BullyBlocker

Designing and Implementing an App to Identify Cyberbullying on Facebook

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Motivation

Over half of adolescents have been bullied online, and about the same number have engaged in cyber bullying. While more than 1 in 3 young people have experienced cyber-threats online, well over half of them do not tell their parents when cyberbullying occurs.

Cyberbullying can take multiple forms, and there has not been sufficient research in identifying cyberbullying behavior in social networking sites like Facebook.

BullyBlocker is an application designed to automatically identify cases of cyberbullying by exploiting the social media data available. The application is based on a model designed for cyberbully identification that was built on previous research findings of cyberbullying in adolescents.

Architecture

Design

BullyBlocker measures the intensity of online aggression a user may be experiencing by first identifying two major factors:
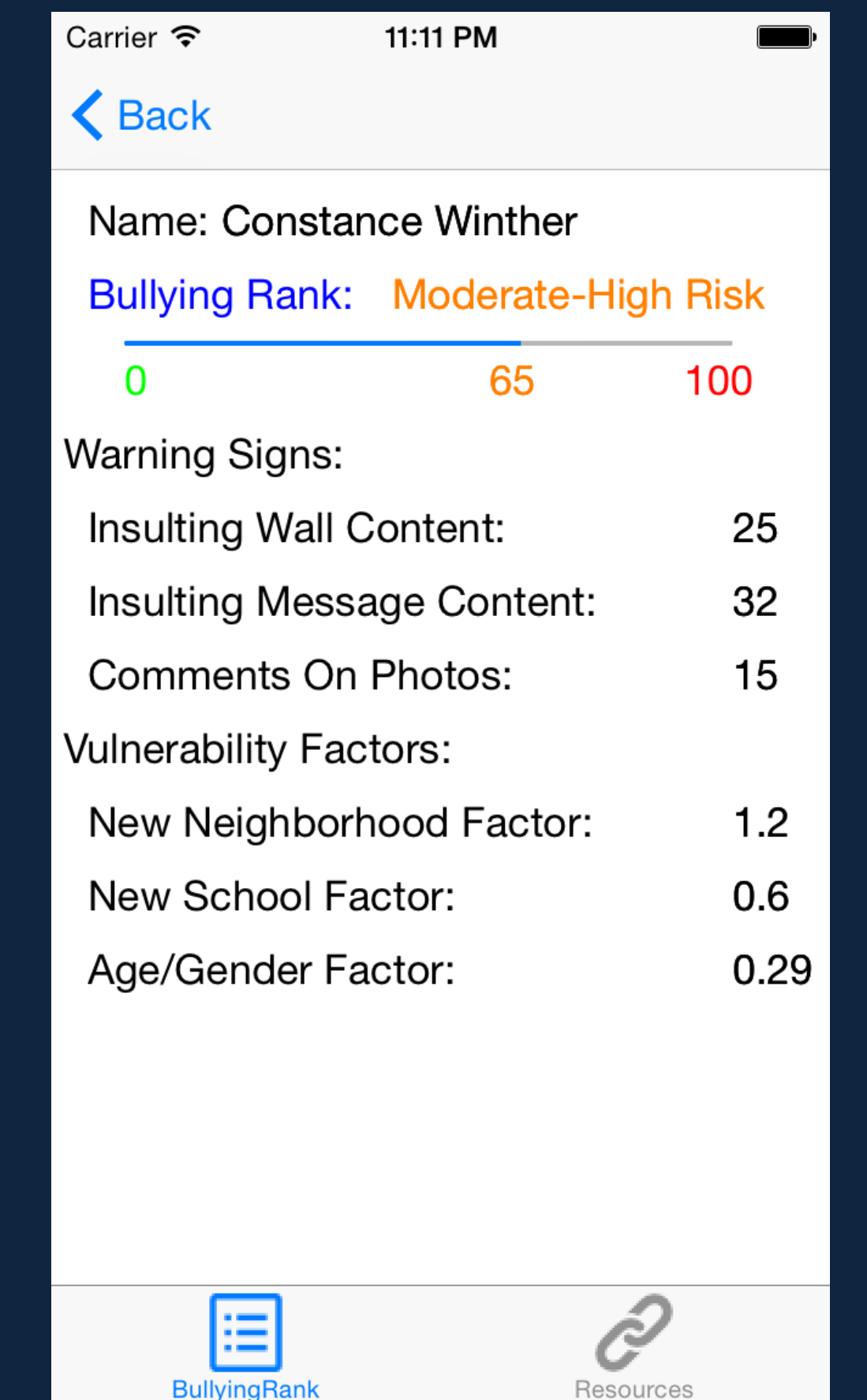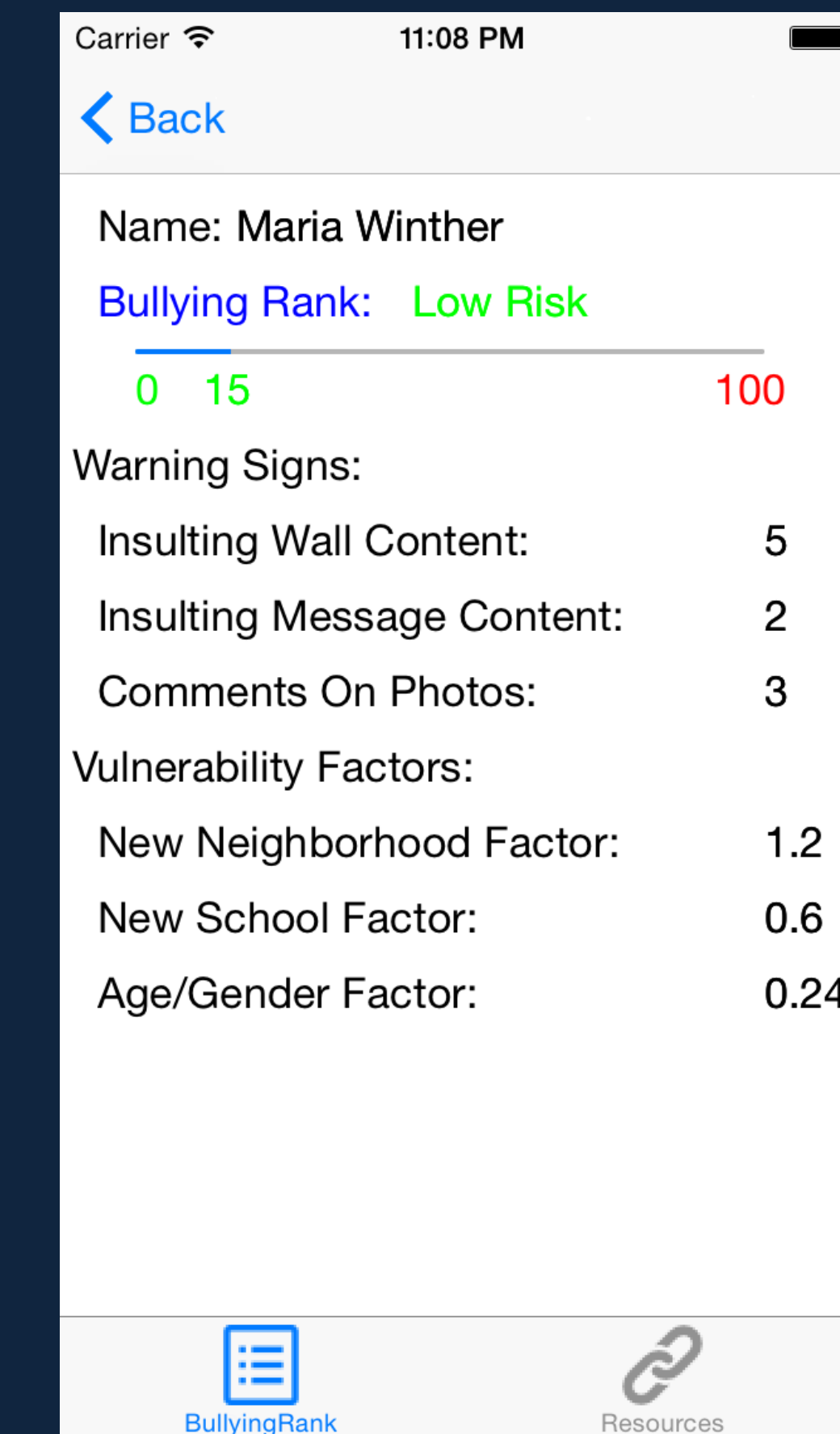- Warning signs
- States of vulnerability

Each factor consists of sub-factors whose values can be computed from the data available in the social networking site.
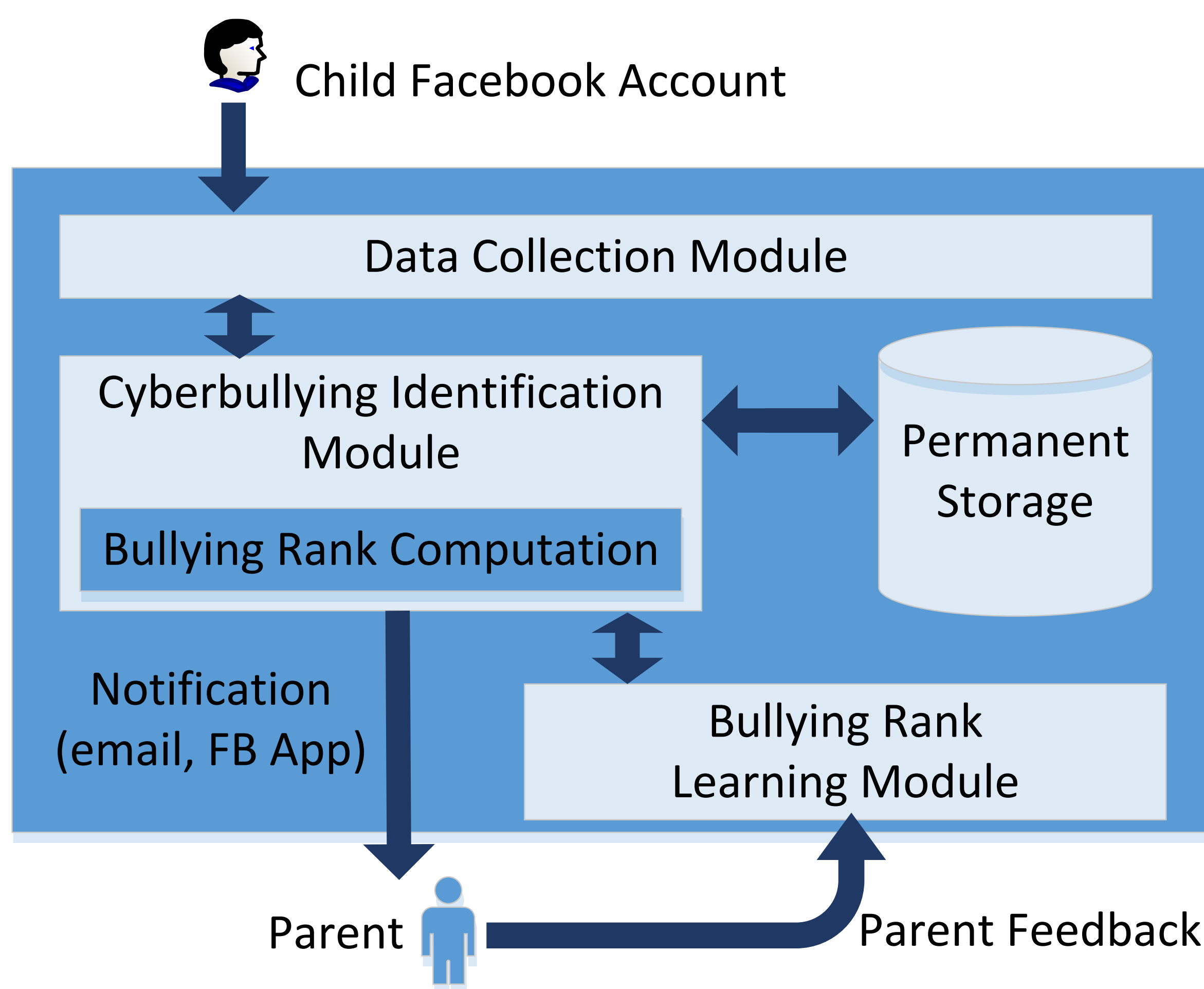
The computed Bullying Rank is returned to the parent/guardian of the minor.

The Bullying Rank Is divided into three normalized levels of risk intensity: Low[0-33], Medium[34-66], High[67-100]
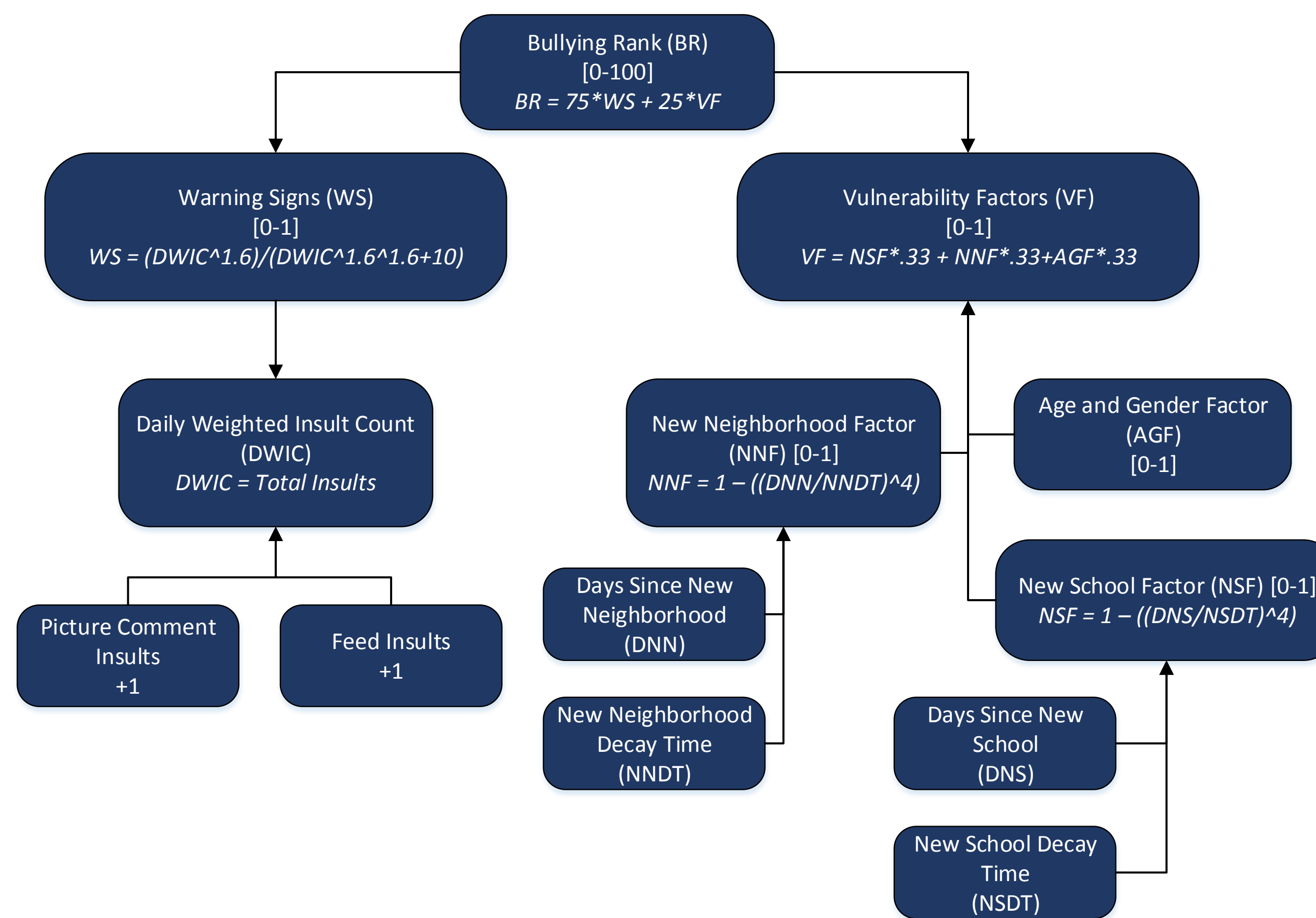
Risk Factors

Bullying Rank (BR) [0-100]
$BR = 75*WS + 25*VF$

Warning Signs (WS) [0-1]
$WS = (DWIC^{1.6})/(DWIC^{1.6}*1.6+10)$

Vulnerability Factors (VF) [0-1]
$VF = NSF*.33 + NNF*.33 + AGF*.33$

Daily Weighted Insult Count (DWIC)
$DWIC = Total\ Insults$

New Neighborhood Factor (NNF) [0-1]
$NNF = 1 - ((DNN/NNDT)^4)$

Age and Gender Factor (AGF) [0-1]

New School Factor (NSF) [0-1]
$NSF = 1 - ((DNS/NSDT)^4)$

Picture Comment Insults +1

Feed Insults +1

Days Since New Neighborhood (DNN)

New Neighborhood Decay Time (NNDT)

Days Since New School (DNS)

New School Decay Time (NSDT)

Warning Signs Vs. Daily Insult Count

New Neighborhood/School Factor Vs. Time

Notification

Deployment

BullyBlocker 1.0 is expected to be released in summer 2016 (iOS version).

Once BullyBlocker is deployed to the public, parents will be able to use it to monitor their children via their social network and help to forewarn them if they are victims of online aggression.

The app takes advantage of the wealth of data used to check for bullying to help predict potential causes. This allows us to provide resources to the parent that are tailored to their situation.