# AP Computer Science A@Beijing National Day School

## **KeePass Password Manager Tutorial**

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### **Task Overview**

• Setting up the KeePass password manager for Windows and Mac OS. Linux users should meet with me for assistance with this setup.

### Setting up the KeePass Password Manager

- A major component of this course is submitting programming assignments to Web-CAT, an external website for autograding. However, this website requires each student to be assigned username and password credentials.
- In past versions of this course, large numbers of students had inexplicably lost, misplaced or forgotten their login credentials. This meant that I had to query the database directly to retrieve their information, which was a time-consuming process.
- In order to alleviate this situation, I am requiring each student to use the KeePass Password Manager to access the Web-CAT grading website.

#### Installing the KeePass Password Manager: Windows Operating Systems

• Go to the KeePass website at: http://keepass.info and click on the Downloads link. I have indicated it below with my cursor.



• Click on the big green button corresponding to Professional Edition KeePass 2.36 Installer. I have indicated it below with my cursor.



• You will be directed to the SourceForge website, where you will be prompted to select a location to save the executable file. I have chosen to save it in my Downloads directory.

	s://sourceforge.net/projects/keepass/postdownload rks 2013 G Gmail 🙆 QQMail C EngradePro 🍙 W	
sourceforge	Browse Enterprise Bl	Blog Articles Deals Help Create Log
SOLUTION CENTERS Resources N	ewsletters Cloud Storage Providers Business VoIP Prov	viders Internet Speed Test Call Center Providers
hank you for downloading K	EEPass KEEP ME UPDATE	ED Get latest updates about
🔒 Share f 🐨 🞗+ ir		ou are agree
	Save File	× CS, WS.
Name: KeePass-2.36-Setu	p.exe	ws.
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Desktop	Name	✓ Size Modified
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Downloads	Canopy	14 Jul 2016
Music	. 🔲 Desktop	24 Jul
	Documents	21 Jul
Pictures	🗊 Downloads	10 Aug
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Videos	eclipse	21 Jul 2016 18 Jul 2016 14 Jul 2016
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- Double-click on the KeePass-2.36-Setup.exe file to begin the installation process. I will be using a Windows 10 operating system to demonstrate this.
- The first window that appears is the Select Setup Language window. Confirm that the English option is selected, then click on the OK button.

Select Setup Language							
17	Select the language to use during the installation:						
	English	$\sim$					
	OK Cancel						

• The next window that appears is the Licence Agreement. Select the radio button corresponding to I accept the agreement and click on the Next button.

🔂 Setup - KeePass Password Safe —	×
License Agreement Please read the following important information before continuing.	R.
Please read the following License Agreement. You must accept the terms of the agreement before continuing with the installation.	s
KeePass: Copyright (C) 2003-2017 Dominik Reichl <dominik.reichl@t- online.de&gt;.</dominik.reichl@t- 	^
The software is distributed under the terms of the GNU General Public License version 2 or later.	
For acknowledgements and licenses of components/resources/etc., see the file 'KeePass.chm'.	e
GNU GENERAL PUBLIC LICENSE Version 2, June 1991	~
I accept the agreement	
◯ I do not accept the agreement	
Next >	Cancel

• The following window is the Select Destination Location, which specifies where the KeePass program should be stored. The default location is fine. Click on the Next button.

🛃 Setup - KeePass Password Safe	_		×
Select Destination Location Where should KeePass Password Safe be installed?			<b>R</b>
Setup will install KeePass Password Safe into the follo	owing fold	ler.	
To continue, click Next. If you would like to select a different f	older, cli	ck Browse.	
C:\Program Files (x86)\KeePass Password Safe 2		Browse	
At least 4.7 MB of free disk space is required.			
< Back	Next >	C	ancel

• The next one is the Select Components window, which gives users a choice as to the specific components to be installed. The default options are fine. Click on the Next button.

Which components should be installed? Select the components you want to install; clear the components install. Click Next when you are ready to continue.	nents you do not want t
Full installation	×
Core KeePass Application Files	3.6 M
Help Manual	0.7 M
✓ Native Support Library (KeePass 1.x)	1.3 M
XSL Stylesheets for KDBX XML Files	0.1 M
Optimize KeePass Performance	1.0 M
✓ Optimize KeePass On-Demand Start-Up Performance	0.1 M
Current selection requires at least 7.7 MB of disk space.	

• After that, comes the Select Additional Tasks window. I have clicked on the option corresponding to Create a desktop shortcut. Click on the Next button.

🛃 Setup - KeePass Password Safe 🛛 🚽		×
Select Additional Tasks Which additional tasks should be performed?		R.
Select the additional tasks you would like Setup to perform while inst Password Safe, then click Next.	alling KeePa	ISS
Associate KeePass with the .kdbx file extension		
Additional shortcuts:		
✓ Create a desktop shortcut		
Create a Quick Launch shortcut		
< Back Next >	(	Cancel

• Then, we have the Ready to Install window. At this point, everything should be configured properly. Click on the Install button.

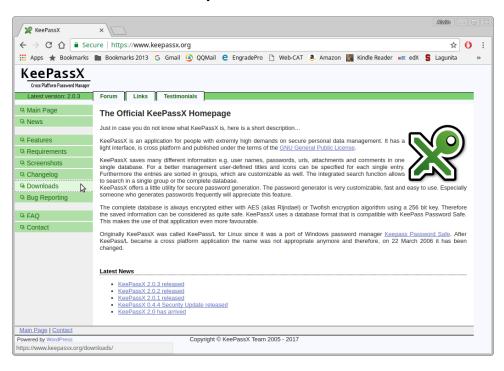
101		
🔂 Setup - KeePass Password Safe —		×
Ready to Install Setup is now ready to begin installing KeePass Password Safe on your computer.		R
Click Install to continue with the installation, or click Back if you want to change any settings.	review or	
Destination location:		^
C:\Program Files (x86)\KeePass Password Safe 2		
Setup type:		
Full installation		
Selected components:		
Core KeePass Application Files		
Help Manual		
Native Support Library (KeePass 1.x) XSL Stylesheets for KDBX XML Files		
Optimize KeePass Performance		
Optimize KeePass On-Demand Start-Up Performance		×
<	>	
< Back Install		ancel
		ancer

• If everything has proceeded correctly, you should see the following completion window. Click on the Finish button.



### Installing the KeePassX Password Manager: Mac Operating Systems

- For Mac users, there is a variant called KeePassX which has virtually all the same functionality as KeePass.
- Go to the KeePassX website at: https://www.keepassx.org and click on the Downloads link. I have indicated it below with my cursor.



• Then, under the **Mac OS X** heading, click on the link **Binary bundle v2.0.3**. This will allow you to download the installation file. Unfortunately, I cannot give any more detail about the installation process, because I don't have an Apple computer.

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Apps ★ Bookmar	ks 🖿 Bookmarks 2013 💪 Gmail 🙆 QQMail 🧲 EngradePro 🗋 Web-CAT 遵 Amazon 🦹 Kindle Reader 🐟 edX 💲 Lagunita 👘 »					
KeePassX Cross Platform Password Mana						
Latest version: 2.0.3	Forum Links Testimonials					
🖳 Main Page	Downloads					
News	Source code					
Eeatures	Source code tarball v2.0.3					
Requirements	Mac OS X					
Screenshots	Binary bundle for MacOS X >= 10.7					
🖳 Changelog	Binary bundle v2.0.3					
Downloads	Windows					
Bug Reporting	Binary bundle for Windows >= Vista (requires security update <u>MS09-015</u> on Vista)					
I FAQ	Verify downloads					
Contact	GPG signatures					
	All downloads and Git tags are signed with the key 164C70512F7929476764AB56FE22C6FD83135D45					
	Git development repository					
	GitHub: https://github.com/keepassx/keepassx					
	Version 0.4					
	Downloads of the 0.4 series					
	Release archive					
	Downloads of old release					

### Configuring KeePass to Work with the Web-CAT Autograding Website

• Double-click on your desktop icon, or select the KeePass application from your Start menu to launch the program. You should see the following window appear.

KeePass					- 🗆	×
File Edit View Too						
🛃 🧀 🔚 🔍 - 🛛 🤱 🛍	<u> </u>		*			
	Title	User Name	Password	URL	Notes	
0 of 0 selected	Ready.					

- The first step is to create a password database file. It is encrypted with one of the most secure algorithms currently known. Even if an adversary were somehow able to obtain a copy of your password database file, they would be unable to discover its contents.
- Click on the File menu, then select New...

Вк	eePass							- 🗆 X
File	Edit View	Tools	Help					
	New	Ctrl+N		≜ Q (¶-		Ŧ		
	Open		-		User Name	Password	URL	Notes
	Open Recent		<b>→</b>					
8	Close	Ctrl+W						
	Save	Ctrl+S						
	Save As		->-					
8	Database Settin	gs						
	Change Master I							
	Print	Ctrl+P						
2	Import							
<u></u>	Export							
	Synchronize		→					
	Lock Workspace	Ctrl+L						
٢	Exit	Ctrl+Q						
) of 0	selected	Ready	/.					

• The Create New Password Database window appears. I have chosen to save my password database file in a directory named vault, which is a sub-directory of Documents. Generally, I keep all of my credential files in this vault folder, so I don't lose track of them. I have decided to name my file alwinTareenCredentials18Aug2017, and you are free to choose a similar naming scheme. Once you have finished, click on the Save button.

Create New Passwo	ord Database			×
← → <b>、</b> ↑ 📕	« Documents > vault	~ Ū	Search vault	Q
Organize 🔹 Nev	w folder		a a a	• ?
🛆 OneDrive	^ Name		Date modified	Туре
🍤 This PC		No items match yo	our search.	
📙 Desktop				
Documents				
🐌 Downloads				
🐌 Music				
🔚 Pictures				
📕 Videos				
🐛 Local Disk (C:)	)			
🖄 Network	~ <			>
File name:	alwin Tareen Credentials 18 Aug 2017	7		$\sim$
Save as type:	KeePass KDBX Files (*.kdbx)			$\sim$
<ul> <li>Hide Folders</li> </ul>			Save Ca	ancel

- Then, the Create Composite Master Key window appears. Here, you are expected to create a Master password that unlocks this database file.
- Take care to select a password which is strong, and spend some time memorizing it. **Do not lose this password!** If you are afraid you might forget it, then write it down somewhere safe, or take a photo of the password with your phone. If you lose this password, then there's no corrective action I can take, you simply won't be able to open your database file.
- Type your password into the Master password text box, then type it in again into the Repeat password text box. Leave the Key file/provider and Windows user account options unchecked. Then, click on the OK button.

Create Composite Master	Create Composite Master Key					
C:\Users\Muzaffar Tareen\Documents\vault\alwinTareenCredentials18Aug2017.kdbx						
Specify the composite master key, which will be used to encrypt the database. A composite master key consists of one or more of the following key sources. All sources you specify will be required to open the database. If you lose one source, you will not be able to open the database.						
Master password:		•••				
Repeat password:						
Estimated quality:	0 bits	0 ch.				
Key file / provider:	(None)	$\sim$				
	Create	🕞 Browse				
Create a new key file or bro is also listed in this combo	wse your disks for an existing one. If you have installed a key box.	provider plugin, it				
Windows user account						
This source uses data of th password changes.	e current Windows user. This data does not change when the	Windows account				
If the Windows account is lost, it will not be enough to create a new account with the same user name and password. A complete backup of the user account is required. Creating and restoring such a backup is not a simple task. If you don't know how to do this, don't enable this option.						
Help OK Cancel						

• Then, the Database Settings window appears. This is where you can customize some of the various settings. The default settings are fine. However, I have typed in a name for my database, as well as a description. Once you have finished, click on the OK button.

Create New Password Database - Step 2	×
Database Settings Here you can configure various database settings.	
General Security Compression Recycle Bin Advanced	
Database name: Al's Security Credentials	
Database description:	
This gives me a safe place to put my Web-CAT credentials, so I don't lose them.	~
	~
Default user name for new entries:	
Custom database color:	
Help	Cancel

• Now, your password database file should be set up similar to the following window.

alwinTareenCredentials18Au	alwinTareenCredentials18Aug2017.kdbx - KeePass						×
	Help						
🗄 🛃 🖂   🖑 🗝   🤱 🕅 🞯 🕣	🛍 📥   🔍 🛠 -   🛽	🔒   Search	-				
alwinTareenCredentials184	Title	User Name	Password	URL	Notes		
General	🔑 Sample Entry	User Name	******	http://keepass	Notes		
Windows Network	Sample Entr	Michael321	******	http://keepass			
Internet							
i eMail							
🥦 Homebanking							
< >							
0 of 2 selected Ready	:						:

• Next, we need to configure KeePass to activate with a specific keystroke combination. Go to the Tools menu and select Options...

alwinTareenCrede	ntials	18Aug2017.kdbx - KeePass				-	_	×
File Edit View	Too	ls Help Generate Password						
alwinTareenCredentia	8	Generate Password List		me	Password	URL	Notes	
Windows	×,	TAN Wizard Database Tools	•	me 321	********	http://keepass http://keepass	Notes	
🐼 Internet 📚 eMail	3 8	Triggers Plugins						
% Homebanking	0	Options						
<	>							
0 of 2 selected	F	Ready.						.::

• You should see the Options window appear. Most of these options can be ignored. However, there is a particular set of options that we need to focus on. Click on the Integration tab.

Options	×
Options Here you can configure the global KeePass program options.	1.00
🎏 Security 📰 Policy 📄 Interface 🛂 Integration 隊 Advanced	
Lock workspace after KeePass inactivity (seconds):	
Lock workspace after global user inactivity (seconds):	
Clipboard auto-clear time (seconds):	
By default, new entries expire in the following number of days:	
Options         Lock workspace when minimizing main window to taskbar         Lock workspace when minimizing main window to tray         Lock workspace when locking the computer or switching the user         Lock workspace when the computer is about to be suspended         Lock workspace when the remote control mode changes         Exit instead of locking the workspace after the specified time         Always exit instead of locking the workspace         Clear clipboard when closing KeePass         Use 'Clipboard Viewer Ignore' clipboard format (not recommended)	~
	OK Cancel

• Now, we are in the Integration tab. Our task is to indicate a specific keystroke combination that will automatically fill in the login and password fields for a website.

Options	×
Options Here you can configure the global KeePass program options.	
🖼 Security 📃 Policy 📄 Interface 🔯 Integration 🔯 Advanced	
System-wide hot keys     Global auto-type:     Ctrl, Alt + A     Auto-type selected entry:     None       Show KeePass window:     Ctrl, Alt + K	
KDBX file association KDBX files can be associated with KeePass. When you double-click a KDBX file in Windows Explorer, they will automatically be opened by KeePass. Create Association	
Run KeePass at Windows startup (current user)	
URL Overrides	]
OK Cancel	

• There is a text box labelled Global auto-type, and we need to indicate a keystroke combination that will perform this action. Place your cursor inside this text box, and perform the keystroke combination Ctrl + S. You should see this keystroke combination appear in the text box. Then, click on the OK button.

Options	$\times$
Options Here you can configure the global KeePass program options.	
🚰 Security 📰 Policy 🔝 Interface 🖾 Integration 隊 Advanced	
System-wide hot keys	
Global auto-type: Ctrl + S Auto-type selected entry: None	
Show KeePass window: Ctrl, Alt + K	
KDBX file association KDBX files can be associated with KeePass. When you double-click a KDBX file in Windows Explorer, they will automatically be opened by KeePass. Create Association	
Run KeePass at Windows startup (current user)	
URL Overrides	
OK Cancel	

• Now, we need to place our username and password credentials inside KeePass. Notice that there are several sub-folders in the left hand panel that help you to organize your credentials. Click on the folder marked Internet.

(alwinTareenCredential		- [	×			
File Edit View To						
i 🛃 🐸 🖬 < 🐇 🦷	<u> </u>	Search	-			
<ul> <li>alwinTareenCredenti</li> <li>General</li> <li>Windows</li> <li>Network</li> <li>Internet</li> <li>eMail</li> <li>Homebanking</li> </ul>	Title	User Name	Password	URL	Notes	
0 of 0 selected	Ready.					:

• Then, click on the Edit menu and select Add Entry...

🔒 alv	alwinTareenCredentials18Aug2017.kdbx - KeePass							_		×
File	Edit	View Tools Add Group	Help	<del>6</del> -	Search	•				
~	22 22	Edit Group Delete Group	Del		User Name	Password	URL	Note	5	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	R. R. R. R.	Add Entry Edit/View Entry Duplicate Entry Delete Entry Select All Show Entries	Ctrl+I Return Ctrl+K Del Ctrl+A	-						
<	2	Show Entries by T. Find	Ctrl+F							
0 of 0 s	electe	ed Read	iy.							.::

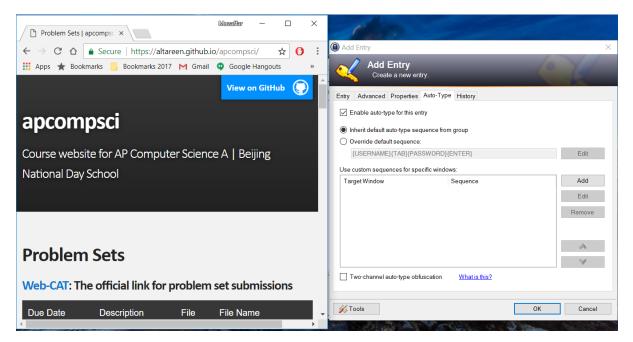
• You should see the Add Entry window appear. In the Title text box, type the word Web-CAT. Then, you must enter your username and password credentials. These have been sent to you through the EngradePro messaging system, and you must copy them into these text boxes. The credentials I have placed in there are just for demonstration, they are not my actual ones.

Add Entry			Х
	<b>d Entry</b> eate a new entry.		
Entry Advance	d Properties Auto-Type History		
Title:	Web-CAT		Icon: 😒
User name:	alwin		
Password:	t2&5#m		•••
Repeat			<b>\$</b>
Quality:	36 bits		6 ch.
URL:			
Notes:			
Expires:	8/20/2017 12:00:00 AM		
🚿 Tools		ОК	Cancel

• Next, click on the Auto-Type tab. This is where we will link your username and password credentials to the specific website where they are supposed to be entered.

Add Entry			Х
Add Entry Create a new entry.	_	<u>(</u> °	J.
Entry Advanced Properties Auto-Type Enable auto-type for this entry Inherit default auto-type sequence fro Override default sequence:			
{USERNAME}{TAB}{PASSWORD}	{ENTER}		Edit
Use custom sequences for specific windo	ows:		
Target Window	Sequence		Add
			Edit
			Remove
			A
			V
Two-channel auto-type obfuscation	What is this?		
🗩 Tools		ОК	Cancel

• Open up a web browser, and go to the course website, located at the following URL: https://altareen.github.io/aslevelcompsci Then, click on the Web-CAT link located under the **Problem Sets** heading.



• Now, I am at my Web-CAT website. Go back to the Add Entry... window, and click on the Add button.

Dugin ×	100
$\leftrightarrow$ $\rightarrow$ $\mathbb{C}$ $\bigtriangleup$ $\bigcirc$ Not secure   ec2-54-65-207-33.ap-northeas $\heartsuit$ $\bigstar$ $\bigcirc$ :	Add Entry X
🗰 Apps ★ Bookmarks 🧧 Bookmarks 2017 M Gmail 💿 Google Hangouts 🔹	Add Entry Create a new entry.
Web-CAT Automatic Grading Using Student-written Tests	Entry Advanced Properties Auto-Type History
Destination     Destinati	
	Two-channel auto-type obfuscation What is this?

• The Edit Auto-Type Item window appears. There is a drop-down list corresponding to Target window. Click on this drop-down list, and select the option Login - Google Chrome. *Note:* If you are using another browser, it might show up as Login - Internet Explorer or Login - Safari. Then, click on the OK button.

Edit Auto-Type Item	×
Configure Auto-Type Item Associate a window title with a keystroke sequence.	
Target window: Login - Google Chrome Skype Saved Pictures Snipping Tool Program Manager Use custom keystroke sequence:	V
{USERNAME} {TAB} {PASSWORD} {ENTER} Insert placeholder: Standard Fields:	
Standard Fields: {Title} {UserName} {Password} {URL} {Notes} Key Modifiers: Shift +, Ctrl: ^, Alt % Special Keys: {TAB} {ENTER} {UP} {DOWN} {LEFT} {RIGHT} {HOME} {END} {PGDP} {PGDN} {INSERT} {DELETE} {SPACE}	~
Help OK Can	cel

• The Add Entry window should look like the following screenshot. Essentially, we have connected your username and password credentials with the title of the Web-CAT webpage. This is how KeePass knows to place the correct credentials into Web-CAT. Click on the OK button.

1
Edit
Add Edit Remove
Cancel

• Next, you must save your changes. Go to the File menu and select Save.

🔒 al	alwinTareenCredentials18Aug2017.kdbx* - KeePass     -       -									×
File	Edit View	Tools H	lelp							
1	New	Ctrl+N		🏥   🔍 🌾 -	🔒   Search	-				
1	Open		•		User Name	Password	URL	Note	s	
	Open Recent		•	CAT	alwin	*****				
8	Close	Ctrl+W								
	Save	Ctrl+S								
	Save As		•							
~	Database Setting	JS								
	Change Master k	ley								
	Print	Ctrl+P								
.2	Import									
٤.	Export									
	Synchronize		•							
	Lock Workspace	Ctrl+L								
0	Exit	Ctrl+Q								
<		>		,						
Group: Internet, Title: Web-CAT, User Name: alwin, Password: ********, Creation Time: 8/20/2017 2:35:04 PM, Last Modification Time: 8/20/2017 3:04:18 PM										
1 of 1	selected	Ready								.::

• At this point, everything is set up properly, and you should be ready to execute the keystroke combination. Note that it only works when the KeePass application is open. Go to the Web-CAT website and place your cursor inside the text box corresponding to User Name. Then, perform the keystroke combination Ctrl + S.

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Muzzillar — 🗆 :2-54-65-207-33.ap-northeas Q 🏠 (	×	1	2					
	cs 2017 M Gmail 💿 Google Hangouts	>>	ug2017.kdbx - Ke	ePass			- 🗆 X		
Web-CAT	Automatic Grading Using Student-written	Tests	Help - 🐑 🏰 🔍 🌾 -	· 🔒   Search	•				
			e	User Name	Password	URL	Notes		
	CHREARD		Web-CAT	alwin	******				
CONTRACTOR IN CONTRACTOR	gin to the Web Center for Automated Terting (Web-CAT):								
	User Name:  Fassword:  Login Forget your password?								
		Objects	T, User Name: alwin, Password: ******, Creation Time: 8/20/2017 2:35:04 PM, Last 3:04:18 PM						
Web-CAT IS © 2006-2017 Virginia Tech   v1.5.0,2.6.13.20141011	Administratori altareeng	gmail.com			ale to a	all and			

• If you have configured KeePass correctly, then you should see your username and password being entered automatically, as well as the Enter key being pressed. You should then be inside your Web-CAT account. If you weren't able to achieve this, then something must have went wrong during the setup process, and you should see me for further assistance.