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| **Expression of Interest** | | |
| **Project Title** | Smart Receipt Spending Analyser | |
| **Organisation or Supervisor** | Capital One | |
| **Contact person (sponsor)** | Craig Burton | |
| **Contact email** | craig.burton@capitalone.com | |
| **Team Number:** | 29 | |
| **Team Members** | | |
| **Name** | **Email Address** | |
| Vishal Pittala | psyvp2@nottingham.ac.uk | |
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| **Description of Team Skills (You must provide clear evidence of to what extent the team has the Highly Desirable and where possible the Desirable Skills detailed on the Original Project form)** | | |
| (750 words Max)  Our team aims to minimise money spent on impulsive/non-essential shopping, especially for people with bad spending habits. According to Ladder and OnePoll(https://eu.usatoday.com/story/money/2019/05/07/americans-spend-thousands-on-nonessentials/39450207/), an average American spends $1,497 a month on non-essential items of which more than $100 are spent on impulse purchases. We believe that developing a tool that can categorize the spending habits of users can offer a great aid for them to reevaluate their spending habits.  There are many apps on the market that can group and save receipts such as "Smart Receipts by SmartReceiptsLLC". This app, for example, does not categorise essential items, nor even list out the items in the receipt. We believe that it would be useful to, including scanning and showing non-essential and essential items, to also show a realistic saving method. Those with issues in spending, will have to slowly break that habit, and this will involve some sort of plan that can be awarded and extended over a period of time, using a calendar of some form.  This can be part of improving their credit score as they will develop better spending habits. We know how hard it can be for people to get their credit score back up and believe that it is important to develop software that can facilitate this process as much as possible. Capital One cares about improving the credit score of users, and we hope that this shared interest will motivate us to develop the software to a high standard . We also appreciate the simple solution Capital One adopts to help the vulnerable, and plan to make the app as interactive and user-friendly as we can.  Our team has experience working with PHP to interface a dynamic website with MySQL, meaning we have a general understanding of website frameworks, including Javascript. We have used Material UI to design front-ends.  We have used python, the team has used libraries such as pandas and Numpy for Data and scikit-learn for training predictive AI models, such as neural networks and decision trees. Alan has further experience with AI, writing an essay and done AI work outside of education. Most of the team is undertaking the 2nd year AI module, so we are prepared to learn.  The team has experience in UI design in Java and Alfie in Lua and hosting web servers in Linux, which is a useful facet on managing a web app’s backend.  We will build a web app to achieve the system. We chose this initial approach as, due to the limited time, it would be implausible to develop two apps for both IOS and Android. Web apps themselves can be moulded to Progressive Web Apps for more seamless use in phones, and many companies already do this to streamline development, like Spotify.  We chose Svelte as our web framework. Of course, there are more conventional frameworks, like React or Vue, but Svelte has been built as a pre-compiled system that removes slowdown. However, the obvious challenge with Svelte is that its low-adoption results in less resources to learn from.  Svelte works well with node.js as its backend, and a possible framework can be express.js. For the history saving, an implementation of mysql can be used.  The difficult part will be find/training a model to perform OCR on receipts. This will involve first text recognition to find the text on the receipt, and then Pytorch performing OCR on these sections. PyTorch is a useful framework to apply machine learning for this.  We will use the agile process of Scrum with a Kanban board. The project can be divided into the milestones of:   * Creating a Front-End to display spending habits. * Producing an accurate OCR model for receipts. * Creating a backend that integrates with MySQL to save spending habits. * Some form of authentication. * Categorise spending to non-essential/essential.   We aim to have each facet of the project managed by sub teams, such that each sub team will share their knowledge. This will prevent slowdown if team members get ill or have troubles.  (Max 750 words) | | |
| **Date of Submission of EoI** | | 19th of October 2022 |
| **Date of Pitch** | | 26th of October 2022 |
| **Notification of award** | |  |

**Please make sure to submit a CV for each member of the team together with the EoI using the submission format available on Moodle.**