hackerone

2016 Bug Bounty Hacker Report
Who are these bug bounty hackers?

[hacker /ha–ker/ one who enjoys the intellectual challenge of creatively overcoming limitations.]

September 2016

hackerone

Contents

Introduction

Bug bounty programs are flourishing with organizations including Apple, the Department of Defense, Facebook, General Motors, Google, Microsoft, Panasonic, Uber, and many others all working with hackers to find vulnerabilities and improve security. Yet, without a robust hacker community, armed with technical skills and creativity needed to find security vulnerabilities, bug bounty programs would not be effective.

So, who are these hackers that are reporting vulnerabilities to companies? At HackerOne we get asked this question a lot. In three years, HackerOne's hackers have helped resolve more than 28,000 security vulnerabilities, and earned over $10,000,000 USD in bounties for their contributions. We have the most successful external hacker community around. HackerOne created the 2016 Bug Bounty Hacker Report to share insights about the hacker community and to give hackers the exposure deserved as vital actors in our modern digital society.

For the '2016 Bug Bounty Hacker Report,' we surveyed 617 successful hackers on HackerOne to gain more insight into our community. We define a successful hacker as one who has submitted at least one valid security vulnerability on HackerOne.

How do we define hacker?

In the original sense of the term, a hacker is a problem-solver. HackerOne uses the broadest definition of the term hacker as inspired by the Massachusetts Institute of Technology:

> One who enjoys the intellectual challenge of creatively overcoming limitations.

Beyond our definition, HackerOne sees "hackers" as individuals with the technical skills and curiosity to push the limits of technology. They range from teens, to professionals, to retirees, and reside in all countries and professions across the globe. By properly incentivizing these individuals, organizations have access to the world's largest external security team -- the independent hacker community. This community has historically been a mystery and frequently perceived in an unflattering light. We aim to change this.

HackerOne has more than 70,000 registered hackers, over 11,000 have submitted a vulnerability report and more than 3,500 have been thanked or rewarded for their contributions.

If an individual is hacking for criminal purposes, that is a criminal, not a hacker.

Highlights

They hack because they care.
Fifty-one percent reported they hack to do good in the world, while 34% of hackers reported they will choose to participate in a company's bug bounty program because they like the company.

Money is a key driver, but it isn't everything.
Fifty-seven percent of hackers said they participated in a program in the last six months that did not offer bounty rewards.

Bug bounty programs engage hackers globally.
Hackers are from more than 70 countries, with the highest numbers in India (21%) followed by the United States (19%). Ninety percent of bug bounty hackers are under 34 years old.

Hackers can live off bug bounties alone.
Seventeen percent said they rely solely on bug bounty programs for their income. Six percent reported they are making six figures or more annually with bug bounties, more than double the average family income in the U.S. in 2016.

Hackers are investing in their education.
While 74% reported they primarily taught themselves to hack, 26% of hackers are full-time students.

Hackers are entrepreneurs, participating in the gig economy.
Fifteen percent of bug bounty hackers reported they are self-employed and 24% said they hack 40 or more hours a week.
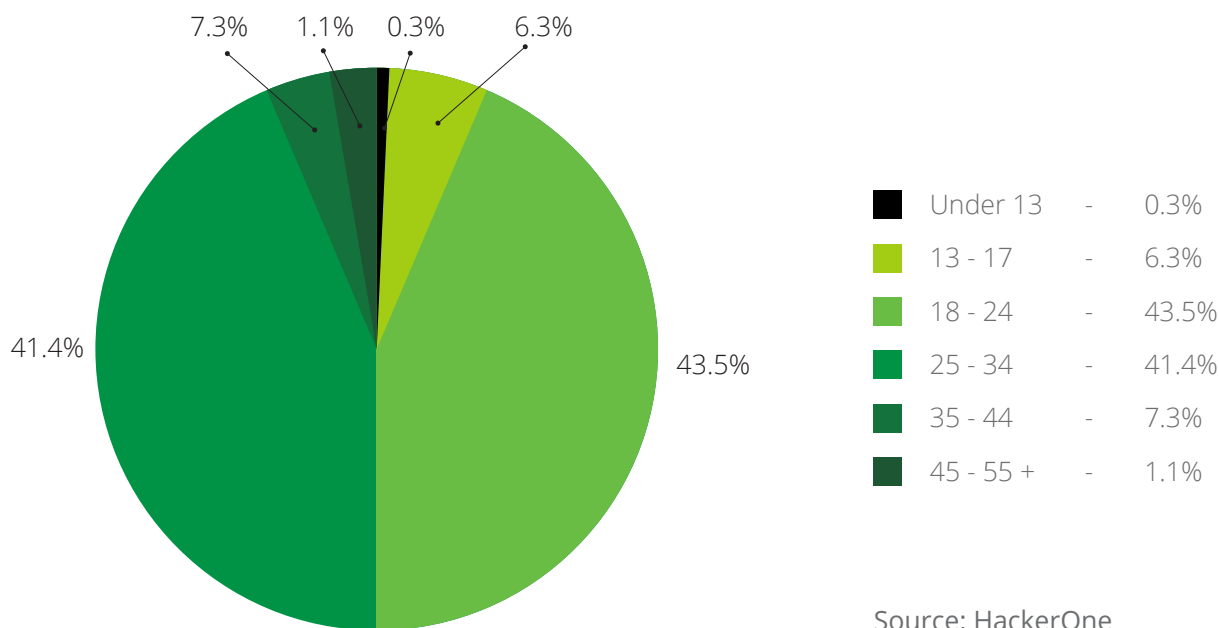
Attitudes towards hackers are improving.
Thirty-one percent of respondents reported that companies have been far more open to receiving vulnerability reports from security researchers in the past year, whereas 38% said companies are somewhat more open.

Bug Bounty hackers are young

Over 90% of all successful bug bounty hackers on HackerOne are under 34 years old. The largest age group (43%) are between 18 and 24 years old, followed closely by 41% who are between 25 and 34 years old. Just over 6% said they are between 13-17 years old, while less than 1% are 13 or younger!

Age of a Hacker

■ Under 13	-	0.3%
■ 13 - 17	-	6.3%
■ 18 - 24	-	43.5%
■ 25 - 34	-	41.4%
■ 35 - 44	-	7.3%
■ 45 - 55 +	-	1.1%

Source: HackerOne

Successful Bug Bounty Hackers are from more than 70 Countries

Bug bounty hackers surveyed are from 72 countries, while HackerOne platform data indicates we have hackers in nearly 100 countries. Twenty-one percent, the highest number, reported they are from India, with the United States coming in second at 19%, followed by Russia at 8%. Most of the remainder, each representing 2% to 3%, were scattered, living in the following countries (in descending order): Pakistan, United Kingdom, Egypt, Netherlands, Ukraine, Germany, Philippines, Morocco, France, and Turkey, among others. The highest per-capita concentration of hackers are located (in descending order) in the Netherlands, Sweden and Belgium. As bug bounty programs continue to grow in popularity around the world, there is room for improvement when it comes to diversity. Less than 2% of respondents identified themselves as female, 97% were male, and 1% preferred not to specify.

Hackers are from more than 70 countries

Source: HackerOne

Hackers are self-taught

A majority of hacker respondents, 74%, reported they are self-taught. Ten percent of hackers reported being taught by a friend, colleague, or group of friends; 7% reported they learned in a hacking group; and 3% reported they learned through classes or a certification program. The overwhelming number of bug bounty hackers who are self-taught speaks to the importance of creativity and desire to overcome obstacles that we continue to see in our hacker community. This also highlights the importance of knowledge sharing within the community from publicly disclosing reports, to blogs, videos and other online resources designed to help hackers continue to improve their skills.
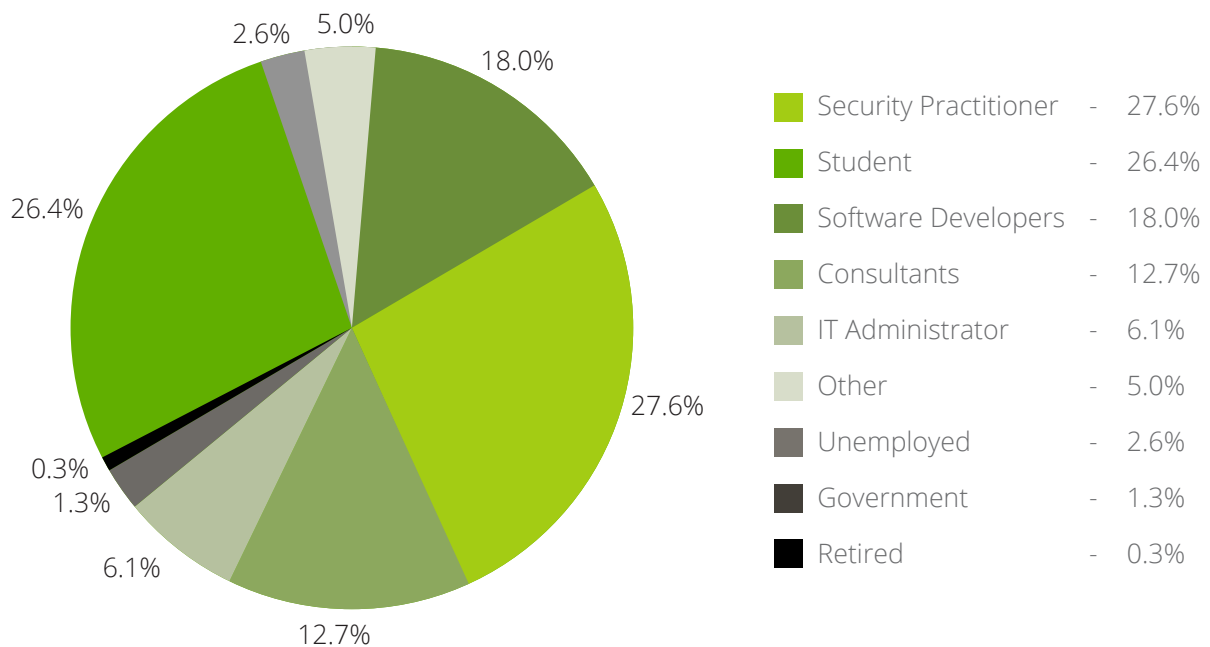
Many are students

Forty-five percent of hackers reported they are employed full-time, 15% said they are self employed, and 26% are students. Only 3% said they are looking for employment, 1% are government employees and less than 1% are in the military.

Thirty-nine percent of respondents reported working directly for a security company, 21% work for a technology company, 4% for a government agency and 3% for a financial institution.

The following graphic illustrates how hackers best describe their primary day-to-day occupation.

Day-to-day occupation of hackers

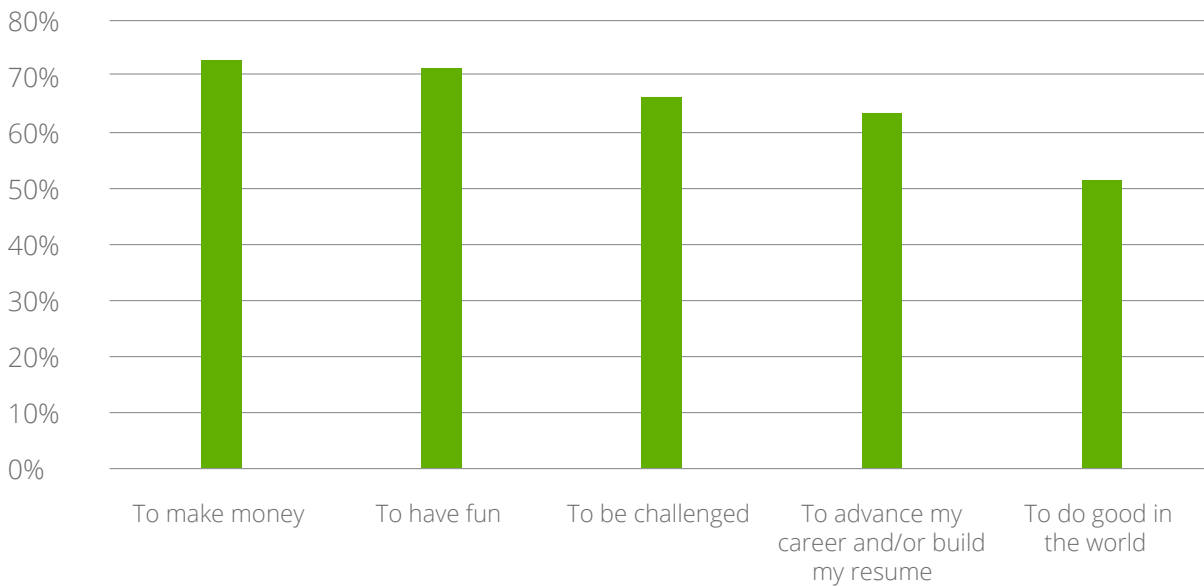|		
Security Practitioner	-	27.6%
Student	-	26.4%
Software Developers	-	18.0%
Consultants	-	12.7%
IT Administrator	-	6.1%
Other	-	5.0%
Unemployed	-	2.6%
Government	-	1.3%
Retired	-	0.3%

Source: HackerOne

They hack for fun!

Monetary rewards are a key driver, but financial incentives are not everything. Fifty-seven percent of hackers reported that they have participated in a programs in the last six months that do not offer bounties. Meanwhile, 72% reported they hack to earn money, 70% also said they hack for fun, 66% to be challenged, 64% to advance their careers, and 51% reported a prime motivator was to do good in the world.
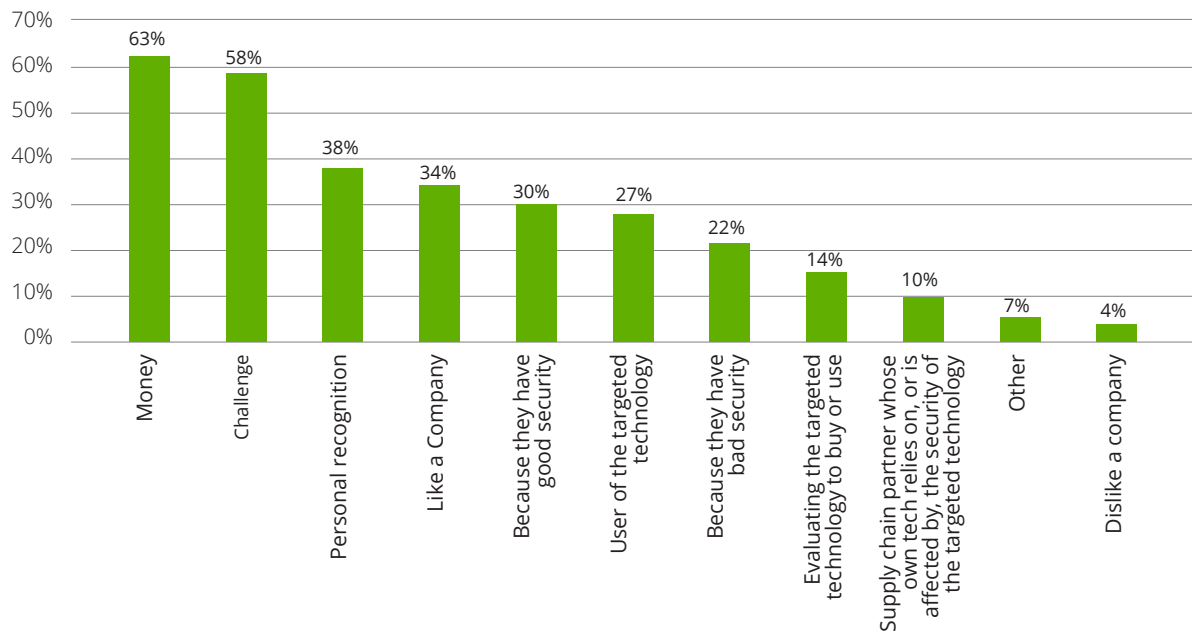
Why do they hack?

Source: HackerOne

Hackers Hack companies they like

The following illustrates responses from hackers regarding how they select the programs they decide to participate in. They were asked to select all that apply.
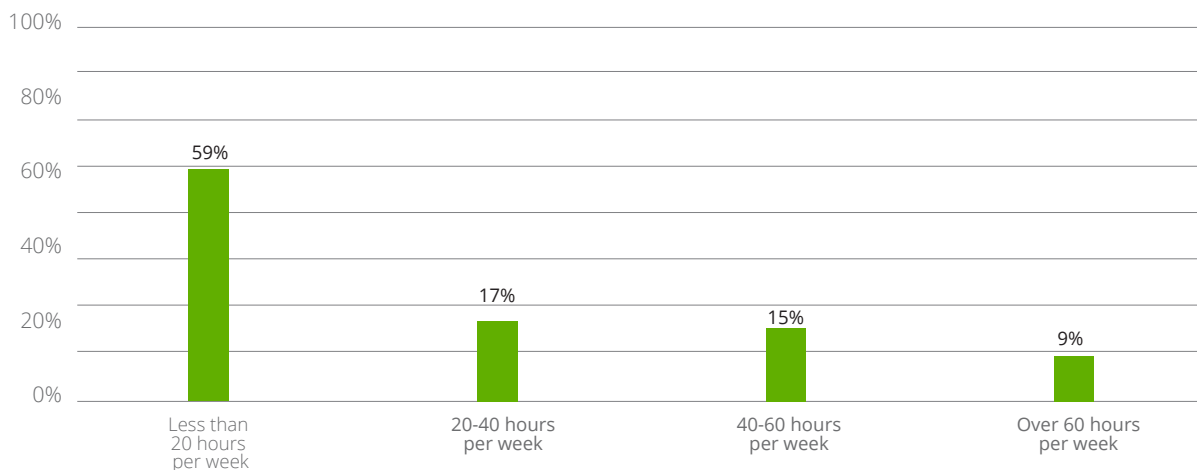
How do they choose who they hack?

Category	Percentage
Money	63%
Challenge	58%
Personal recognition	38%
Like a Company	34%
Because they have good security	30%
User of the targeted technology	27%
Because they have bad security	22%
Evaluating the targeted technology to buy or use	14%
Supply chain partner whose own tech relies on, or is affected by, the security of the targeted technology	10%
Other	7%
Dislike a company	4%

How much time do they spend hacking?

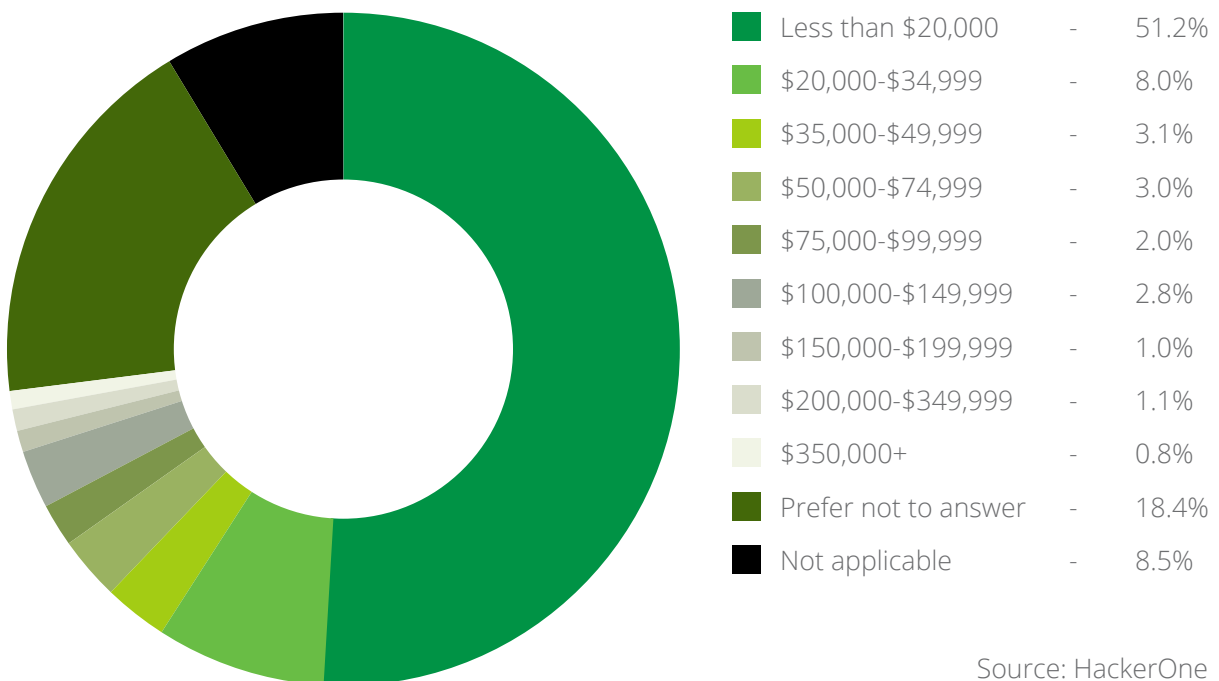| Category	Percentage
Less than 20 hours per week	59%
20-40 hours per week	17%
40-60 hours per week	15%
Over 60 hours per week	9%

They hack full-time

We are frequently asked, can hackers live off bounties full-time? Seventeen percent said they rely solely on bug bounty programs for their income, whereas 26% of hackers reported that 76-100% of their annual income comes exclusively from bug bounty programs.

Notably, 6% of survey respondents are making over six figures with bounties alone but the majority of hackers are earning less than $20,000 with bug bounty programs. Thirty-one percent of the hackers surveyed reported that less than 10% of their income comes from bug bounties.

Of the hackers surveyed, 27% preferred not to share their income earned from bounties.

Income from Hacking

Less than $20,000	-	51.2%
$20,000-$34,999	-	8.0%
$35,000-$49,999	-	3.1%
$50,000-$74,999	-	3.0%
$75,000-$99,999	-	2.0%
$100,000-$149,999	-	2.8%
$150,000-$199,999	-	1.0%
$200,000-$349,999	-	1.1%
$350,000+	-	0.8%
Prefer not to answer	-	18.4%
Not applicable	-	8.5%

Source: HackerOne

Methodology

The 2016 Bug Bounty Hacker Report was based on responses from the 2016 HackerOne Community Survey. The survey was fielded to all hackers on HackerOne who have successfully reported one valid vulnerability, as indicated by the organization that received the vulnerability report. The 2016 Bug Bounty Hacker Report is based on 617 responses.

Have questions for HackerOne about our hacker community or survey? Please email us at feedback@hackerone.com. You can also connect with HackerOne on Twitter at @Hacker0x01, and on Facebook at facebook.com/HackerOne.

About HackerOne

HackerOne is the world's most popular bug bounty platform, connecting organizations with the world's largest community of highly-qualified security researchers. More than 600 organizations, including The U.S. Department of Defense, General Motors, Uber, Twitter, Yahoo!, GitHub, Panasonic Aviations, Kaspersky Lab, Dropbox and the CERT Coordination Center trust HackerOne to find critical software vulnerabilities before criminals can exploit them. HackerOne is headquartered in San Francisco with a development office in the Netherlands.

For more information, please visit https://hackerone.com. Want to connect with HackerOne? We would love to hear from you. You can reach us at feedback@hackerone.com