Request for Technology Fee Funds: FY20
NOTE: A separate request should be made for each initiative.

I.

Department Number/Department Name: | 360 | College of Computing

Title of Request *(please be brief):* Code Clustering for Individualizing Student Feedback

Amount of Request *(formula from detailed budget below):* **$30,000**

Type of Proposal: Atlanta   or   Dist Lrng/Non-Atl | Atlanta

Was this project request funded in FY19? | No | (Yes or No)

Are there installation/renovation costs associated with this request? | No | (Yes or No)

If "Yes" then indicate the source of approved funding:
(Note: Tech Fees are not allowed for installation/renovation)

Executive Summary of Request (100 words or less):
Purchasing a Software as a Service (SaaS) to assist the instructor and teaching assistants in generating immediate individualized feedback for students in CS1301 based on the structure and style of the code they submit to automatically evaluate exercises.

Specific class and/or lab initiative(s) if applicable:

Contact person for this request (incl. phone #): David Joyner, 404-429-2380

Responsible faculty for this request (incl. phone #) David Joyner, 404-429-2380

Indicate priority per department if applicable: Number ____ of ____

Indicate priority per college or unit: Number 2 of 9

II. Impact on Students - Provide course title, course number, and anticipated enrollments:

Titles/Numbers of Course(s) | CS1301: Introduction to Computing

Anticipated Enrollments

Graduate:	0	(per ____) sem or yr
Undergraduate:	640	(per year) sem or yr
Total:	640	

The estimated percent use of the resources in the item by:

Students	75%
Faculty	5%
Other	20%
Total:	100%

Brief explanation of how estimate was achieved.

For each problem that is created for individualized feedback, teaching assistants ('Other') must spend ~2 hours setting the problem up, and the instructor ~30 minutes reviewing.

NOTE: Other impacts on students should be described in narrative to include benefits to the students affected.

III. Detailed Budget - Requested Items by Category *List separately any equipment, software, and other allowable expenses (see Tech Fee Guidelines). There is a formula in the "total column" that multiplies the number of items times the unit price. You may enter a figure into the total column if the unit pricing is not applicable. If you need additional rows, contact the Budget Office to receive a modified form. Software or data license proposals should indicate how many years the item has been funded through student tech fees in narrative.*

Supporting documentation is required *- Include price justification in some form, such as quotations, published price lists, etc. as a separate PDF attachment. All supporting information should be in a single PDF.*

	Proposed Number of Items	Estimated Price per Unit	Total ($)
Sense SaaS access per semester	6	$5,000	$30,000
Total *(linked to the total amount of request line above)*			$30,000

Please return form via e-mail in Excel format to: techfees@business.gatech.edu. Supporting information only in a PDF file.

IV. Narrative - Provide narrative justification for your intended use of the technology fee funds. Include narrative on how the education or research of the students will be enhanced. To include curricular, co-curricular, and extracurricular benefits expected to accrue to students through provision of this resource, including students outside the unit. Briefly state how information regarding similar technology use elsewhere on campus to benefit from lessons learned, to standardize or differentiate, and to avoid duplication. Also include how the request aligns with the Strategic Plan of Georgia Tech.

In introductory Computer Science courses there is a proven benefit to students from seeing how alternate approaches could have succeeded at solving the same problem. Students also benefit from being required to solve a problem in multiple ways to generate more robust knowledge. Giving this style of project work and feedback, however, depends heavily on hands on time with a professor or TAs and hours spent grading and analyzing solutions. Conversely, both these types of learning activities are much more effective when the feedback or follow-on problems occur immediately during the problem-solving process rather than days or weeks after. To accomplish this, Sense has created a tool that allows for clustering of past student submissions into general approaches. Upon submitting a solution, students are then informed of what approach their own code took and what other approaches are possible. The instructor can also then require students to implement an alternate solution further cementing understanding. The College of Computing is proposing to create a pilot using the Sense software in association with the CS1301 - Online course. This course is taught to On Campus freshman using the online delivery system Open EdX. We believe that tools like Sense directly align with Georgia Tech's Creating the Next in Education's 'Initiative 4: Artificial Intelligence (AI) and Personalization', specifically "Pilots for mastery-learning and adaptive-learning platforms that can put the kind of technology that will allow customized delivery of material into the hands of learners". Sense will allow instructor's, even ones teaching large courses, to give timely individualized feedback to each student.

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