

❖ Motivation ❖

- In the past year, 1 million children were victims of cyberbullying on Facebook.
- There has not been sufficient research in identifying cyberbullying behavior in social networks and media.

❖ Our Contribution ❖

- Facebully is an application designed to identify a case of cyberbullying by exploiting the social media data available.
- The application is based off of a model designed for cyberbully identification that was built on previous research findings of both traditional and cyberbullying in adolescents.

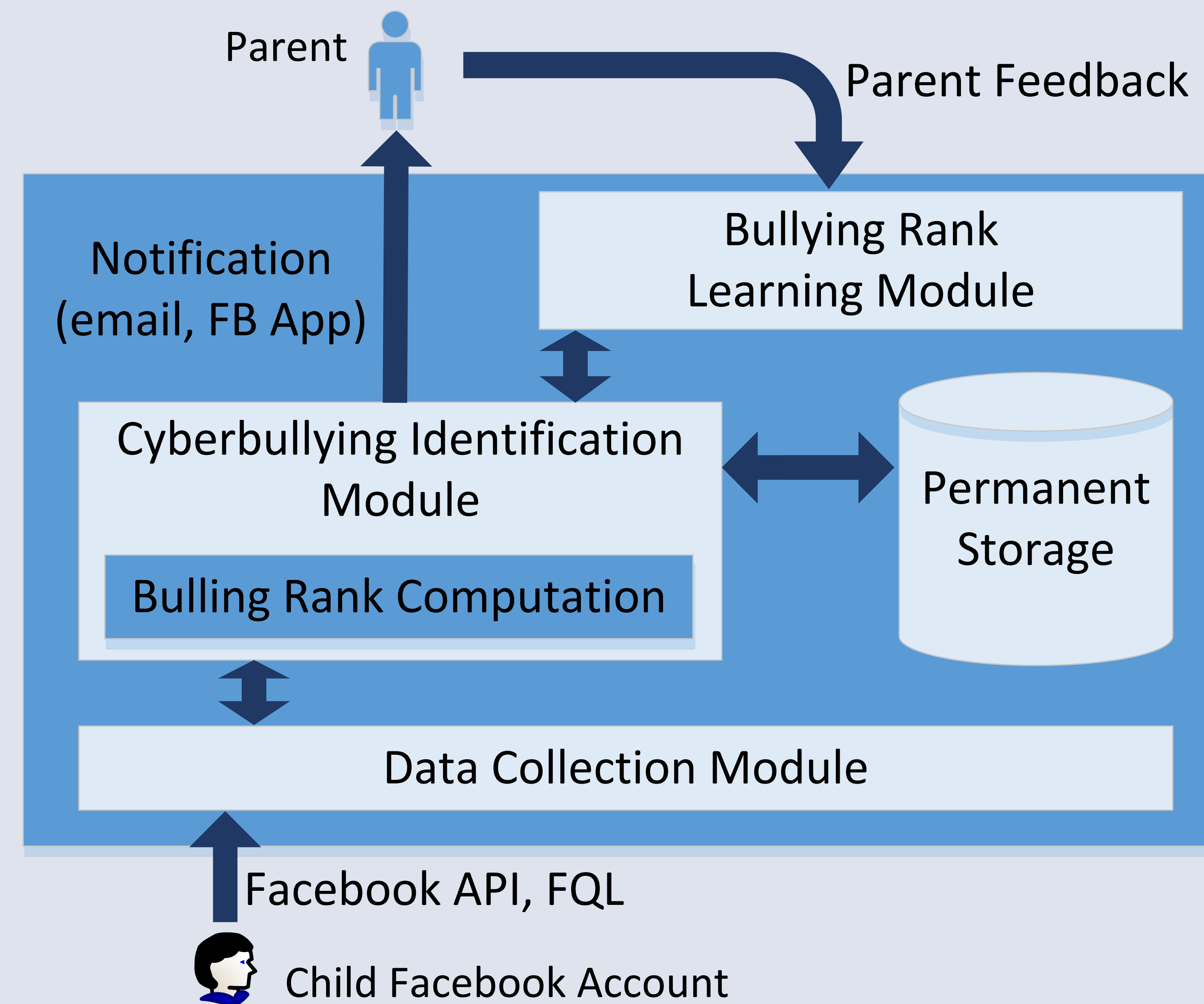
❖ Benefits ❖

- Once Facebully is ready for deployment, it can be used, e.g., for parents to monitor their children via their social network and forewarn them if their child is a victim of online aggression.
- The model used to design the application can be modified to identify other behaviors as well, such as depression or self-destructive tendencies.

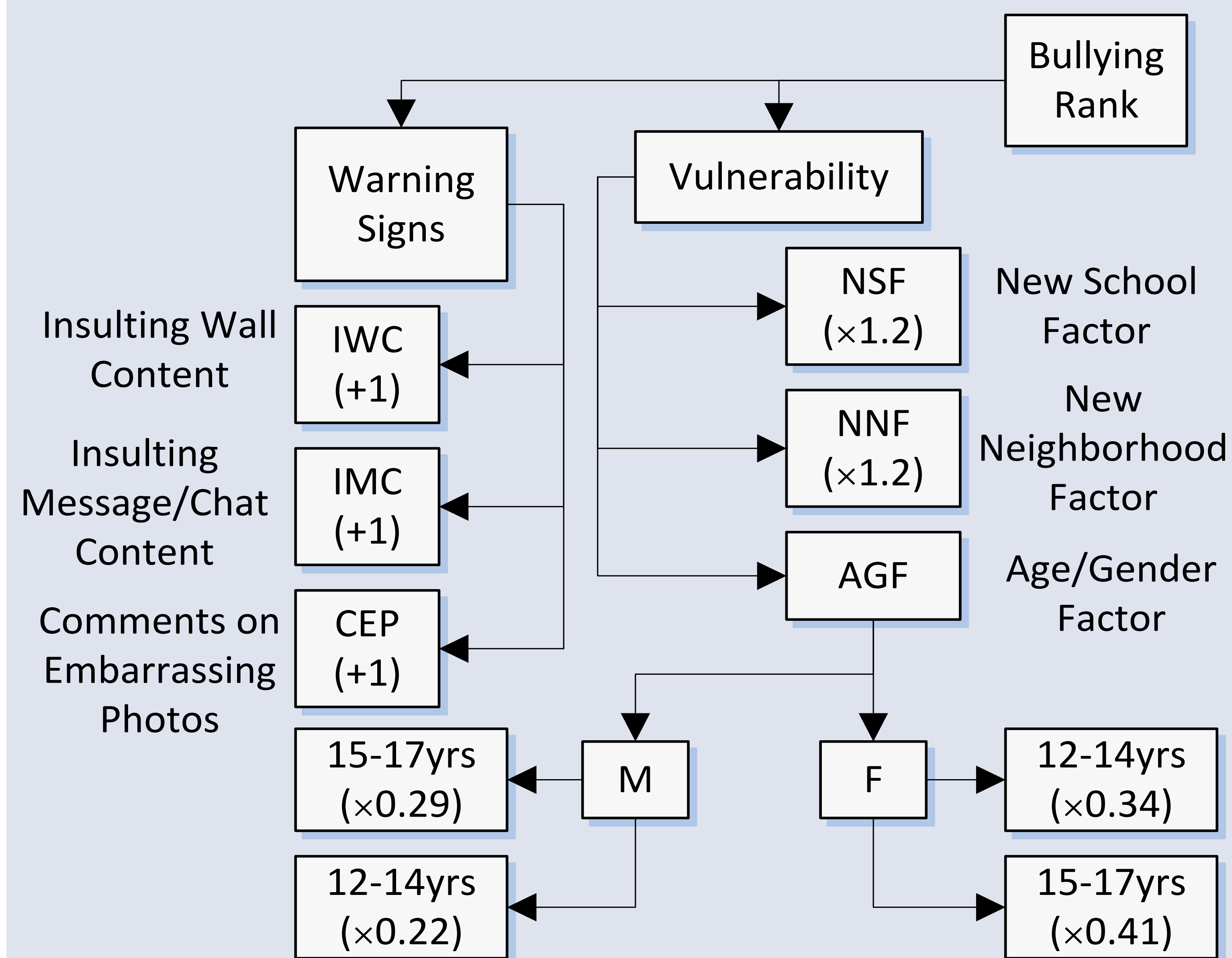
❖ Future Work ❖

- Finish the implementation of Facebully 1.0.
- Study mechanisms to dynamically adjust the Bullying Rank by using machine learning techniques and to incorporate new cyberbullying factors that cannot be directly extracted from Facebook, e.g., ethnicity, physical and mental disabilities, etc.

❖ Architecture ❖



❖ Rank Factors ❖



❖ Design ❖

- Facebully measures the intensity of online aggression a user may be experiencing by first identifying two major factors:
 - Warning signs
 - Vulnerability
- Each factor consists of sub-factors whose values can be computed from the data available in the user's profile.
- The Bullying Rank (B) is computed by an equation that normalizes the intensity of cyberbullying.

Warning Signs (S): [0, 100]

$$S = \min(100, w_1 \cdot IWC + w_2 \cdot CEP + w_3 \cdot IMC)$$

Vulnerability (V): [0.22, 0.59]

$$V = (w_4 \cdot AGF)(w_5 \cdot NSF)(w_6 \cdot NNF)$$

Bullying Rank (B): [0, 59]

$$B = S \cdot V$$

- The possible range of values of the Bullying Rank (B) is divided into three levels of risk intensity.

Risk Levels

1. *Low Risk:* [0, 20]
2. *Medium Risk:* [21, 40]
3. *High Risk:* [41, 59]

- The parent/guardian of the minor is then notified of the Bullying Rank (B) and its level of intensity.
- Any extracted data or prior computations that need to be used for later updating the Bullying Rank (B) are stored in the permanent storage.