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# Information Systems in the Community

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## Phase Report 1

A-Team

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# *Executive Summary*

## **Introduction**

The Western Pennsylvania Diversity Initiative (WPDI) is a new organization comprised of business professionals seeking to encourage diversity within Pittsburgh and the surrounding areas. Each day the Pittsburgh area is becoming older and more homogeneous. These factors do not show signs of a thriving city. The WPDI hopes to alleviate these issues by revitalizing the Pittsburgh image and informing a diverse audience about the many opportunities that Pittsburgh has to offer.

To facilitate the needs of the WPDI, a well-developed web presence is necessary to reach various individuals of diverse backgrounds. A web presence will allow relevant information to be circulated to perspective employees and Human Resource representatives. In addition, a WPDI website will act as a great marketing tool that can help improve their productivity and promote diversity through WPDI's sponsored events, such as the DiverseCITY Pittsburgh Festival.

## **Project Scope & Feasibility**

To design the web presence, the team has developed several project scopes. The original scope included "A", "B", and "C" priority level use cases and four actors. These actors include: the general users, HR representatives, the Website Administrators, and a job search database. The Feasibility analysis determined that approximately 85 hours per team member, per week would be required to accomplish all "A", "B", and "C" priority level use cases. This proves to be an unrealistic goal. The second project scope factors in only "A" and "B" priority level use cases. The feasibility analysis determined that the second project scope required approximately 60 hours per team member, per week. The best case scenario includes all "A" priority level use cases and one "B" priority level use case. The finalized feasibility analysis determines that approximately 50 hours per team member, per week would be required. The feasibility analysis also determined that the best case scenario does not include any technological barriers because the team has access to everything it needs. Since this scope only requires 50 hours per team member, per week, it is highly feasible. The included use cases are:

- Add Advanced User
- Add Best Practice Documents
- Add Corporate Information
- Add Events
- Contact WPDI
- Comment on Blog Post
- Deactivate Event
- Edit Advanced Users
- Remove Advanced Users
- Remove Best Practices Documents
- Remove Corporate Information
- Search Pittsburgh Jobs
- View City Information
- View Corporate Information
- View Diverse Communities
- View Events

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Edit Best Practices Documents</li> <li>• Edit Corporate Information</li> <li>• Edit events</li> <li>• Log in Administrator</li> <li>• Log out Administrator</li> <li>• Log in HR Representatives</li> <li>• Log out HR Representatives</li> </ul> | <ul style="list-style-type: none"> <li>• View Team Information</li> <li>• View WPDI Information</li> <li>• View Best Practices Documents</li> <li>• View Blog post</li> <li>• Write Blog post</li> <li>• Trivia Game (“B” priority level)</li> </ul> |
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## Project Management

To date, there has been as many as 114 hours devoted to reaching the completion of this project. The majority of this time has been spent in the requirement analysis and risk assessment phases.

- Risk Assessment
  - Hardware Stability: Because we are working with an external server, we do not have control over its availability.
  - Unfamiliarity to Programming Languages: We are still building our knowledge of the programming languages.
  - Overcoming obstacles in a timely manner: Knowing when to seek other resources will help in alleviating this problem.

An extensive list of the risk analysis can be found within Phase I. To structure the remainder of the project, a project plan has been developed to guide the production of Phase II.

## Conclusion

The team is confident about moving forward with the project. Each team member has stated their areas of specialty and is consistent in working towards the completion of the tasks required. The team is committed to completing a web presence which fulfills the needs of the Western Pennsylvanian Diversity Initiative.

# *Project Proposal, Overview Statement, Project Feasibility*

## **Overview of Client and Client Needs**

The Western Pennsylvania Diversity Initiative (WPDI) is a non-profit membership organization dedicated to facilitating diversity by providing educational, networking, and other resources for employers and employees. The WPDI is a recently founded group comprised of professionals from the Greater Pittsburgh area that are committed to bringing more diversity to Western Pennsylvania. Currently, the city of Pittsburgh has managed to receive a somewhat bad reputation regarding its diversity and living conditions. Many individuals still share the impression that Pittsburgh is a dirty and bland steel mill city, which is not family friendly. The WPDI makes it their goal to disprove these preconceived notions regarding the misrepresented city and show what Pittsburgh really has to offer. WPDI seeks to stimulate regional economic growth by providing resources to employers in the Pittsburgh region to attract, hire, and retain employees from a variety of diverse backgrounds and perspectives.

## **Vision Statement for Proposed Solution**

The team's focus is on developing a dynamic website that will serve WPDI's objectives. The objectives include providing references to businesses, including best practices, post current events and provide a means for businesses to connect with one another in searching for prospective employees. This website will also help the WPDI inform prospective residents about living in Pittsburgh, communicate the importance of diversity to their region, and connect with individuals who truly value diversity. The fact that WPDI does not have a web presence creates an informational barrier, which limits the organization's effectiveness. The addition of a website will serve as a tool which will enable them to meet their objectives and to increase productivity.

The stakeholders involved with this project include the WPDI and their corporate friends, HR professionals, people interested in living in the Western Pennsylvania region, and the Pittsburgh community. The WPDI will be able to provide information about the organization itself, their contact information, and press release information. The user will be able to view information on upcoming events, diverse communities in Pittsburgh, various destination points, and facts about Pittsburgh. The HR professional will have a means of connecting with other corporations to attract prospective employees, share ideas, and list their best practices. The website will be useful to all stakeholders due to the fact that this website will increase awareness and attract people from diverse backgrounds to Pittsburgh.

To get a better understanding of our client's expectations, we scheduled two appointments with the members of the WPDI. The first appointment was the initial interview. Our team and the members of the WPDI were introduced while having one-on-one conversations during lunch at the PNC Park. Afterwards, the WPDI and the project team broke into three groups to

share ideas with the client and get a better understanding of their needs. Our second appointment was in the form of a follow-up meeting. Our team gave a presentation describing web layouts and the client's requests. This meeting was aimed at creating harmony between the client's expectations and the team's understanding of what is required. More information regarding the interviews can be found in Appendix A.

## Use Cases

**Use Case:** is a task that describes the behavior of a system.

**Actor:** is a defined role for those accessing the web site. The actors can be either simple or complex. For instance, a simple actor is the job search database and complex actors are Administrator, HR Professional, and General User.

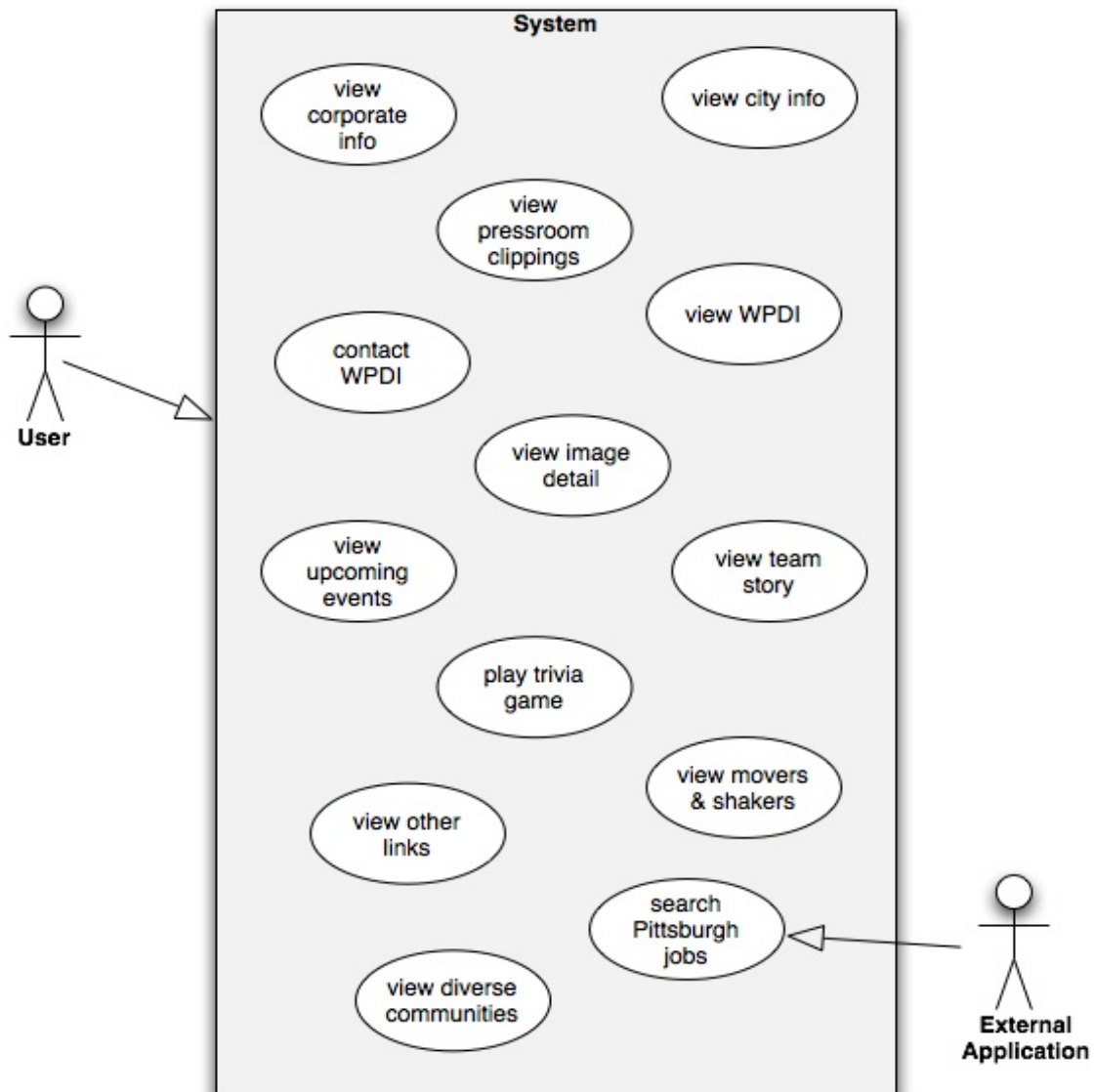
**Administrator:** The administrator's role has the most privileges. They can access, add, update, and delete any section of the web site. The main goal of the administrator is maintain the site and make sure everything is up to date.

**HR (Human Resources) Professional:** is a user that has advanced privileges. They have the advantage of adding, editing, and deleting, not all, but specific functions on the web site. They also have the option of logging in and out so that they can access their own personal page.

**General User:** is considered to be any person that accesses the website. They can view a lot of the web site features without the option to change them.

**Complexity:** is a rating of how difficult it will be to implement the specific feature of the web site. The rating for this is simple, average, or complex.

## General User Diagram



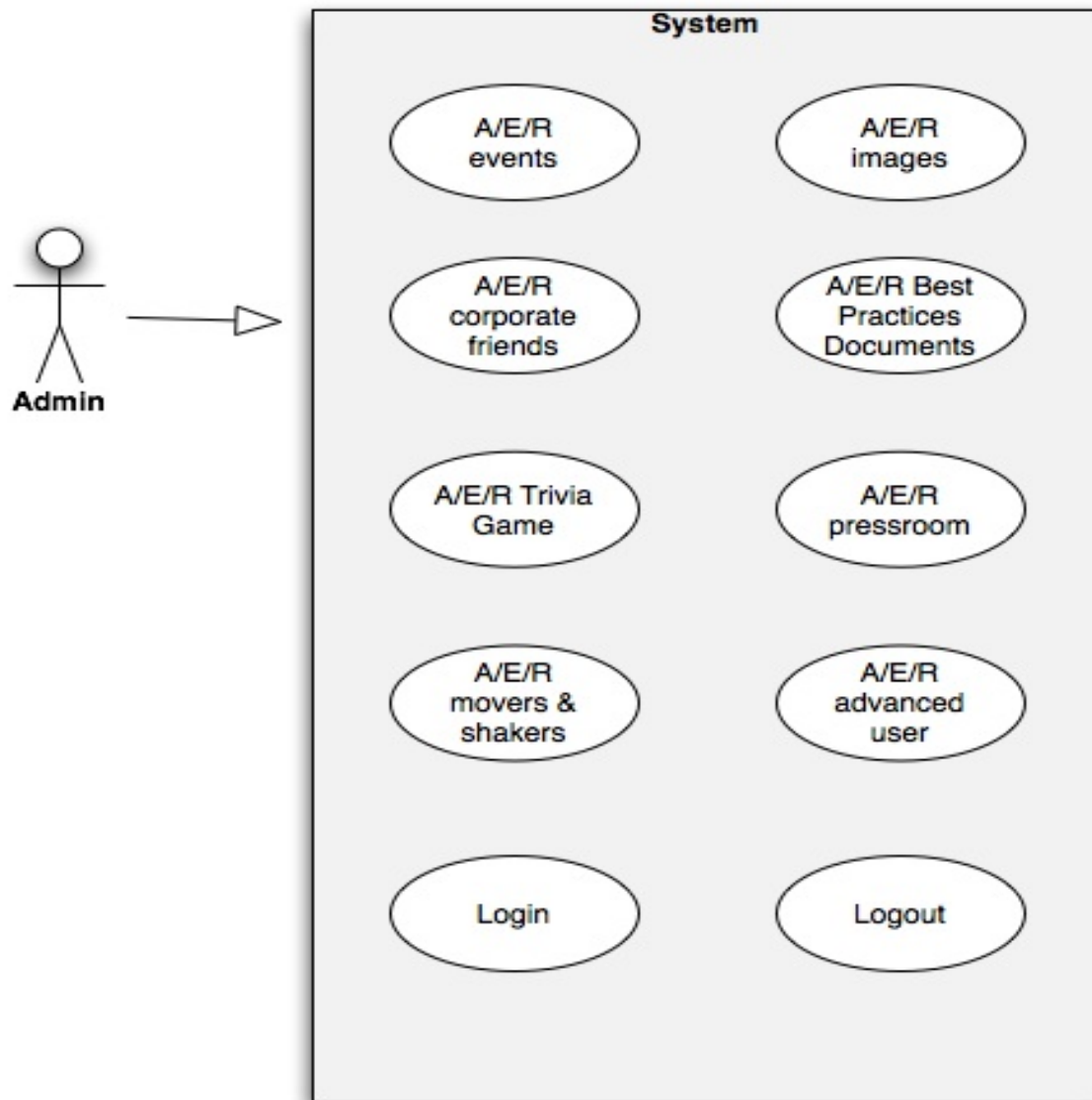
## General User Descriptions

1. User will be able to view corporate information.
2. User will be able to contact WPDI.
3. User will be able to view the upcoming events.
4. User will be able to play fun a trivia game that includes facts about Pittsburgh.
5. User will be able to view image details.
6. User will be able to view diverse communities inside of Pittsburgh.

7. User will be able to view other links associated with the site.
8. User will be able to view information that is relevant to the city.
9. User will be able to view the pressroom clippings.
10. User will be able to view the history of WPDI.
11. User will be able to view the team's story on developing this website.
12. User will be able to view the "movers & shakers" of the community.
13. User will be able to search jobs in Pittsburgh.



## Administrator Diagram

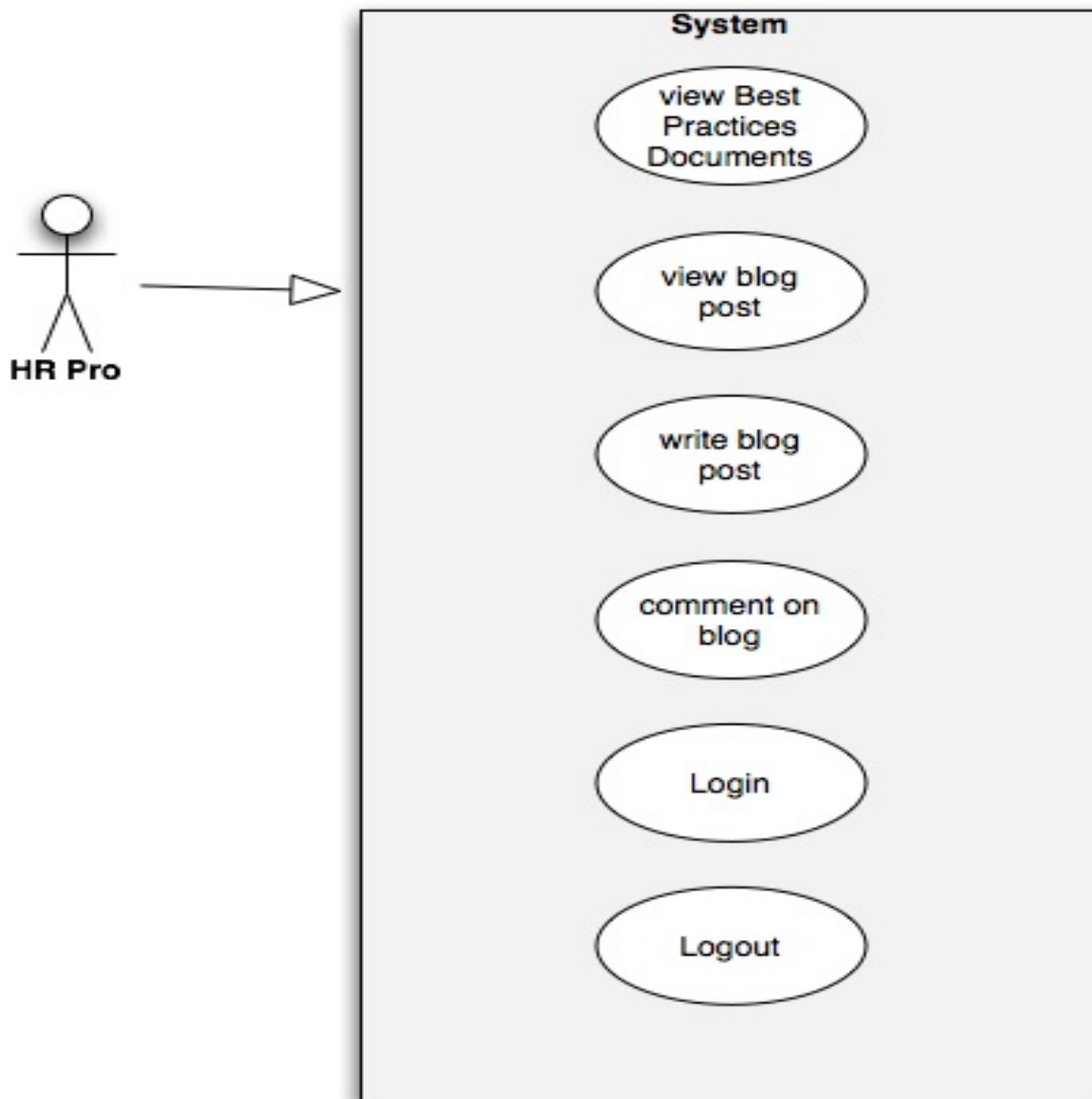


## Administrator Descriptions

1. Administrator will be able to add, edit, and remove current/upcoming events.
2. Administrator will be able to add, edit, and remove images on site.
3. Administrator will be able to add, edit, and remove corporate friends.
4. Administrator will be able to add, edit, and remove the trivia game.
5. Administrator will be able to add, edit, and remove pressroom clippings.

6. Administrator will be able to add, edit, and remove the “movers & shakers” from the system.
7. Administrator will be able to add, edit, and remove advanced users.
8. Administrator will be able to add, edit, and remove the best practices documents.
9. Administrator will be able to login to the site.
10. Administrator will be able to logout of the site.

## Human Resource Professionals Diagram



## Human Resource Professionals Description

1. Human Resource Professionals will be able to view the best practices documents.
2. Human Resource Professionals will be able to view a posted blog entry.
3. Human Resource Professionals will be able to post a blog entry.
4. Human Resource Professionals will be able to comment on a posted blog entry.

5. Human Resource Professionals will be able to login to the site.

6. Human Resource Professionals will be able to logout of the site.

## Scope, Complexity, and Project Sizing

The A-team is to implement all A level use cases and as many of the B level use cases as time permits. There are four Use Case estimates that have been developed. One for the Priority A Use Cases, one for Priority A and B+ Use Cases, one for Priority A and B Use Cases, and one for All Use Cases. First, the number of use cases for each level are determined, then they are tallied according to the level of difficulty (Complex, Average, and Simple). See Appendix C for full calculations of the Use Case Points.

The Best, Most Likely and Worst Case Scenarios are based on the average time it takes to complete a Use Case in the average project (If everything goes perfectly, 7 hours, if there are some issues, 12 hours, and if there are multiple problems, 20 hours.) These hours are then multiplied by the number of Use Case Points, then divided by the eight group members, and then divided again by the number of weeks left to determine how many hours each individual team member would have to spend each week on the project to complete it in time.

### Priority A Use Cases

<u>Number of A levels</u>	<u>Complexity Levels</u>	<u>Multiplier</u>	<u>Total UUCP</u>
28	1=C, 13=A, 14=S	$(1*15)+(13*10)+(14*5)$	$15+130+70=215$

(C = complex, A = average, S = simple)

### Use Case Points

$$UCP = EF * T * UUCP = 0.92 * 0.85 * 215 = 176$$

	<u>Best Case Scenario</u>	<u>Most Likely Scenario</u>	<u>Worse Case Scenario</u>
<b>Hours per UCP</b>	7 hours	12 hours	20 hours
<b>Total Team Hours</b>	$7*176 = 1232$	$12*176 = 2112$	$20*176 = 3520$
<b>Total Person hours</b>	$1232/8 = 154$	$2112/8 = 264$	$3520/8 = 440$
<b>Weekly Person hours</b>	$154/4 = 39$	$264/4 = 66$	$440/4 = 110$

**Priority A&B+ Use Cases**

<b><u>Number of A levels</u></b>	<b><u>Complexity Levels</u></b>	<b><u>Multiplier</u></b>	<b><u>Total UUCP</u></b>
28	1 = C, 13 = A, 14 = S	$(1*15)+(13*10)+(14*5)$	15+130+70=215

<b><u>Number of B levels</u></b>	<b><u>Complexity Levels</u></b>	<b><u>Multiplier</u></b>	<b><u>Total UUCP</u></b>
1	1=A	$(1*10)$	=10

**Totals**

<b><u>Number of Use Cases</u></b>	<b><u>Complexity Levels</u></b>	<b><u>Multiplier</u></b>	<b><u>Total UUCP</u></b>
29	1=C, 18=A, 15 =S	$(1*15)+(14*10)+(14*5)$	15+140+70=225

(C = complex, A = average, S = simple)

**Use Case Points**

**UCP = EF \* T \* UUCP = 0.92 \* 0.85 \* 225 = 183**

	<b><u>Best Case Scenario</u></b>	<b><u>Most Likely Scenario</u></b>	<b><u>Worse Case Scenario</u></b>
<b>Hours per UCP</b>	7 hours	12 hours	20 hours
<b>Total Team Hours</b>	7*183=1281	12*183=2196	20*183=3660
<b>Total Person hours</b>	1281/8=160	2196/8=274	3660/8=458
<b>Weekly Person hours</b>	160/4=40	274/4=69	458/4=114

**Priority A&B Use Cases**

<b><u>Number of A levels</u></b>	<b><u>Complexity Levels</u></b>	<b><u>Multiplier</u></b>	<b><u>Total UUCP</u></b>
28	1=C, 13=A, 14 =S	$(1*15)+(13*10)+(14*5)$	15+130+70=215

<u>Number of B levels</u>	<u>Complexity Levels</u>	<u>Multiplier</u>	<u>Total UUCP</u>
5	4=A, 1 =S	(4*10)+(1*5)	40+5=45

**Totals**

<u>Number of Use Cases</u>	<u>Complexity Levels</u>	<u>Multiplier</u>	<u>Total UUCP</u>
33	1=C, 17=A, 15 =S	(1*15)+(17*10)+(15*5)	15+170+75=260

**Use Case Points**

$$UCP = EF * T * UUCP = 0.92 * 0.85 * 260 = 211$$

(C = complex, A = average, S = simple)

	<u>Best Case Scenario</u>	<u>Most Likely Scenario</u>	<u>Worse Case Scenario</u>
<b>Hours per UCP</b>	7 hours	12 hours	20 hours
<b>Total Team Hours</b>	7*211=1477	12*211=2532	20*211=4220
<b>Total Person hours</b>	1477/8=185	2532/8=317	4220/8=528
<b>Weekly Person hours</b>	185/4=46	317/4=79	528/4=132

**All Use Cases**

<u>Number of A levels</u>	<u>Complexity Levels</u>	<u>Multiplier</u>	<u>Total UUCP</u>
28	1=C, 13=A, 14 =S	(1*15)+(13*10)+(14*5)	15+130+70=215

<u>Number of B levels</u>	<u>Complexity Levels</u>	<u>Multiplier</u>	<u>Total UUCP</u>
5	4=A, 1 =S	(4*10)+(1*5)	40+5=45

<u>Number of C levels</u>	<u>Complexity Levels</u>	<u>Multiplier</u>	<u>Total UUCP</u>
12	10=A, 2 =S	(10*10)+(2*5)	100+10=110

Totals

<u>Number of Use Cases</u>	<u>Complexity Levels</u>	<u>Multiplier</u>	<u>Total UUCP</u>
45	1=C, 27=A, 17 =S	(1*15)+(27*10)+(17*5)	15+270+85=370

(C = complex, A = average, S = simple)

**Use Case Points**

$$UCP = EF * T * UUCP = 0.92 * 0.85 * 370=297$$

	<u>Best Case Scenario</u>	<u>Most Likely Scenario</u>	<u>Worse Case Scenario</u>
<b>Hours per UCP</b>	<b>7 hours</b>	<b>12 hours</b>	<b>20 hours</b>
<b>Total Team Hours</b>	<b>7*297=2097</b>	<b>12*297=3564</b>	<b>20*297=5940</b>
<b>Total Person hours</b>	<b>2097/8=260</b>	<b>3564/8=446</b>	<b>5940/8=743</b>
<b>Weekly Person hours</b>	<b>260/4=65</b>	<b>446/4=112</b>	<b>743/4=186</b>

Based on the following projections, all of the Priority A Level Use Cases can be successfully implemented. It will take a total of 1280 total person-hours to complete this project. This breaks down to 160 hours per teammate over the next four weeks which breaks down to 39 hours of work per team member each week.

**Total Time available to the team:**

**28 days** until the project is due – 4 weekend days off for rest and recreation = **24 days**

**24 days** \* 14 available working hours during the day = **2688 (336\*8)** potential working hours

**24 days** \* 10 reasonable working hours during the day = **1920 (240\*8)** reasonable working hours



### **Breakdown of Use Case Time:**

Learning how to Code/Design: **40 hours** (Anything not understood in class can be re-emphasized with Student Tutor for two hours every weekday)

Coding and Design (based on the Use Cases): **720 hours**

QA Coding and Design reviews/recoding (1/5 of Coding/Designing time): **180 hours**

Group Meetings (half-hour every weekday): **10 hours**

Research for the website: **10 hours**

Documentation of all the Coding: **200 hours**

QA Reviewing of all the Documentation/rewriting (1/4 of documentation time): **50 hours**

### **Time Loss due to Class time:**

**240 working hours** – 2 weeks left of class time (10 days of class \* 7 hours) = **1360 (170\*8) hours**

This gives us an 80-hour cushion, which breaks down to 11 hours per person, which isn't very big, but those extra available working hours (14 potential working hours in each day) can be tapped into and accessed as needed.

## **Feasibility Assessment**

The feasibility analysis mentioned in the Executive Summary confirms that the team is highly capable of completing this project. In addressing all "A" priority level use cases, the team can realistically ensure that these needs will be met. It is very likely that this project will be a success when it is deployed. Use cases have been prioritized and in addressing only "A" level priorities, the project will be completed in the time allotted. The Risk assessment and feasibility analysis has determined that if each team member puts forth the best of their individual effort and skill, the project will be a complete success. More information regarding the feasibility can be accessed in the Executive Summary.

## *Team Structure and Capabilities*

The group of individuals who participate in this summer program are a diverse collection of students who vary in background, schools, and skills. Each member of this group performs different roles and each brings something unique to the table. Together, we know that our various strengths will allow us to be successful as a team and be able to produce a quality product. Our group consists of Richard Osei, Tiffany Francis, Ryan Lowe, Lisa Hall, Kaiem Frink, Jeronna Pope, Bruce Davis, and Melissa Elliott.

The team consists of eight positions: Project Manager, Client Advocate, Technical Quality Assurance Manager, Documentation Quality Assurance Manager, Lead Programmer, Lead Designer, Assistant Project Manager, and Assistant Programmer. Each member of the team also serves secondary roles to increase team productivity. Richard Osei's main role is the Project Manager and his two secondary roles are Programming and Designing. Tiffany Francis' main role is the Client Advocate while her secondary role is assisting in Documentation. Lisa Hall's main role is the Technical Quality Assurance Manager and her secondary role is also assisting in the Documentation. Ryan Lowe's main role is the Documentation Quality Assurance Manager and his secondary role is also assisting in Documentation. Bruce Davis' main role is the Lead Programmer and his secondary role is the Assistant Project Manager. Melissa Elliott's main role is the Lead Designer and her secondary role is the Assistant Client Advocate. Kaiem Frink's main role is the Assistant Project Manager and his two secondary roles are assisting in Documentation and Designing. Jeronna Pope's main role is the Assistant Programmer and her two secondary roles are also assisting in Documentation and designing. The assignment of each position is based on the each team member's strengths and weaknesses. Each team member capabilities and backgrounds are described below.

### **Kaiem Frink**

Kaiem is in his senior year at Elizabeth City State University where he will receive his Bachelor and Science Degree in Computer and Information Systems with a minor in Geographic Information Systems. Kaiem has been nominated and earned the position of Assistant Project Manager for the WPDI Website. Kaiem is also fluent in Spanish. His computer skills include but are not limited to web design, Macromedia Fireworks, ArcMap, and he is proficient in the programming language C. Kaiem has conducted extensive research on Antarctica Temperature Mapping and The Study of Macromedia Cold Fusion as a Web Application Server as an Undergraduate Researcher in the Center of Excellence in Remote Sensing Education and Research (CERSER). Kaiem is motivated, assertive, and is willing to go the extra mile for the team.

### **Ryan Lowe**

Ryan brings a more distinguished feel to the group. He has programming experience in both C and HTML languages. Ryan also has extensive skills in Windows XP, Microsoft Office Suite, and experience in Macromedia Dreamweaver 8. He fills the role of Documentation Quality

Assurance Manager for the project. Ryan has taken courses in End-User Information Systems, Web-Design, and has taken advanced courses such as Advanced Software tools and Advanced Management of Business Networks. He has also assumed leadership positions in various past group projects and is a determined and goal-oriented individual.

### **Jeronna Pope**

Jeronna brings a more business-oriented side to the group. She has operated various database systems and also created a database for her own personal business “Tahitian Noni International.” She has also been a Sales Representative who accumulated over \$108,000 in sales. Jeronna has been promoted a store supervisor and has developed great leadership skills. She is also a member of the International Poet’s Society. Jeronna has experience writing programs in Microsoft Visual Basic and MACRO Programming in Visual Basic Applications in the Microsoft Suite. It comes as no surprise that Jeronna is highly qualified to be our Assistant Programmer.

### **Bruce Davis**

Bruce’s biggest strength is his programming. He has a very strong technical background and knows various different programming languages including: C++, C, Java, VB, HTML, JavaScript, C#, CSS, Perl and others. Bruce is able to learn new languages very quickly. Bruce is our Lead Programmer due to the fact that he is an overqualified and eager learner who truly enjoys the work of coding.

### **Richard Osei**

Richard plays a very vital role in the team. He is a hard-working individual whose leadership, computer skills, and determination have rightfully earned him the title of Project Manager. He has a background in both Computer Science and Mathematics. Richard has experience in various different programming languages including: Java, C, C++, HTML, SQL, and JavaScript. He also has skills in: Computer Graphics, Wireless Network Installation, Software Systems, DiscExtender System Building, and various others. Richard was also one of the founders and members of the Institute of Electrical and Electronics Engineering (IEEE Chapter at Langston University).

### **Melissa Elliott**

Melissa has strong technical skills as well as work experience. She has skills in: Microsoft Office Suite Applications, Java, C++, SQL scripting, Oracle 9i, Oracle 10g, and ERWin Data Modeler. Melissa has also participated in an internship with Lockheed Martin in the Information Technology department. She is also a member of the Association of Computing Machinery 2005-2006 Fundraising Committee serving as the Chairperson. Melissa’s wide range of computer skills and experience has prepared her to fulfill the crucial role of Lead Designer.

## **Lisa Hall**

Lisa is an individual who is excellent at multitasking. She serves the group by performing multiple roles but her main position is the Technical Quality Assurance Manager. Lisa has assumed leadership roles as the Project Manager in her End User Information Systems class and as the President of the OC<sup>3</sup> Computer Club. Lisa has programming skills in C, C++, and HTML. Lisa also has experience with Macromedia Dreamweaver 8 and an extensive knowledge of the Microsoft Office suite. She has also worked as a lab assistant and IT help-desk worker.

## **Tiffany Francis**

Tiffany has both exceptional business skills as well as computer skills. Tiffany's computer skills include: Data Entry, Microsoft Office applications, and Internet publishing. She also has programming skills in: C++, Visual Basic, Agent Sheets, Java, and Assembly Languages. Tiffany is the Client Advocate due to the fact that she possesses strong public speaking and communication skills. She was also the recipient of Lincoln University's "Computer Science Achievement Award in 2006". Tiffany has also had experience working with the both the PNC Financial Group and the Internal Revenue Service (IRS).

## **Team Skills Summary**

Upon reviewing the skill assessment sheets, the team has assembled a list of strengths and weaknesses that will affect the overall performance of the team.

### **Strengths**

- Structured Team - every member of the understands their position and are capable of performing their tasks
- The team members have a diverse range of computer skills. Each member brings something different to the table.
- The team members are committed to produce quality work
- The team members display creativity and problem solving skills
- The team members display good teamwork and leadership skills
- The team members have access to all the necessary resources

### **Weaknesses**

- The group has limited experience using the PHP language
- The group is not proficient with SQL

## *Project Management Section*

### **Time Accounting**



## **Task Analysis**



## Project Metrics

### **Actual vs. Estimated completed use cases (Progress)**

#### *Recording Method*

In this project phase report, there have been several ways and levels of accomplishment that we will set predictable number of use cases to complete. Upon completion of this each of those phases, the number of use cases completed will testify if the team is on the right path.

#### *Potential Benefits*

It is very important to know how much work has been done, development and now to completion. Time is a factor in all the phases of the project. Our estimates and goals for each phase should be made accordingly with how much work can actually be completed in a reasonable amount of time.

### **Actual vs. Estimated time to complete task (Effort)**

In general all tasks are self-defined and also consist of some sub-tasks of a use case completion or phase report. For instance, the time it takes to complete a section of a phase report of a large function of the implementation.

#### *Recording Method*

This metric will have each team member recording. The time will be estimated on how long it will take a member to complete a specific task. Then the tangible time taken is determined by when he/she has completed the work (i.e. checked for defects and passes).

#### *Potential Benefits*

The metric will be more helpful as more information is compiled, simply because the team's estimation skills will get better. Whenever there is a great disproportion between estimates and actual times, team members will gain a better understanding of their abilities and estimate their next task accordingly. This information becomes especially valuable because work can be planned and distributed in such a way that deadlines will not be an problem.

### **Amount of time needed for learn Applications (Effort)**

#### *Recording Method*

Team members will record the take for them to acquire unfamiliar skill, and documentation it to figure out how to complete a task.

### *Potential Benefits*

This will benefit the team for knowing how much additional time will be spent on learning and not on actual task completion. This time should decrease as the team becomes more familiar with the applications and languages.

## **Count of major/minor defects (Product Quality)**

A major defect is defined as an error that causes the page not to compile/load or a function that does not work or do what it is supposed to (desired functionality does not exist)

A minor defect is defined as an error that does not hold back the operation of the page excluding exceptional conditions. Example is a confirmation that does not work under some test cases, interface issues (misaligned tables, large fonts), etc...

### *Recording Method*

When a task is completed by a team member, it is then sent for Quality Assurance (QA), the person who checks the task will keep track of how many defects are detected.

### *Potential Benefits*

It is possible that the system might not function properly at first but the number of defects should at an area of stability and drop to zero or near-zero as each implementation is delivered. Major defects should never be allowed to remain in the system and as many minor defects should be eliminated as possible.

## **Rate of major/minor defects (Product Quality)**

The rate is determined by the task and the member of the team. Example would include rate per 100 lines of code, rate per hour, rate per function written, etc...

### *Recording Method*

Taking total count of defect, this recording will be done by taken the number of total defect and divide by the rate determinant.

### *Potential Benefits*

With count of major/minor defects metric above. The rate should also fall to near-zero as team members become more familiar with applications and the functionality of the system.

## **Amount of wasted time spent (Process Quality)**

For any reason, if a task needs to be redone, the time spent should be recorded as wasted. Wasted time includes the time spent on a task that does not get used.



### *Recording Method*

When a task needs to be redone, the time spent is recorded by the person who redid the task. If for some reason a task is not useful to the system and is not used, the time spent on that task is considered wasted.

### *Potential Benefits*

For some reason, if a significant amount of time is wasted at any particular time, the reason for that needs to be determined and eliminated as soon as possible. The benefits from this are exclusively determined by the amount of wasted time there is. If there is minimal wasted time, then nothing really needs to be done.

## **Number of requirements changes (Requirements Stability)**

This metric is mainly calculated to see how well the team scoped and designed their system or to see how well the capability of its members was projected.

### *Recording Method*

At any moment a major task is changed during an implementation phase, it is considered a requirement change. These changes should be fairly obvious and will be recorded by either the project manager or QA manager.

### *Potential Benefits*

The permanence of a system's requirements is a measure of excellence of the initial planning and analysis. If a team scopes there is a system too small, they may have to add additional requirements later on. If the system is scoped too large, requirements will have to be removed to meet deadlines. This is also related to the analysis of skills and abilities of the team members as too much or too little maybe asked of them. Keeping track of this metric will allow the team to better estimate tasks in the future.

## **Cost of Quality Analysis**

### **Prevention**

- Come up with list of requirements for each phase and discuss what has to be done
- Discusses each member's skills in detail and distribute work evenly among team members according to their skill and desire
- Make sure every team member understands their assigned parts and the requirements in detail
- Discuss with team member prior to making any modification to completed tasks
- Examine the estimation methods for future phases and plan ahead in case of possible confusion

## Detection

- Check if there are any grammatical or spelling error in documents
- Do quality checks on completed tasks multiple times before delivery
- Let multiple people examine each task to provide backup detection
- Come up with a comprehensive list of test cases for the system
- Review and test all code thoroughly with the list of test cases
- Ask advisors for suggestions or potential problems that may have been missed

## Removal

- Debug and recompile code after any modification to ensure changes took effect
- Edit documents as necessary and make sure they are quality checked often
- Make sure all modifications are made across all instances it may have existed or across all copies of the file or documents that may exist.

# Risk Analysis

## 1. Commitment to Unfamiliar Programming Languages

As the programming becomes more difficult, we may become frustrated with learning a new language. Some team members may learn faster than others, and some may never really grasp a programming concept. As a result, team morale may begin to fade.

**Likelihood of occurrence:** Medium

**Impact of Risk realized:** Moderate

**Warning Signs:** Learning curves, difficulty of overcoming language barriers, learning software, excessive questions, confusion, or difficulty over coming obstacles in a timely manner

**Abatement Strategy:** As a team we are committed to learning PHP and MySQL to code our project. We will use the student tutor to help us understand anything we miss in class.

## 2. Worrisome Hardware Stability

There may be times when the server is down and we are unable to access our files.

**Likelihood of occurrence:** Low

**Impact of Risk realized:** Catastrophic

**Warning Signs:** A Professor may come in and say the server is going down, but unfortunately sometimes there are no warning signs for a server going down.

**Abatement Strategy:** Backing everything up. There should be a copy of all files saved on a portable drive.

## 3. Team Conflict

If there is dissension within the team then it will be difficult to get work done. Communication will break down and hostilities will rise.

**Likelihood of occurrence:** Medium

**Impact of Risk realized:** Moderate

**Warning Signs:** Team members not showing to meetings, not pulling their weight, unreachable, unwilling to compromise.

**Abatement Strategy:** Keeping communication lines open, controlling tempers and talking calmly, remembering the common goal.

#### 4. Miscommunication with the Client

Miscommunication with the client can lead to an unsatisfied client. It can lead to two different understandings of how the software should look and feel. It will waste a lot of time if the client's goals and the team member's goals are not aligned.

**Likelihood of occurrence:** Low

**Impact of Risk realized:** Catastrophic

**Warning Signs:** The client's continually belief that all expectations are to be met, or believes the project can continue to be changed until the final stages.

**Abatement Strategy:** Keeping communication lines open, presenting proper timelines and projecting realistic ideas of what is feasible.

#### 5. Feature Creep

**Likelihood of occurrence:** Medium

**Impact of Risk realized:** Catastrophic

**Warning signs:** Client is asking for features that are too complicated for the average user, or features that slow down the site.

**Abatement Strategy:** Keeping the project in perspective and learning to say no

## **Problem Analysis and Issues**

### **Time Management**

There may be some issues with programming in the beginning as we learn PHP and MySQL. While developing the system or other design consideration, organizing a schedule for eight individuals will only become more difficult as everyone's workload increases.

Additional Notes: The team would like to avoid feature creep, In adequate design, weak personnel, software failure, bugs within the system, corrupt drives, invalid drivers and executable files.

### **Team Management**

Another potential problem we might have before completion of the next phase is appropriate delegation of task. The next phase involves a lot of design considerations that will affect the entire system for the last three phases of implementation. The quality of these next steps is vital in the overall success of the project.

## 1.1 Appendix A

### **Interviewer:**

Ryan Lowe, Bruce Davis, Richard Osei, Kaiem Frink, Melissa Elliott, Tiffany Francis, Jeronna Pope, & Lisa Hall

### **Stakeholder:**

Western Pennsylvania Diversity Initiative (WPDI)

### **Background:**

- The first meeting with WPDI was to establish an understanding of the client's vision, goals, and expectation of the Information System's team.
- WPDI is a new organization of business professionals seeking to promote diversity within the Pittsburgh and surrounding areas.
- To encourage diversity within the area, WPDI requires a website that will emphasize diversity and appeal to various website users.

### **Recommendations:**

- The WPDI asked for easily accessible information and interactive features to be added to the site.
- The Information Systems interns recommended a dynamic website with key features, relevant information, and appealing design to attract continual users.

### **Concerns:**

- Some of the elements that the WPDI referenced to being on the site would need to be updated on a fairly constant basis. Without the available manpower, the site's information would become outdated rather quickly.
- A site administrator would need to thoroughly regulate the content being posted on any blog element that would be added to the site.
- A site administrator would also need to review all uploaded files to ensure their relevant information and security.

## 1.2 Appendix B

### Stakeholder Interview Summary

#### **Interviewers:**

Ryan Lowe, Bruce Davis, Richard Osei, Kaiem L. Frink, Melissa Elliot, Tiffany Francis, Jeronna Pope, & Lisa Hall

#### **Stakeholder:**

Western Pennsylvania Diversity Initiative (WPDI)

#### **Background:**

- The second meeting with WPDI was to verify that both parties, the Information Systems' intern and WPDI, wanted to incorporate the same features onto the site.
- The Information Systems' interns showed ideas of potential websites that would best simulate the type of structure that the WPDI needed to attract potential and continual users to the site.

#### **Recommendations:**

- A blueprint of all ideas and possible use cases was created for site consideration.
- The Information Systems' interns are to develop a professional website with specific Pittsburgh related features.

#### **Concerns:**

- Once development for the site begins, the Information Systems interns need to ensure that all the agreed upon features are added onto the site. If the IS interns believe certain features are low in priority then those features need to be excluded from the final site as their development will utilize valuable time.
- The Information Systems team has a limited amount of time in creating this website. However, we would like to produce a volatile tool that can be the voice of WPDI.