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(71)Name of Applicant :  
**1)St. Martin's Engineering College**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**Name of Applicant : NA**  
**Address of Applicant : NA**  
 (72)Name of Inventor :  
**1)Dr. G. Govinda Rajulu Professor, CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**2)Dr. P Santosh Kumar Patra Professor, Dept. of CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**3)S. Kiran Kumar Assistant Professor, CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**4)Dr. G. Jawaharlalnehru Associate Professor, CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**5)P. Pranav Chander Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**6)P. Shiva Kotesw Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**7)Shaik Adil Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**8)Dharavath Pavan Kumar Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**9)J. Rajesh Surya Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**10)Boda Sai Kiran Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**11)B. Varun Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**12)Vishal Dasari Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**13)Kotagiri Akash Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
**14)Ch. Manikyam Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----

(57) Abstract :

Despite the rapid escalation of cyber threats, there has still been little research into the foundations of the subject or methodologies that could serve to guide information systems researchers and practitioners who deal with cybersecurity. In addition, little is known about crime-as-a-service (CaaS), a criminal business model that underpins the cybercrime underground. This research gap and the practical cybercrime problems we face have motivated us to investigate the cybercrime underground economy by taking a data analytics approach from a design science perspective. To achieve this goal, we: (1) propose a data analysis framework for analyzing the cybercrime underground; (2) propose CaaS and crimeware definitions; (3) propose an associated classification model, and (4) develop an example application to demonstrate how the proposed framework and classification model could be implemented in practice. We then use this application to investigate the cybercrime underground economy by analyzing a large dataset obtained from the online hacking community. By taking a design science research approach, this work contributes to the design artifacts, foundations, and methodologies in this area. Moreover, it provides useful practical insights to practitioners by suggesting guidelines as to how governments and organizations in all industries can prepare for attacks by the cybercrime underground.

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