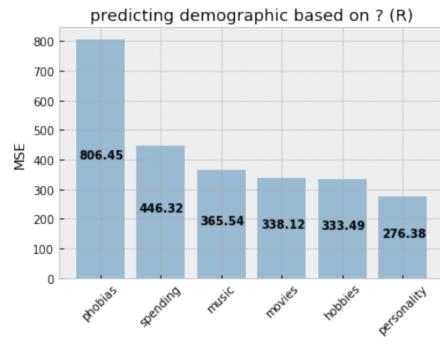
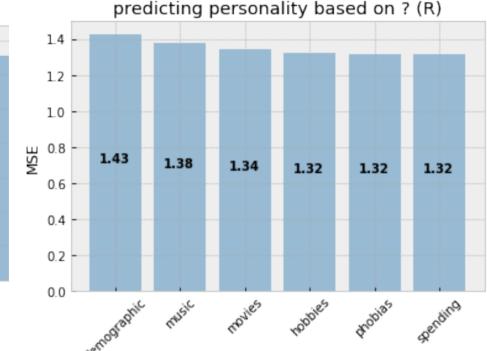
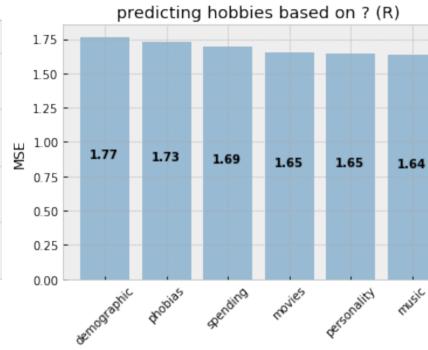
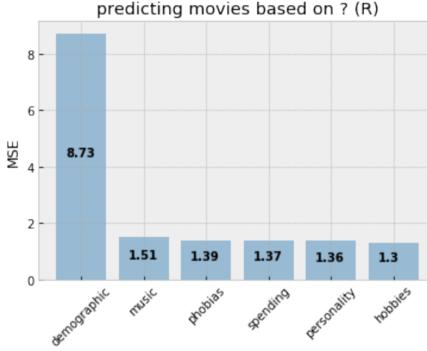
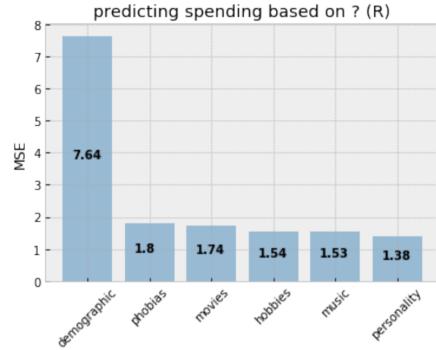
1. I take notice of what goes on around me.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
2. I try to do tasks as soon as possible and not leave them until last minute.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
3. I always make a list so I don't forget anything.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
4. I often study or work even in my spare time.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
5. I look at things from all different angles before I go ahead.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
6. I believe that bad people will suffer one day and good people will be rewarded.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
7. I am reliable at work and always complete all tasks given to me.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
8. I always keep my promises.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
9. I can fall for someone very quickly and then completely lose interest.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
10. I would rather have lots of friends than lots of money.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
11. I always try to be the funniest one.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
12. I can be two faced sometimes.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
13. I damaged things in the past when angry.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
14. I take my time to make decisions.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
15. I always try to vote in elections.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
16. I often think about and regret the decisions I make.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
17. I can tell if people listen to me or not when I talk to them.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
18. I am a hypochondriac.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
19. I am empathetic person.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
20. I eat because I have to. I don't enjoy food and eat as fast as I can.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
21. I try to give as much as I can to other people at Christmas.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
22. I don't like seeing animals suffering.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
23. I look after things I have borrowed from others.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)

MUSIC PREFERENCES

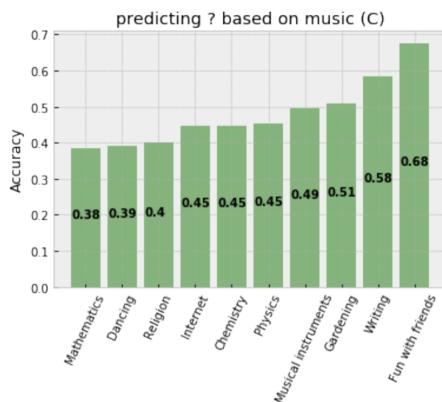
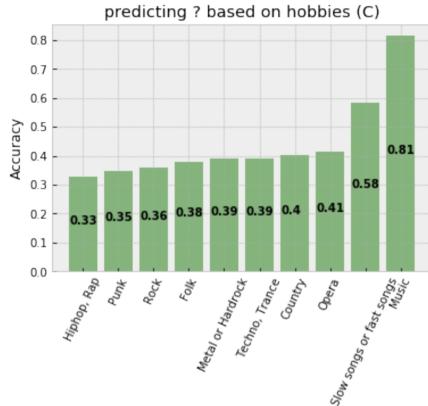
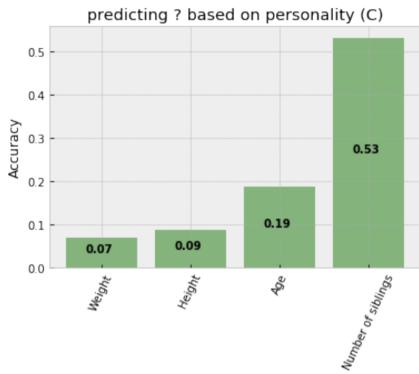
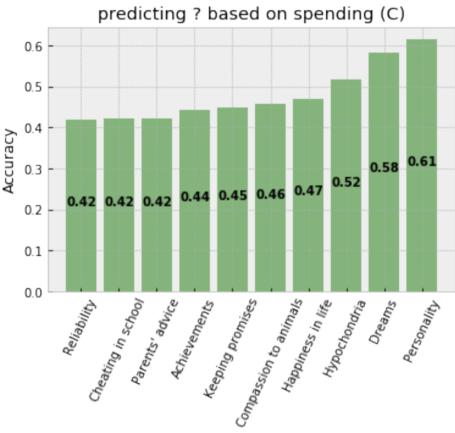
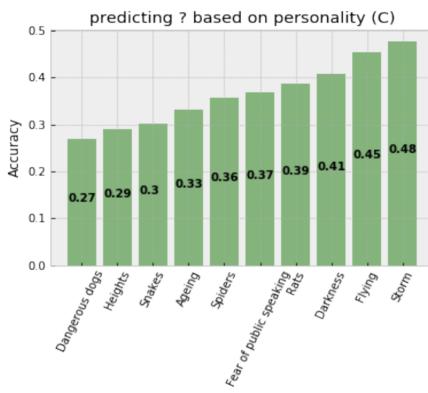
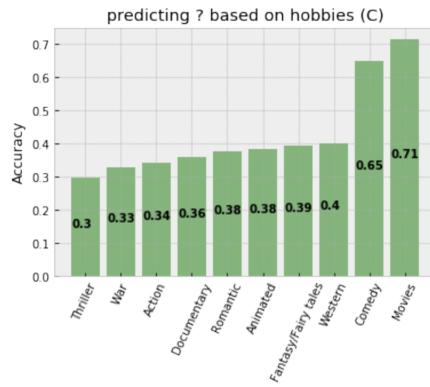
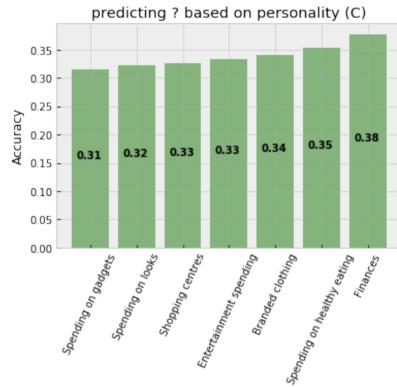
1. I enjoy listening to music.: Strongly disagree 1-2-3-4-5 Strongly agree (integer)
2. I prefer.: Slow paced music 1-2-3-4-5 Fast paced music (integer)
3. Dance, Disco, Funk: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
4. Folk music: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
5. Country: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
6. Classical: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
7. Musicals: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
8. Pop: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
9. Rock: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
10. Metal, Hard rock: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
11. Punk: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
12. Hip hop, Rap: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
13. Reggae, Ska: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
14. Swing, Jazz: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
15. Rock n Roll: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
16. Alternative music: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
17. Latin: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
18. Techno, Trance: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)
19. Opera: Don't enjoy at all 1-2-3-4-5 Enjoy very much (integer)

Results & Discussion

Group, Group Regression



Group, Attribute Classification



Finance = I save all the money I can

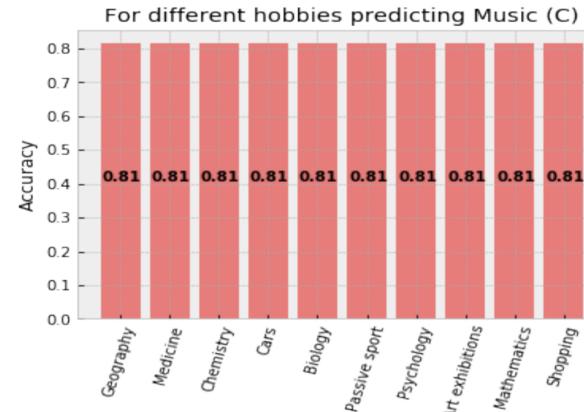
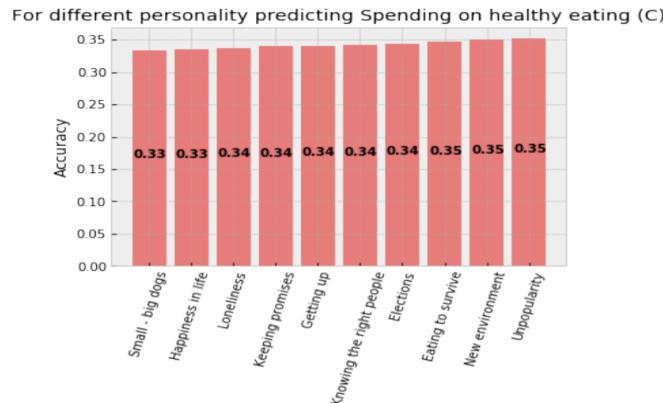
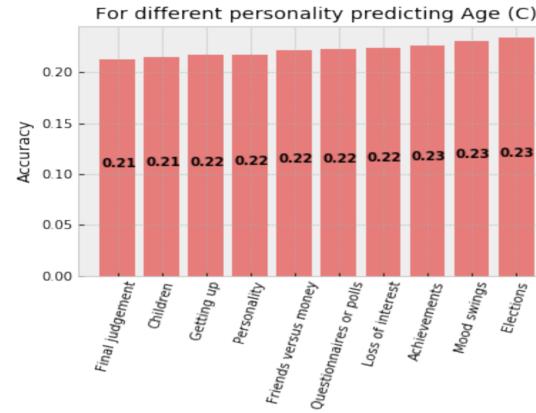
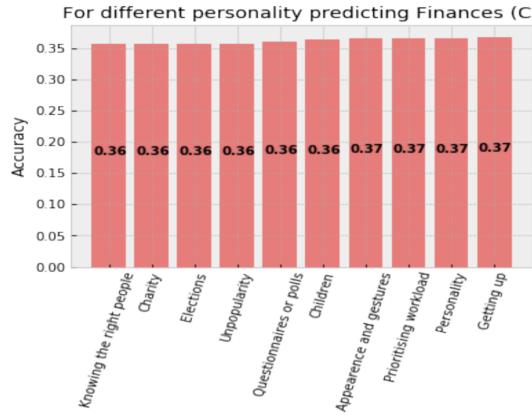
Movies = I really enjoy watching movies.

Music = I enjoy listening to music

Personality = I believe all my personality traits are positive.

Fun with friends = Socializing

Attribute, Attribute Classification



Getting Up = I find it very difficult to get up in the morning

Elections = I always try to vote in elections

Unpopularity = I will find a fault in myself if people don't like me.

Personality = I believe all my personality traits are positive.

New environment = I can quickly adapt to a new environment

Interesting Results

- We can best predict spending habits based on personality and vice versa.
 - We can best classify view of personality based on spending habits (61%)
- We can best predict demographics based on personality.
 - We can best classify # of siblings based on personality (53%).
- We can best predict music based on hobbies.
 - We can classify if you like fast or slow music with 58% based on hobbies.
 - How much you like music is easy to classify for any hobby.

Questions?