Photo App

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Executive Summary

- Project Introduction
  - Sponsor information and needs
- Overview of the Project
  - Breakdown of the project by sprint
  - Challenges and Successes
- Application Demonstration
- Impact of Completed Application
- Reflection
  - Project Strengths and Weaknesses
  - Sponsor Feedback
  - Overall Retrospective with Lessons Learned
Project Introduction

- Sponsors: Paul Myers and the Collaboratory
  - Maintain photos of students from events
- Harder to manage as more photos added
- Number of photos creates certain needs:
  - Organization of photos
  - Tagging photos
    - Exif Data - writing data to the image vs Cumulus
  - Searching for specific photos
- Project focuses on solving this need
Project Introduction

- Specifications for the project
  - Identify each picture with criteria (selectable and user-defined)
  - Low cost, stand alone for single person use
  - Standard off-the-shelf tools if possible
  - Network shared system possibly in the future
    - Professors having access across campus
  - Possible smart phone application in the future
Project Overview

● Beginning
  ○ Initial idea - Build application from Scratch
  ○ Just in case, we looked for premade solution
  ○ After research we found an Open Source solution
    ■ Digikam

● Digikam
  ○ Open Source
  ○ Lots of features
  ○ Had the functionality we need
Project Overview - Sprint 01

- **Successes**
  - Install Digikam on Linux
  - Explore/Inspect Digikam for needed features or changes
  - Compiled successfully on Linux

- **Problems**
  - Failed to compile on Windows
    - Bad Documentation
Project Overview - Sprint 02

● **Successes**
  ○ Move from Project Peer to ScrumWorks
  ○ Set up SVN
  ○ Used Qt Creator IDE
  ○ Changed Export/Import Menu
    ■ Created Submenus

● **Problems**
  ○ Compiling on Windows
Project Overview - Sprint 03

● Successes
  ○ Compiled on Windows
    ■ Moved to v2.6.0-beta2
  ○ Finished Reorganization of Menubar and Main Toolbar
    ■ Browse, Album, Settings, Help, Tools, Image
    ■ Toolbar
      ● Changed Slideshow button
      ● Removed unnecessary items

● Problems
  ○ Compiling v2.5.0
  ○ Menubar rc file issues
Project Overview - Sprint 04

- **Successes**
  - Ran pre-compiled binary on Mac
    - Used Macports
    - v2.6.0-beta2
  - Implemented previous changes to Windows
  - Add Collection placed in context menu
  - Added Tag search in left sidebar
  - Added Search item in toolbar

- **Problems**
  - Compiling on Mac
  - Remove Collection not in context menu
Project Overview - Sprint 05

● **Successes**
  ○ Compiled on Mac
  ○ Moved changes from v2.6.0-beta2 to v2.6.0-beta3
  ○ Hid items in the left/right sidebars
  ○ Began researching installers
    ■ Windows
    ■ Mac

● **Problems**
  ○ Ever present titles on tabs
  ○ Tabs on top
    ■ Eventually Scrapped
Project Overview - Sprint 06

- **Successes**
  - Finished documentation
  - Windows Installer

- **Problems**
  - Mac Installer
    - Failed to Run on other Macs
Major Issues

- Lack of documentation
- Compiling issues
  - Dependencies
  - Outdated versions (beta)
- Lack of knowledge
  - Programming Language (C++)
  - Development Environment (Qt Creator)
- All three major operating systems
- When hiding items, making sure it did not break program
Lessons Learned

- Research for an existing solution before starting from scratch
- Important to develop for the operating system that the client will use (Windows)
  - Not just what is easiest (Linux)
- Focusing on what client needs
Comparison - Sidebar

Before

After
Comparison - Sidebar

Before

File Properties

File: BF2012_0107_1248h_AB_v1....
Folder: C:/Users/Brian2/Pictures/digik...
Date: 04/26/12 09:50:21 AM
Size: 1.2 MiB (1,299,659)
Owner: -
Permissions: -rw-rw-rw-

Image Properties

Type: JPEG
Dimensions: 2,272x1,704 (3.87Mpx)
Bit depth: 8 bpp
Color mode: YCbCr

After

File Properties

File: BF2012_0107_1248h_AB_v1....
Folder: C:/Users/Brian2/Pictures/digik...
Date: 04/26/12 09:50:21 AM
Size: 1.2 MiB (1,299,659)
Owner: -
Permissions: -rw-rw-rw-

Image Properties

Type: JPEG
Dimensions: 2,272x1,704 (3.87Mpx)
Bit depth: 8 bpp
Color mode: YCbCr

Photograph Properties

Make: FUJIFILM
Model: FinePix S5100
Created: 01/01/04 12:00:04 AM
Comparison - Menus

Before

After

Export
Settings
Help

Export to SmugMug... Alt+Shift+S
Export to Yandex.Fotki... Alt+Shift+Y
Export to remote computer... Alt+Shift+K
Export to Gallery... Alt+Shift+G
Export to Debian Screenshots... Alt+Shift+D
Export to VKontakte... Alt+Shift+P
Export to PicasaWeb... Alt+Shift+P
Export to KML...
Export to Flash...
Export to Flickr...
Export to 23...
Export to Zoomr...
Export to Facebook...
Export to Rajce.net...
Export to Shwup...
Instant Messaging contact...
Email Images...
Export to Piwigo...
Export to HTML...
Alt+Shift+H

Web Exports
Other Exports

PicasaWeb Alt+Shift+P
Flickr Alt+Shift+R
Facebook Alt+Shift+F
Email Images

SmugMug Alt+Shift+S
Yandex.Fotki Alt+Shift+Y
Gallery Alt+Shift+G
VKontakte
Zoomr Alt+Shift+Z
Rajce.net Alt+Shift+J
Shwup Alt+Shift+W
Piwigo
Comparison - Menus

Before

After
Comparison - Before
Comparison - After
Application Demo

- Importing Pictures
- Tagging Pictures
- People Tagging
- Image Editing
- Image Searching
Application Impact

- Identify each picture with criteria (selectable and user-defined)
  - Tagging System
- Low cost, stand alone for single person use
  - Free - Open Source
  - Stand Alone
- Standard off-the-shelf tools if possible
  - digiKam
  - EXIF
  - KDE & Qt
Application Impact

- Network shared system possibly in the future
  - Can use shared drive
- Possible smart phone application in the future
  - No progress yet
Application Impact

- Searching and Tagging
- Persistent Data - EXIF
- Easier to use than file system
- Store pictures on Collab server
Project Strengths

● Modifying existing application
  ○ Working application ready to be used rather than a proof of concept
  ○ Focus on user interface and simplification rather than development of features

● Open Source -- Free to distribute

● ScrumWorks for Project Management
  ○ Well suited for SCRUM methodology
  ○ Tasks assigned in a sprint
  ○ Tracking hours remaining in tasks with burndown chart

● Communication and Teamwork
Project Weaknesses

- Modifying existing application
  - Lack of a familiarity with the project
    - Programming language
    - Tools
  - Development on all three operating systems
  - Inability to implement additional features
- Overlap in tasks due to help needed
  - Assistance frequent from unforeseen complications
  - Difficulty in knowing exactly what to do
Sponsor Assessment

- Positive feedback from Collab Members
- Paul Myers
Overall Retrospective - Lessons

● Project experience
  ○ Developing an existing application instead of creating from scratch
  ○ Differences in operating systems
  ○ Initial knowledge base
  ○ Connecting with the client

● Importance of project management tools
  ○ ScrumWorks with Google Docs to organize our efforts

● Collaboration and Humility
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About the Project

This version of Digikam is specially made for the Collaboratory at Messiah College by the Spring 2012 CIS 412 class. As the original digiKam project was originally meant for Linux, the Windows and Mac versions of Digikam can be unstable due to the underlying KDE libraries. Also, this version of Digikam is based off digiKam version 2.6.0-beta3 and can be unstable due to that. If you have any questions or comments please feel free to contact Dr. Weaver.

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Changes from Original

- Sidebars show tab titles all the time
- Hidden items from the right sidebar
  - Colors
  - Geo-data
  - Versioning
- Hidden items from the left sidebar
  - Timeline
  - Fuzz Search
  - Geo Search
- Changed items in toolbar
- Tag based search
- Created submenu in menubar and cleaned up menus
Installing (Windows)

1. Run the installer file and click "Next"

2. Choose to agree the License Agreement by clicking "I Agree"

3. Choose Install Location and click "Next"

4. Choose Start Menu Folder and click "Install"
5. When install is successful, click "Next"

6. Click "Finish" to complete setup
Initial Setup and First Time Launch

1. When you first run Digikam an initial setup screen will open, like so:

2. We recommend you select defaults for most screens but please continue on as there is one step that is very important you change the default setting.

3. The above image is where you select where you images are located and where you want to save the database Digikam uses to store information. You can stick with defaults or change if you have a more desirable location.
1. It is **VERY IMPORTANT** you select Add information to files on this screen. This tells Digikam to save information to the pictures EXIF instead of Digikam’s database.

2. The rest of the steps you may select defaults or if you are unsure there is a note usually at the bottom of each step explaining the choices.
Adding Collections

1. Right click on "My Albums"

2. Choose the collection of pictures you would like to add and click “OK”

3. A confirmation screen will appear, change the collection name (if you desire) and click “OK”

4. The collection should now be added

Alternative Adding Collection
1. In the menu bar, go to Settings -> Configure -> Configure digiKam

2. Under "Local Collections" click "Add Collection"

3. Continue with steps 2-4 from above
Removing Collections

1. In the menu bar, go to Settings -> Configure -> Configure digiKam

2. Under "Local Collections" click the red "X" beside the collection you would like to delete

3. When the confirmation box appears, click "Remove Collection"

4. The collection should be removed
Adding Albums

1. In the left sidebar, click on "Albums" and you will see "My Albums"
2. To add a new album, right-click on the collection (Ex. "Pictures") and click "New"
3. Add a title (and/or fill in the other information on this screen) and click "OK"
4. You will see the new album added below your collection
Removing Albums

1. Right click on the album you would like to delete and click "Delete Album"

2. Click "Move to Trash"

3. The album should be removed
Importing Pictures

(These instructions focus on Facebook. All other Imports have similar processes.)

1. Under the menu bar, click "Import" -> "Facebook"

2. It will take you to Facebook. Login using your Facebook username/password
   a. If it does not automatically take you to Facebook, click "Change Account" on the Export popup.

3. Copy what is in the address bar

4. Paste it into the popup window in digiKam
5. You should see your Account name has successfully connected

6. Choose Album to download and Destination to download them to and click "Start Download"

7. Click "Close" to view the newly imported pictures.
Exporting Pictures

(These instructions focus on Facebook. All other Exports have similar processes.)

1. Under the menu bar, click "Export" -> "Facebook"

2. It will take you to Facebook. Login using your Facebook username/password
   a. If it does not automatically take you to Facebook, click "Change Account" on the Export popup.

3. Copy what is in the address bar

4. Paste it into the popup window in digiKam
5. You should see your Account name has successfully connected

6. Click the green plus sign to select images to upload
7. They will be added to the list to upload. Select which album to upload them to or create a New Album

8. Click "Start Upload"
9. You can then check on Facebook that the images uploaded successfully.
People Tagging

1. Click on the “People” tab on the left sidebar
2. Next click on the “Scan collection for faces” button

3. A pop-up will appear, select the appropriate options for your situation

4. This will scan for faces and show all it finds in the middle window. You can name the people when you hover over a face.
5. If Digikam does not find people from your pictures you can manually add people.
6. With a picture selected click on the “Add a Face Tag” button

7. Then click and drag to draw a square around the person’s face.
8. You may then enter a name for that person.
**Note:** Digikam treats people as tags, so when you enter a name for a person using people, the person's name will also end up in your Tags.
Tagging

Add/Apply Tag
1. On the right sidebar there will be a tab labeled “Caption/Tags”, click on this to add a tag.
2. Then with the side window that opens, click on the Tags tab on the top.
3. You may then, if you have not yet already, enter a new tag where indicated.
4. The new tag and previously created tags will appear below “My Tags”.
5. Place a checkmark beside any tags that relate to the selected image.
6. Finally hit “Apply” at the bottom to set the tags.

Remove Tag
1. To remove a tag from a photo, select the photo.
2. As described in Add/Apply Tag, get to your tags in the right sidebar.
3. Underneath “My Tags”, currently applied tags will be check marked.
4. Remove the checkmark of the tag you wish to remove.
5. Hit apply when finished.
Searching

1. On the left sidebar there is a tab named search.
2. This is where you can type in keywords, filename, tags, etc. to find a specific or multiple pictures.
3. There is also an advanced search button underneath the search textbox that can be used if needed. It is basically a more detailed search with more specific search terms. Most of the time default search will be enough. **NOTE:** When you use Advanced search, your parameters will persist until you remove them from the Advanced search menu that appears when you click the button.

4. If you want to find pictures solely on tags or people/faces you can click on the designated left sidebar tabs to filter out photos based upon the tag or person you choose.
Image Editing

Image Editor

1. Select an image and on the "Image Editor" button in the toolbar

2. A new window will appear giving you different options.
Cropping

1. Select part of the image by clicking, dragging, and dropping on the image.
2. Click on "Select Tool" and find the "Crop to Selection" button.

3. Click that button and it will crop to what you selected.
4. Click "Save Changes" when finished cropping.
Rotating

1. Under "Select Tool", choose either "Rotate Left" or "Rotate Right"

2. This will rotate the image. Click "Save Changes" when finished rotating.
Red Eye Removal

1. Select the part of the image that has the red eyes by clicking, dragging, and dropping on the image.
2. Under "Select Tool", select "Red Eye"

3. The right sidebar will pop out showing options for red eye removal.
Other Image Editor Tasks

Under "Select Tool", there are many other tasks that you can do with your images. Some of them include:

1. Auto-Correction
2. Black White
3. Blur
4. Sharpen
5. Resize
6. Insert Text
Technical Details

Digikam can be compiled from source for Windows, Mac, and Linux. We have only made a Windows installer for Digikam during the course of our class. If you wish to compile Digikam from source you can use the guides below and get the source from Dr. Weaver. But do so at your own risk!
Compiling (Windows)

KDE Install
Download and run the KDE installer from http://windows.kde.org/download.php. Set the install directory to C:\KDE\. Then choose Package Manager mode and MinGW. Choose winkde.org as the mirror and the “stable latest” release.

Install Dependencies
Install the following dependencies from the KDE installer:
- automoc - bin
- kde-runtime - bin
- kde-workspace - bin
- kdelibs - bin/devel
- qt - bin/devel
- phonon - bin/devel
- soprano - bin/devel
- marble - bin/devel
- kate - bin
- kdeaddons - bin/devel
- kdewin - bin/devel
- oxygen-icons - bin/devel
- strigi - bin/devel
- qca - bin/devel
- exiv2 - bin/devel
- qjson - bin/devel
- opencv - bin/devel
- libkexiv2 - bin/devel
- libkdcreaw - bin/devel
- icms - bin/devel
- jpeg - bin/devel
- zlib - bin/devel
- libpng - bin/devel
- tiff - bin/devel
- boost-graph - bin/devel
- boost-headers - devel
- jasper - bin/devel
- libksane - bin/devel
- libkipi - bin/devel
- gettext - bin/devel
- win_iconv - bin

MinGW Install
Install MinGW from http://sourceforge.net/projects/mingw/files/Installer/mingw-get-inst/. Choose installer directory as C:\MinGW\. As for options, choose to install the C and C++
Compilers and the MinGW Developer ToolKit. Make a copy of C:\MinGW\bin\libintl-8.dll (to say your desktop).

**TDM-GCC Install**

Install TDM-GCC from [http://tdm-gcc.tdragon.net/](http://tdm-gcc.tdragon.net/). When choosing to install components, choose Components/gcc/openmp. When TDM-GCC is installed copy libintl-8.dll to C:\MinGW\. The reason for installing both MinGW and TDM-GCC is that TDM-GCC is a newer version of the gcc but the libintl-8.dll version with MinGW is needed to compile.

**Additional Configuration**

- Set PATH to contain C:\KDE\bin
- edit C:\ProgramData\KDE\share\apps\cmake\modules\KDELibsDependencies.cmake
- change O:\ to C:\KDE\bin
- edit C:\ProgramData\KDE\share\apps\cmake\modules\KDELibs4LibraryTargets-release.cmake
  - change O:\ to C:\KDE\bin
- copy C:\KDE\plugins\sqldrivers\ to the digikam bin dir
  - See here for more details: [https://bugs.kde.org/show_bug.cgi?id=281334](https://bugs.kde.org/show_bug.cgi?id=281334)

**Compiling**

From the source directory:

- run bootstrap.mingw.bat
- run mingw32-make
  - use “mingw32-make install” to install digikam
Compiling (Mac)

Base Setup
1. Download and install Xcode 3.1 for Leopard (needed for Mac Ports)
2. Download and install Mac Ports installer for Leopard
   b. https://distfiles.macports.org/MacPorts/MacPorts-2.0.4-10.5-Leopard.dmg
3. In a terminal, type “sudo port install digikam”
   a. will take a long time due to downloading and installing the many dependencies
4. The original Digikam is now compiled and ready to be used

Compiling
1. Use port to install the package gcc47
   a. sudo port install gcc47
2. From the digikam source directory
   a. run bootstrap.macports
   b. run make
      i. run “make install” to install Digikam
Compiling (Linux)

Using Qt-Creator (Commands are for Debian based systems)
1. Install Qt-Creator with the command “sudo apt-get install qtcreator”
2. Install Digikam dependencies with the command “sudo apt-get build-dep digikam”
3. From in Qt-Creator goto File > Open File or Project...
4. Choose the CMakeLists.txt from within the Digikam source directory
5. Qt-Creator will next ask for a build directory, choose a directory outside the Digikam source directory
6. Qt-Creator next asks for cmake arguments, use the following:
   a. `-DCMAKE_BUILD_TYPE=relwithdeboinfo`
      `-DCMAKE_INSTALL_PREFIX=`kde4-config --prefix`
      `-DDIGIKAMSC_USE_PRIVATE_KDEGRAPHICS:BOOL=1`
7. Click “Run CMake” then click Finish
8. You can now compile and run Digikam using the large green arrow on the left hand side of Qt-Creator

Using Command Line
1. Install Digikam dependencies with the command “sudo apt-get build-dep digikam”
2. From the Digikam source directory run the following commands
   a. `mkdir build`
   b. `cd build`
      a. `cmake -DCMAKE_BUILD_TYPE=relwithdeboinfo`
         `-DCMAKE_INSTALL_PREFIX=`kde4-config --prefix`
         `-DDIGIKAMSC_USE_PRIVATE_KDEGRAPHICS:BOOL=1`
      a. `make`
      b. `sudo make install`