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| Employers  **College of Engineering & Physical Sciences**  **Assignment Brief** | |
| CS1BAC Business Aspects of Computing | Ethical Investment App:  Business Information System Analysis |
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| Coursework Overview:  Investic (**Invest**ment Eth**ic**s) is a mobile app developed and sold by a tech start-up called MoneyBrain. The app is meant to help inexperienced users invest their savings in companies with an ethical business model, i.e., one that is environmentally sustainable, promotes fair treatment of workers and supports local communities. Typically, people wishing to start trading on the stock market seek the help of a broker or use a specialised app (such as [IG](https://www.ig.com/uk/investments/share-dealing?irclickid=Tk90fa2TmxyNTln3ItVONx-YUkDUL2zX3RAkR00&cx_aid=352599&cx_cid=1367686&chid=12&cx_us=1&cx_pg=1&irgwc=1), [Fineco Bank](https://finecobank.co.uk/uk/trading/?dclid=CjgKEAjw9ZGYBhD-nt2_ioKBsBsSJAD260Rzrk6sSz8frrjyFpIM3hOsCzOT_xOMZIe-SwJ_0aC1HfD_BwE), [Capital.com](https://capital.com/stock-trading-lp?c=37792_4885883_d47ee2135ecedc79eb0ed1d1c0fd33&pid=cellxpert), [eToro](https://www.etoro.com/?dl=30001923&utm_medium=Networks&utm_source=71638&utm_content=0&utm_serial=d3ddf501930f8a6d5c6c9a4aa92fe7&utm_campaign=d3ddf501930f8a6d5c6c9a4aa92fe7&utm_term=&from_lp=whiteLP), etc.). Based on the user’s capital, preferred length of investment and attitude towards risk, the broker or app will recommend what is known as a “smart portfolio” of companies to buy shares in. The companies in the portfolio are selected primarily on financial considerations (e.g., yearly profits, likelihood of going into administration, etc.); ethics is hardly ever taken into account (some investment apps, such as [Nutmeg](https://www.nutmeg.com/), offer socially responsible portfolios, yet the ethical scrutiny companies are put under to determine whether they qualify as socially responsible can hardly be described as rigorous). Unless they explicitly ask, most investors are not even told the names of the companies their money ends up supporting: the unsuspecting capital owner may thus become a shareholder of tobacco and fossil fuel companies, of retailers that employ child labour, of mining enterprises that use fracking techniques, or of corporations in the food and cosmetics industry that cut down the rainforest to replace it with unsustainable monocultures such as oil palm plantations.  Investic is meant to prevent its users from unwittingly becoming complicit with the unethical tactics of the companies in their smart portfolios. That is achieved via a three-stage process.  **Stage 1.** When they register their account, users are prompted to set up their profile by specifying (a) the amount they wish to invest; (b) the investment length; (c) their attitude towards risk, i.e., willingness to invest in low-risk, moderate-risk, or high-risk ventures; and (d) the depth of the ethical analysis to which companies should be subjected before being added to the users’ investment portfolio (see **Step 2.2** for details). The app will then use an external tool (aka *matcher*) to find companies with an expected profit and a projected risk that are aligned with elements (a), (b), and (c) of the user profile. This stage mimics the standard functionality of existing investment apps. Assume that the *matcher* is fully functional and available to use.  **Stage 2.** All companies identified in the previous stage are subjected to an ethical analysis. For every company *C*, Investic will take the following steps:   1. Run an AI tool (aka *miner*) to data-mine relevant public records available online and extract data on *C*’s environmentally-friendly practices; fair workforce treatment; and reinvestment of profits in local communities. The *miner* calculates three scores to measure how well *C* performs in each category. For instance, if public record data confirm that *C* operates an exclusively electric vehicle fleet and gives employees adequate pay and benefits but uses its profits to give bonuses to managers instead of supporting local suppliers, *C* will receive a high score in the first two categories and a low score in the third. The way the three scores are calculated is irrelevant in the context of this coursework: assume that the *miner* is available to use and that its calculations are correct. 2. Deploy a specialised *crawler* (similar to search engine spiders) to find all the companies that *C* does business with (i.e., its raw materials suppliers, finished product buyers, consultants, caterers, etc.). Each of *C*’s business partners is assigned scores against the same three categories as before: environmentally-friendly practices; fair workforce treatment; and reinvestment of profits in local communities (the *miner* will perform the relevant calculations in the same fashion as described in **Step 2.1**). Assume that the *crawler* is fully functional and available to use. 3. Add the scores returned by the *miner* in **Step 2.2**, against each category, to *C*’s initial ethical scores calculated in **Step 2.1**. If the ethical analysis depth, i.e., element (d) of the user’s profile, is greater than 2, this process will be performed recursively. At the end of this step, *C*’s environmental score, for instance, will reflect not only *C*’s practices but also those of all companies *C* does business with, their business partners and so on until the depth specified by the user is reached. The same applies to the other two categories. This score aggregation is meant to expose companies that engage in “greenwashing” (e.g., businesses that operate electric vehicle fleets but source the lithium and cobalt for their batteries from mining companies that harm local communities by damaging the waterbed) or outsource unethical operations to contractors (e.g., fashion retailers that pay their office workers fairly but contract out the stitching of garments and shoes to shell companies employing child labour).   **Stage 3.** All companies identified in **Stage 1**, along with their three aggregated scores, are presented to the user, who is then prompted to select which ones they wish to include in their smart portfolio. | |
| Coursework Details:    Your task is to analyse the Investic app described above, as a component of MoneyBrain’s business ecosystem. Your analysis will be documented in a written report and summarised in an oral presentation. **The combined report and presentation scores make up the coursework mark, which represents 50% of the module mark.**  **Report (group work, 75% of the coursework mark)** This is a **3500-word (±10%)** written piece outlining the **critical analysis** of the Investic app. Listing factual statements about the app and its roles within MoneyBrain will be insufficient; instead, focus your writing on the rationale behind your claims regarding Investic and reflect critically on their business implications. Pay adequate attention to the eloquence of the arguments you make, the conciseness and clarity of the narrative, the grammar, punctuation, and spelling of your report. You will upload your report on Blackboard (see instructions given in the Submission details section). Your report should cover the following aspects:   * **Business information system identification (10% of the coursework mark).** Discuss Investic‘s role(s) in the context of MoneyBrain’s business ecosystem. Is Investic a business information system? Justify your answer mapping relevant concepts from the module materials and relevant literature against the app description given in the previous section. * **Additional requirements analysis (20% of the coursework mark).** Before developing Investic , MoneyBrain performed an initial requirements analysis which led to the features presented in the Coursework Overview section. The start-up wants to expand the app’s target audience to include experienced investors who have not given prior consideration to ethics and want to start now. Design and document an appropriate requirements analysis process to capture the needs of this new audience segment. * **Business process and project management (10% of the coursework mark).** Design the appropriate strategy to develop the additional app features synthesised from the requirements elicited from the experienced investors who wish to begin trading ethically. Justify your strategy choice: map established methodologies from the module content and relevant literature against the specific nature of Investic. * **Data flow analysis (20% of the coursework mark).** Discuss the role of data flowing through Investic. Model the app’s data-related characteristics using relevant approaches covered in the taught content and relevant literature. * **Business integration** **(15% of the coursework mark)**. Propose a strategy to integrate Investic with other MoneyBrain applications.   **Presentation** **(group work, 25% of the coursework mark)** This is a **10-minute** oral summary of the work documented in the report. Use slides to accompany your talk, no more than two for each of the aspects covered in the report. **The presentation of each aspect carries** **5% of the coursework mark**. Keep the content of the slides concise and clear: use keywords and visuals, avoiding lengthy text (the presentation is meant to complement the report, not duplicate it). The talk should demonstrate your critical analysis skills, highlighting the thinking process underpinning the arguments made in the report. To that end, focus on your rationale, supporting your conclusions with evidence from the taught content and relevant literature. As is the case for the report, simply listing facts without the appropriate justification will make for a poor presentation. Allow every person in the group to narrate some of the slides; acknowledging individual contributions is essential. The presentation schedule is on Blackboard, under (2023-24 CS1BAC) Business Aspects of Computing, Assessment and Feedback Information. | |
| Recommended reading/ online sources:  The core content and supplementary material relevant to each aspect of the coursework (to be covered in both the report and the presentation) are located on Blackboard, under (2023-24 CS1BAC) Business Aspects of Computing, Learning and Teaching Activities and Resources:   |  |  | | --- | --- | | Business information system identification | Unit 2 | | Additional requirements analysis | Unit 4 | | Business process and project management | Units 5, 6 | | Data flow analysis | Unit 7 | | Business integration | Unit 8 |   The Learning and Development Centre provide numerous resources on [academic writing](https://www.aston.ac.uk/current-students/learning-development-centre/academic-writing-and-study-support) and [giving effective presentations](https://www.aston.ac.uk/current-students/learning-development-centre/workshops-and-tutorials). The Centre will be facilitating a guest lecture on working in groups (see Blackboard, under (2023-24 CS1BAC) Business Aspects of Computing, Learning and Teaching Activities and Resources, Unit 3). | |
| Key Dates:   |  |  | | --- | --- | | 25 Sep 2023 | Coursework set | | 25 – 29 Sep 2023 | **Supervised and independent group work.** Analyse brief. | | **Support and feedback.** Available during lecture, tutorial, and, on-demand, during staff office hours. | | 2 – 13 Oct 2023 | **Supervised and independent group work.** Draft first coursework aspect: Business information system identification (report and presentation). | | **Mock presentations.** Deliver group presentation on first coursework aspect (last tutorial in the time interval to the left). | | **Support and feedback.** Available during lectures, tutorials, and, on-demand, during staff office hours. Bespoke formative feedback provided on mock presentations. | | 16 Oct – 3 Nov 2023 | **Supervised and independent group work.**   * Address mock presentation feedback and complete first coursework aspect: Business information system identification (report and presentation). * Draft second coursework aspect: Additional requirements analysis (report and presentation). * Draft third coursework aspect: Business process and project management (report and presentation). Project management part only. | | **Checkpoint 1 presentations.** Deliver group presentation on first, second and (partial) third coursework aspects (last tutorial in the time interval to the left). | | **Support and feedback.** Available during lectures, tutorials, and, on-demand, during staff office hours. Bespoke formative feedback provided on checkpoint 1 presentations. | | 6 – 10 Nov 2023 | **Independent group work.** Use reading week to address checkpoint 1 feedback and improve coursework aspects one, two, and three (project management part only) in both report and presentation. | | **Support and feedback.** Available on-demand, during staff office hours. | | 13 Nov – 8 Dec 2023 | **Supervised and independent group work.**   * Draft third coursework aspect: Business process and project management (report and presentation). Business process management part only. * Draft fourth coursework aspect: Data flow analysis (report and presentation). * Draft fifth coursework aspect: Business integration (report and presentation). | | **Checkpoint 2 presentations.** Deliver group presentation on (partial) third, fourth, and fifth coursework aspects (last tutorial in the time interval to the left). | | **Support and feedback.** Available during lectures, tutorials, and, on-demand, during staff office hours. Bespoke formative feedback provided on checkpoint 2 presentations. | | 11 – 15 Dec 2023 | **Independent group work.** Address checkpoint 2 feedback and complete coursework aspects three (business process management part), four, and five, in both report and presentation. | | **Support and feedback.** Available on-demand, during staff office hours. | | **Final presentation delivery.** Deliver complete group presentation. | | 15 Dec 2023 | **Coursework submission.** Upload finished report and slides on Blackboard. | | 19 Jan 2023 | Expected feedback and provisional marks return date (on Blackboard). | |  |  | | |
| Submission Details:  **Report.** Upload one 3500-word (±10%) PDF or MS Word file per group, using the **Report** link in the Assessment Submission tab of the (2023-24 CS1BAC) Business Aspects of Computing Blackboard module. Use your preferred standard referencing style (Harvard, IEEE, Oxford, etc.) consistently throughout the report.  **Presentation slides.** Upload one PDF or MS PowerPoint file per group, containing 10 slides max, using the **Presentation slides** link in the Assessment Submission tab of the (2023-24 CS1BAC) Business Aspects of Computing Blackboard module. **The slides will be assigned a mark of 0 if you do not attend your final presentation slot.** The presentation schedule is available on Blackboard, under (2023-24 CS1BAC) Business Aspects of Computing, Assessment and Feedback Information. | |
| Individual marks calculation:  By default, the individual report mark of each team member will be identical to the group mark, on the assumption that everyone contributed equally. Same applies to the presentation mark. If team members put in different amounts of work, the report submission and the presentation one should each be accompanied by a note mentioning the specific individual contributions (these must be agreed within each group, as module tutors will not intervene). Individual report marks will be calculated as follows ( stands for the number of students in the group):   * Those team members with a contribution equal to or higher than 1/ (%) will be awarded the group mark. * Those team members with a contribution lower than 1/ (%) will be awarded a mark that is calculated using the formula below. | |

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| Marking Rubric:   |  |  | | --- | --- | | 0 - 39 | The report is mostly descriptive, with few or no elements of critical analysis. The arguments made in relation to the five aspects of the coursework are unconvincing, are supported by insufficient or no evidence, and lack the appropriate depth. The writing has major defects: regular errors of English, substantial repetition and/or irrelevance, significant gaps in the rationale leading to flawed conclusions, poor structure, and a standard of presentation (e.g., layout, fonts, headings, figures, references) that is so poor it actively detracts from understanding the message being conveyed. The presentation is superficial, incomplete, and delivered in a hesitant, unconvincing, and/or incoherent manner. | | 40 - 49 | The report is mostly descriptive, with some elements of critical analysis. There is an attempt at reflecting on the five aspects of the coursework, yet the conclusions being drawn fail to coalesce into a meaningful take-away message. The writing has some defects that do not detract from understanding the message being conveyed. The presentation provides limited insight, is incomplete, and delivered in a hesitant, unconvincing, and/or incoherent manner. | | 50 - 59 | There is a good balance between the descriptive and the analytical/reflective elements of the report. The arguments made in relation to the five aspects of the coursework are clearly articulated and accompanied by adequate evidence. The report is clearly structured and makes effective use of figures and other supporting artefacts. The writing defects are minor. The presentation provides the expected level of insight, is complete, and delivered in a confident, convincing, and coherent manner. | | 60 - 69 | There is a good balance between the descriptive and the analytical/reflective elements of the report. The arguments made in relation to the five aspects of the coursework are clearly articulated and accompanied by extensive evidence. The report is clearly structured and makes effective use of diagrams and other supporting artefacts. The writing defects are minor. The presentation provides substantial insight, is complete, and delivered in a confident, convincing, and coherent manner. | | 70 - 79 | There is a remarkably well-calibrated balance between the descriptive and the analytical/reflective elements of the report. The arguments made in relation to the five aspects of the coursework are clear, concise, and accompanied by particularly significant evidence, which has been carefully selected from an extensive body of literature. The report is structured in a highly intuitive manner and makes effective use of diagrams and other supporting artefacts. There are no writing defects. The presentation provides substantial insight, demonstrates a remarkable level of critical analysis, is complete, and delivered in a confident, convincing, and coherent manner. | | 80 - 100 | There is a remarkably well-calibrated balance between the descriptive and the analytical/reflective elements of the report. The arguments made in relation to the five aspects of the coursework are clear, concise, and feature elements of innovation. The narrative draws from an extensive and diverse pool of particularly significant evidence. The report is structured in a highly intuitive manner and makes excellent use of diagrams and other supporting artefacts. There are no writing defects. The presentation is elegant, provides substantial insight, demonstrates a remarkable level of critical analysis, is complete and delivered in a confident, convincing and coherent manner that can be described as highly engaging, innovative, and/or illuminating. | |