

Introduction to Information Technology

Assignment 2: The IT World (20%)

Background

Now that you have developed a profile of yourself (Assignment 1), it is time to use this profile to assemble a group, and to show how you can work as a team to produce a report on various aspects of the IT industry.

Overview

- This assignment is worth 20% of your overall mark.
- This is a **group** assignment. Each person in the group will receive the same mark, unless there are extenuating circumstances which your group has discussed with the lecturer.
- You are required to use Git, either via Github or Bitbucket or some similar repository, in order to manage your group's documents and artefacts, including the assignment submission.
- You can seek feedback on your report from your tutor at any point during tutorials. You are strongly encouraged to work on this assignment regularly each week, so that you should be writing relevant parts of your report each week.
- This assignment should be submitted **via Canvas**. You should submit your group's report as PDF document.
- The Turnitin tool will be used on all submission to check that your work is original.
- You are expected to commence work on this Assignment in Week 5, and to submit at the end of Week 8. This means that each person is expected to spend $4 \times 6 = 24$ hours working on this assignment.

Requirements

Your report should contain the following sections.

Team Profile

Tools

Industry Data

IT Work

IT Technologies

Project ideas

Feedback

Group Reflection

More details on each of these are given below.

Team Profile

Each of you will have produced a personal profile for Assignment 1. You are to assemble this information, reviewing it as you see fit given your feedback from Assignment 1, to produce a team profile. This should be organised into the following subsections.

Team Name

You are free to choose any name for your group that you wish. However, this name will be used to identify your group for the rest of the course, so please choose wisely. You should also keep in mind that this name could be one that comes to the attention of potential employers.

Personal information

One paragraph per person, including name, student number, background, hobbies, IT interest and IT experience. This should also include your team's chosen name.

Team Profile

The test outcomes for each person in the team (all 3 tests), and your understanding of how this information may be helpful to the group. You should do this as soon as your group is formed. You will have a chance to reflect on how well the group has worked later.

Ideal Jobs

Compare and contrast the ideal jobs for each person in the group. This may have changed due to feedback from Assignment 1. What common elements are there, if any? What differentiates each position from the others, if anything? How similar or different are your career plans across the group?

Tools

Having set up an individual website in Assignment 1, you should now set up a group website, using the same approach. You should then include links to each individual website on the group website.

You also need to set up a GitHub or similar repository *for your group* on which you can use Git. This is to facilitate the production and maintenance of group artefacts, which will include the assignment submission, but may also include other reports or information, code, examples, formatted data, images and videos, links, and similar information.

You will also need to set up your group on Canvas.

In your report you should include a brief description of what you have done, and include the following

- The link to your group's website
- The link to your group's Git repository (GitHub, BitBucket, etc)
- Your comments on how well the audit trail on the Git repository reflects your group's work. You will presumably only be able to do this close to the time of submission.

Industry Data

In Canvas, you will find a link to some industry data supplied by Burning Glass. You should use this (as well as any other data you may be able to find) to answer the following questions.

1. What are the Job Titles for your group's ideal jobs? How do each of these rank in terms of demand from employers?
2. From your group's ideal jobs, you can identify a set of skills required for these jobs (we will refer to this as your group's *required skill set*). These can be divided into *general skills* (communication, problem solving, writing etc) and *IT-specific skills* (Javascript, SQL, etc).
 - a. How do the **IT-specific skills** in your required skill set rank in terms of demand from employers?
 - b. How do the **general skills** in your required skill set rank in terms of demand from employers?
 - c. What are the three highest ranked **IT-specific skills** which are not in your required skill set?
 - d. What are the three highest ranked **general skills** which are not in your required skill set?
3. Having looked at the Burning Glass data, has your opinion of your ideal job changed? Why or why not?

IT Work

The IT industry is large, varied and changes over time. It is also easy to get a misleading impression of what is typically involved on a day-to-day basis from a job advertisement or a position description. In order to help you understand this, the best way seems to be to hear from some IT professionals about their daily work. There are two ways in which you can do this, as below.

1. Interview an IT professional

2. View, summarise and discuss at least 10 YouTube videos or other web sources (you may be surprised how many hits there are for a Google search on *A day in the life of an IT professional*).

You as a group need to choose one of these two approaches. If it all possible, it is strongly recommended that you (as a group) interview an IT professional. Not only will this information be more direct, it may provide you with a contact that you will find helpful in the future. If you choose this option, you will be provided with a list of questions to ask and some basic training in how to go about this interview.

If you choose the web sources option, you need to report on 5 different IT professionals, as well as indicate your 10 sources.

Whichever source of information you use, you should answer the following questions.

1. What kind of work is done by the IT professional?
2. What kinds of people does the IT professional interact with? Are they other IT professionals? Clients? Investors? The general public?
3. Where does the IT professional spend most of their time?
4. What aspect of their position is most challenging?

IT Technologies

There are a lot of fascinating developments going on in the IT world, many of which may fall by the wayside, but some of which are likely to change the way the world works. Historic examples of such developments include the Internet, smartphones, cloud computing and public-key cryptography.

In this section you should report on 4 of the areas below.

- Clouds, services, servers
- Cybersecurity
- Blockchain and cryptocurrencies
- Machine Learning
- Autonomous vehicles
- Natural Language processing and chatterbots
- Robots
- Raspberry Pis, Arduinos, Makey Makeys and other small computing devices

Some starting points and other information will be made available on Canvas.

For each of the areas covered, you should report on the following.

What does it do? (600 words) What is the state of the art of this new technology? What can be done now? What is likely to be able to do be done soon (say in the next 3 years)? What technological or other developments make this possible?

What is the likely impact? (300 words) What is the potential impact of this development? What is likely to change? Which people will be most affected and how? Will this create, replace or make redundant any current jobs or technologies?

How will this affect you? (300 words) In your daily life, how will this affect you? What will be different for you? How might this affect members of your family or your friends?

Project ideas

You all have some project ideas that you reported in Assignment 1. You are to come up with a project idea for the group as a whole, which could be an individual's idea, but is more likely to be a combination of each of the ideas you had individually, together with comments and feedback from your Assignment 1 marker, your tutor, the lecturer, and anyone else who you would like to consult.

You may also wish to consider what problems need to be solved, for which there are many sources of information, such as the ones below. There are many more websites like these, of course.

<https://www.weforum.org/agenda/2016/01/what-are-the-10-biggest-global-challenges/>
<https://www.cheatsheet.com/money-career/want-to-be-a-billionaire-solve-one-of-these-5-problems.html/?a=viewall>
<https://www.quora.com/What-are-common-problems-that-need-solving>

There is no set length for this section, but it is difficult to see how a description of less than 500 words would be adequate. Do not limit yourself to this if you have more than this to write, though. If you are unsure of how much to write, ask your tutor or lecturer for advice.

Feedback

By the time you get to Week 8, you should have been working as a group for three weeks, and hence have some experience of how well the group is working. A key feature of industry teams is the ability to give and receive feedback, particular to members of a team in which you are working. In order to give you some experience at this, your group should login to the SparkPLUS tool (instructions **on how to do this will be given on Canvas**). Each person should provide an assessment of each member of the group, including themselves. This will then

provide feedback to each of you, and in particular on how the rest of the team view's your performance.

You do not need to include any information about the feedback you receive, as this is intended to give you experience with use of tools such as these, and how the information is gathered and processed in such tools. The markers will, however, check that each person in the group has contributed via SparkPLUS, and the marks for this section will only be awarded if all group members have contributed in an appropriate manner by the assignment deadline.

If you have any concerns with this process, please raise these with your tutor or lecturer. In particular, if you wish to have a group discussion about this feedback, please contact the lecturer who will facilitate a group discussion on this topic.

Group Reflection

Towards the end of the assignment period, you should reflect as a group on how well you think you have performed in this assignment. You should include whatever evidence you may have about the groups processes (such as commit trails from GitHub, or project meeting minutes). Each member of the group should contribute up to 200 words about their own perception of the group, and the group as a whole should contribute around 400 words. This should include the following attributes.

- What went well
- What could be improved
- At least one thing that was surprising
- At least one thing that you have learned about groups
- Remember to include in your section on Tools how well you think your Github log of activity reflects your group's work on this assignment.

Submission Requirements

Your submission should be a single PDF file. **Files in any other formats will be rejected.**

Submit your assignment on Canvas. You can re-submit any number of times before the deadline.

Marks

This assignment will contribute 20% of your final mark Your assignment will be marked out of 100, as below.

Section	Marks
Team Profile	5
Tools	5
Industry Data	15
IT Work	15
IT Technologies	20
Project ideas	10
Feedback	10
Group Reflection	10
Presentation	10

Rubric

Your assignment will be graded in accordance with the rubric below.

	Exemplary	Accomplished	Developing	Beginning
<i>Team Profile</i>	You have included all relevant information about your team. You have included your test results, and a clear discussion of the differences between your ideal jobs.	You have included most of the relevant information about your team. You have included your test results, and discussed all relevant aspects of the differences between your ideal jobs.	You have included some relevant information about your team. You have included some of your test results, and discussed some relevant aspects of the differences between your ideal jobs.	You have not included very much information about your team. You need to include more tests results. You need discuss more aspects of the differences between your ideal jobs.
<i>Tools</i>	You have included a link to your group's website. You have set up your group's Git repository and included a link to it. You have made some clear and appropriate comments about your group's log of activity.	You have included a link to your group's website. You have set up your group's Git repository and included a link to it. You have made some comments about your group's log of activity.	Some of the appropriate links are missing. You have not included a link to your group's Git repository. You need to include more comments about your group's log of activity.	You haven't included a link to your group's website. You have not set up your group's Git repository and included a link to it. You have not made any comments about your group's log of activity.
<i>Industry Data</i>	You have clearly identified relevant job titles for your ideal jobs. You have clearly and accurately identified and ranked your group's required skill set. You have commented appropriately on how this data may have changed your opinion.	You have identified relevant job titles for your ideal jobs. You have identified and ranked your group's required skill set. You have commented on how this data may have changed your opinion.	You have identified to some extent the job titles for your ideal jobs. You have identified and ranked some of your group's required skill set. You have made some comments on how this data may have changed your opinion.	You have not identified sufficiently the job titles for your ideal jobs. You have not identified and ranked your group's required skill set. You comments on how this data may have changed your opinion need significantly more work.

<i>IT Work</i>	You have clearly described the kind of work done. You have described all of the interactions with other people. You have appropriately described how most time is spent. You have succinctly described the challenging aspects of this work.	You have described the kind of work done. You have described most of the interactions with other people. You have described how most time is spent. You have described the challenging aspects of this work.	Your description of the work done needs some more details. You have described some of the interactions with other people. Your description of the time spent needs more attention. You have described some of the challenging aspects of this work.	Your description of the work done is inadequate. Your description of the interactions with other people needs more details. Your description of the time spent needs more attention. You need to describe in more detail the challenging aspects of this work.
<i>IT Technologies</i>	You have given an excellent description of all four of your chosen areas. You have clearly described the state of the art. You have accurately discussed the potential impact and how this may affect your daily life.	You have given a description of all four of your chosen areas. You have described the state of the art. You have discussed the potential impact and how this may affect your daily life.	You have given some descriptions of your four chosen areas. You have described the state of the art to some extent. You have discussed some of the potential impact and how this may affect your daily life.	Your descriptions of your four chosen areas are severely lacking. Your description of the state of the art needs more work. You need to include more detail on the potential impact and how this may affect your daily life.
<i>Project Ideas</i>	You have given a clear description of your project idea. You have discussed the details of it appropriately.	You have given a description of your project idea. You have discussed the details of it to some extent.	Your description of your project idea lacks some key details. You need to discuss this in more depth.	Your project idea need some significant further work. There is not enough detail here to get a clear picture of what you plan to do.
<i>Feedback</i>	All of your group members have contributed appropriate feedback on themselves and their group members on SparkPLUS.	Most of your group members have contributed appropriate feedback on themselves and their group members on SparkPLUS.	Your group members have contributed some feedback on themselves and their group members on SparkPLUS, but there is some significant information missing.	Your group has not contributed appropriately on SparkPLUS. A significant amount of information is missing.

<i>Group Reflection</i>	You have clearly described what worked well in your group. You have discussed what could be improved. You have included at least one surprising thing. You have appropriately discussed one thing you have learned about groups.	You have described what worked well in your group. You have discussed what could be improved. You have included at least one surprising thing. You have discussed one thing you have learned about groups.	You have clearly described what worked well in your group to some extent. You have discussed what could be improved, but some more explanation is needed. Your discussion of a surprising thing and what you have learned both need more work.	You have not clearly described what worked well in your group. You have not discussed what could be improved. You have not discussed a surprising thing, or what you have learned about groups.
<i>Presentation</i>	Your report looks clean and professional, and uses appropriate font, colours and backgrounds. You have included an appropriate number of images.	Your report looks good, and uses appropriate font, colours and backgrounds. You have included an appropriate number of images.	Your report looks reasonable, but need some attention to detail in key areas. You should improve your use of images.	Your report needs improvement. You need to use appropriate fonts, colours and backgrounds. You have little or no use of appropriate images.